

Society and Environment

Bachelor of Science (BS)

Social and environmental problems are deeply intertwined. This major introduces students to the main approaches and theory for environmental social sciences including how social science tools can be applied to environmental problems and how social science theories contribute to understanding environmental problems. At the upper-division level, there are three major areas of concentration. Students are exposed to all three areas and choose to focus on one: US Environmental Policy and Management, Global Environmental Politics, or Justice and Sustainability.

Society and Environment graduates are well-prepared for careers in fields such as environmental consulting, education, health, or law; community, urban, or regional planning; and other related areas of environmentalism in public agencies, nonprofit conservation organizations, and private companies. Graduates are well-qualified for a variety of graduate programs, including law school.

Admission to the Major

Advice on admission for freshmen and transfer students can be found on the Rausser College of Natural Resources Admissions Guide (<http://guide.berkeley.edu/archive/2020-21/undergraduate/colleges-schools/natural-resources/#admissiontext>) page or the Prospective Student website (<https://nature.berkeley.edu/prospective-students/>). Freshman students may apply directly to the major, or they may select the Rausser College undeclared option and declare the major by the end of their fourth semester. Transfer students may apply directly to the major through the UC application.

Information for current Berkeley students who would like to declare the major after admission, including information on a change of major or change of college, please see chapter 6 of the Rausser College Undergraduate Student Handbook (<https://nature.berkeley.edu/handbook/>). (<https://nature.berkeley.edu/handbook/>)

Honors Program

Students with a cumulative grade point average (GPA) of 3.6 or higher may enroll in the Rausser College of Natural Resources honors program (H196) once they have reached upper-division standing. To fulfill the program requirements, students design, conduct, and report on an individual research project working with a faculty sponsor. For further information on the honors program, please see the Rausser website, <https://nature.berkeley.edu/honors> (<https://nature.berkeley.edu/honors/>).

Minor Program

There is no minor program in Society and Environment.

Other Majors and Minors Offered by the Department of Environmental Science, Policy, and Management

Conservation and Resource Studies (<http://guide.berkeley.edu/archive/2020-21/undergraduate/degree-programs/conservation-resource-studies/>) (Major and Minor)
Environmental Sciences (<http://guide.berkeley.edu/archive/2020-21/undergraduate/degree-programs/environmental-sciences/>) (Major only)

Ecosystem Management & Forestry (<http://guide.berkeley.edu/archive/2020-21/undergraduate/degree-programs/ecosystem-management-forestry/>) (Major and Minor)
Molecular Environmental Biology (<http://guide.berkeley.edu/archive/2020-21/undergraduate/degree-programs/molecular-environmental-biology/>) (Major only)
Food Systems (<http://guide.berkeley.edu/archive/2020-21/undergraduate/degree-programs/food-systems/>) (Minor only)

In addition to the University, campus, and college requirements listed on the College Requirements tab, students must fulfill the below requirements specific to their major program.

General Guidelines

1. All courses taken to fulfill the major requirements below must be taken for letter-graded credit, other than courses listed which are offered on a *Pass/No Pass* basis only. Other exceptions to this requirement are noted as applicable.
2. A minimum cumulative grade point average (GPA) of 2.0 is required.
3. A minimum GPA of 2.0 in upper-division major requirements is required.
4. At least 15 of the 36 required upper-division units must be taken in the Rausser departments (EEP, ERG, ES, ESPM, NAT RES, NST, PMB).
5. A maximum of 16 units of independent study (courses numbered 97, 98, 99, 197, 198, and 199) may count toward graduation, with a maximum of 4 units of independent study per semester.
6. No more than 1/3 of the total units attempted at UC Berkeley may be taken *Pass/No Pass*. This includes units in the Education Abroad Program and UC Intercampus Visitor or Exchange Programs.
7. A maximum of 4 units of physical education courses will count toward graduation.

For information regarding residency requirements and unit requirements, please see the College Requirements tab.

Lower Division Requirements

ESPM Environmental Science Core (cannot overlap with breadth)

Select one of the following: 4

ESPM 2	The Biosphere [3]
ESPM 6	Environmental Biology [3]
L & S C30V/ ESPM C10	Environmental Issues [4]

ESPM 15	Introduction to Environmental Sciences [3] (formerly ENV SCI 10)
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L & S/ESPM C46	Climate Change and the Future of California [4]
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ESPM Social Science Core (cannot overlap with breadth)

Select one of the following: 4

ESPM 5	FROM FARM TO TABLE: FOOD SYSTEMS IN A CHANGING WORLD [4]
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ESPM C22AC/ Fire: Past, Present and Future Interactions with the ANTHRO C12AC/ People and Ecosystems of California [4]
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L & S C30U/ ESPM C11	Americans and the Global Forest [4]
ESPM 50AC	Introduction to Culture and Natural Resource Management [4]
ESPM 60	Environmental Policy, Administration, and Law [4]

Math or Statistics 4

Select one of the following:

MATH 16A	Analytic Geometry and Calculus [3]
MATH 1A	Calculus [4]
MATH 10A	Methods of Mathematics: Calculus, Statistics, and Combinatorics [4]
STAT 2	Introduction to Statistics [4]
STAT C8	Foundations of Data Science [4]
STAT 20	Introduction to Probability and Statistics [4]
STAT 21	Introductory Probability and Statistics for Business [4]
PB HLTH 142	Introduction to Probability and Statistics in Biology and Public Health [4]

Economics ¹

Select one of the following:

ENVECON C1/ECON C3	Introduction to Environmental Economics and Policy [4]
ECON 1	Introduction to Economics [4]
ECON 2	Introduction to Economics--Lecture Format [4]

¹ The economics course may also fulfill the social & behavioral sciences breadth requirement.

Five-Course Breadth of Knowledge Requirement

Select one course from each of the five breadth categories below. Click here (<http://ls-advice.berkeley.edu/requirement/7breadth.html>) for complete listings. The American Cultures requirement may overlap with any of the following courses. These courses cannot overlap with other requirements. These classes must be taken for a letter grade.

- Social & Behavioral Sciences (3-4 units)
- International Studies (3-4 units)
- Physical Sciences (3-4 units)
- Arts & Literature, Historical Studies, or Philosophy & Values (3-4 units)
- Biological Science (3-4 units)

Upper Division Requirements

Environmental or Political Economics

Select one of the following:

CY PLAN 115	Urbanization in Developing Countries [4]
ECON C125/ ENVECON C1C	Environmental Economics [4]
ENE,RES 180	Ecological Economics in Historical Context [3]
ENVECON 100	Microeconomic Theory with Application to Natural Resources [4]
ENVECON C101/ ECON C125	Environmental Economics [4]
ENVECON 131	Globalization and the Natural Environment [3]

ENVECON 140 Economics of Race, Agriculture, and the Environment [3]

ENVECON 153 Population, Environment, and Development [3]

ENVECON 161 Advanced Topics in Environmental and Resource Economics [4]

GEOG 110 Critical Economic Geographies [4]

GEOG C112/ GLOBAL C100D4] Global Development: Theory, History, Geography [4]

GPP 115 Global Poverty: Challenges and Hopes [4]

POLECON 100 Classical Theories of Political Economy [4]

POLECON 101 Contemporary Theories of Political Economy [4]

POL SCI 126A International Political Economy [4]

POL SCI 139B Development Politics [4]

PUB POL C103 Wealth and Poverty [4]

Capstone Presentation

ESPM 194B	Capstone Course in Society and Environment (Research or poster presentation (final semester of the senior year))	1
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Area of Concentration Requirement

Students select a total of seven courses in the areas of concentration. In consultation with a faculty adviser, students choose their primary area of concentration and:

1. Select one of the ESPM courses in their primary area as their core course.
2. Select three additional courses from that area of concentration (ESPM or non-ESPM) to fulfill the primary area of concentration.
3. Choose three additional courses (ESPM or non-ESPM), with at least one course from each of the other two concentrations.

At least three of the seven courses (12 units) in the areas of concentration must come from the approved ESPM courses.

1. US Environmental Policy and Management

Approved ESPM courses

ESPM 102C	Resource Management	4
ESPM 102D	Climate and Energy Policy	4
ESPM 155AC	Sociology and Political Ecology of Agro-Food Systems	4
ESPM 160AC	American Environmental and Cultural History	4
ESPM 161	Environmental Philosophy and Ethics	4
ESPM 186	Management and Conservation of Rangeland Ecosystems	4

Approved non-ESPM courses

AMERSTD/ UGBA C172	History of American Business	3
UGBA 107	The Social, Political, and Ethical Environment of Business	3
CY PLAN 110	Introduction to City Planning	4
CY PLAN 113A	Economic Analysis for Planning	3
CY PLAN 113B	Community and Economic Development	4
CY PLAN 118AC	The Urban Community	4
CY PLAN 119	Planning for Sustainability	4
ENE,RES C100/ PUB POL C184	Energy and Society	4

ENE,RES 170	Environmental Classics	3
ENE,RES 175	Water and Development	4
ENE,RES/ ENVECON/IAS C176	Climate Change Economics	4
ENE,RES 180	Ecological Economics in Historical Context (formerly C180)	3
ENVECON/ ECON C102	Natural Resource Economics	4
ENVECON/IAS C118	Introductory Applied Econometrics	4
ENVECON 141	Agricultural and Environmental Policy	4
ENVECON 152	Advanced Topics in Development and International Trade	3
ENVECON 153	Population, Environment, and Development	3
ENVECON 162	Economics of Water Resources	3
ESPM C133/ GEOG C135	Water Resources and the Environment	3
GEOG 110	Critical Economic Geographies (formerly C110)	4
GEOG 130	Food and the Environment	4
HISTORY 120AC	American Environmental and Cultural History	4
HISTORY 122AC	Antebellum America: The Advent of Mass Society	4
HISTORY 124A	The Recent United States: The United States from the Late 19th Century to the Eve of World War II	4
LEGALST 100	Foundations of Legal Studies	4
LEGALST 141	Wall Street / Main Street	4
LEGALST 145	Law and Economics I	4
LEGALST 147	Law and Economics II	4
POL SCI 161	Public Opinion, Voting and Participation	4
PUB POL C103	Wealth and Poverty	4
PUB POL C184	Energy and Society	4
SOCIOL 110	Organizations and Social Institutions	4
SOCIOL 131AC	Race and Ethnic Relations: U.S. American Cultures	4
SOCIOL 144	Ethnic Politics	4
SOCIOL 145AC	Social Change: American Cultures (formerly 170AC)	4

2. Global Environmental Politics

Approved ESPM courses

ESPM 102D	Climate and Energy Policy	4
ESPM C135A	Migration in the Contemporary World: California and Beyond	4
ESPM 151	Society, Environment, and Culture	4
ESPM 162	Bioethics and Society	4
ESPM 165	International Rural Development Policy	4
ESPM C167	Environmental Health and Development	4
ESPM 168	Political Ecology	4
ESPM 169	International Environmental Politics	4

Approved non-ESPM Courses:

AFRICAM 131	Caribbean Societies and Cultures	3
ANTHRO 137	Energy, Culture and Social Organization	4
ANTHRO 139	Course Not Available	4

CY PLAN C139	Urban and Sub-national Politics in Developing Countries	4
EDUC 186AC	The Southern Border	4
ENE,RES/ ENVECON/IAS C176	Climate Change Economics	4
ESPM 152	Global Change Biology	3
ESPM 177A	Sustainable Water and Food Security	4
ETH STD 159AC	The Southern Border	4
GEOG 130	Food and the Environment	4
GEOG 137	Top Ten Global Environmental Problems	4
GEOG 138	Global Environmental Politics	4
GEOG 159AC	The Southern Border	4
GLOBAL 102	Critical Thinking In Global Studies	4
GLOBAL 123L	Perspectives For Sustainable Rural Development	4
LEGALST 140	Property and Liberty	4
LEGALST 179	Comparative Constitutional Law	4
LEGALST 182	Law, Politics and Society	4
NUSCTX W104	Food, Culture, and the Environment AC	3
POL SCI 138E	The Varieties of Capitalism: Political Economic Systems of the World	4
POL SCI C139	Urban and Sub-national Politics in Developing Countries (formerly 139D)	4
RHETOR 107	Rhetoric of Scientific Discourse (formerly 174)	4
SOCIOL 115G	Health in a Global Society	4
SOCIOL 127	Development and Globalization (formerly 172)	4
UGBA 193I	Business Abroad	4-6

3. Justice and Sustainability

Approved ESPM courses

ESPM 117	Urban Garden Ecosystems	4
ESPM C135A	Migration in the Contemporary World: California and Beyond	4
ESPM 155AC	Sociology and Political Ecology of Agro-Food Systems	4
ESPM 161	Environmental Philosophy and Ethics	4
ESPM 162A	Health, Medicine, Society and Environment	4
ESPM 163AC	Environmental Justice: Race, Class, Equity, and the Environment	4
ESPM C167/ PB HLTH C160	Environmental Health and Development	4
ESPM 168	Political Ecology	4

Approved non-ESPM Courses:

ANTHRO 148	Anthropology of the Environment	4
ECON 154	Economics of Discrimination	4
ENV DES 107	Design and Difference	4
ESPM 118	Agricultural Ecology	4
ESPM 158	Biodiversity Conservation in Working Landscapes	4
GWS 130AC	Gender, Race, Nation, and Health	4
GEOG C112/ GLOBAL C100D	Global Development: Theory, History, Geography	4
LD ARCH 130	Sustainable Landscapes and Cities	4
LEGALST 100	Foundations of Legal Studies	4
LEGALST 103	Theories of Law and Society	4

LEGALST 107	Theories of Justice	4
LEGALST 187	Diversity, Law & Politics	4
NATAMST 100	Native American Law	4
POL SCI 124C	Ethics and Justice in International Affairs	4
POLECON 150	Advanced Study in Political Economy of Industrial Societies (depends on topic)	4
PB HLTH 118	Nutrition in Developing Countries	3
PB HLTH C160/ ESPM C167	Environmental Health and Development	4
PB HLTH 196	Special Topics in Public Health (if topic is Nutrition in Developing Countries)	1-4
PUB POL 117AC	Race, Ethnicity, and Public Policy	4
SOCIO 115G	Health in a Global Society	4
SOCIO 137AC	Environmental Justice: Race, Class, Equity, and the Environment (formerly 128AC)	4
SOCIO 145AC	Social Change: American Cultures (formerly 170AC)	4
SOCIO 182	Elementary Forms of Racial Domination: International Perspectives (formerly 131B)	4

Reading and Composition (<http://guide.berkeley.edu/archive/2020-21/undergraduate/colleges-schools/natural-resources/reading-composition-requirement/>)

In order to provide a solid foundation in reading, writing and critical thinking all majors in the College require two semesters of lower division work in composition. Students must complete a first-level reading and composition course by the end of their second semester and a second-level course by the end of their fourth semester.

Foreign Language (<http://guide.berkeley.edu/archive/2020-21/undergraduate/colleges-schools/natural-resources/foreign-language-requirement/>): **EEP Majors only**

The Foreign Language requirement is only required by Environmental Economics and Policy (EEP) majors. It may be satisfied by demonstrating proficiency in reading comprehension, writing, and conversation in a foreign language equivalent to the second semester college level, either by passing an exam or by completing approved course work.

Quantitative Reasoning (<http://guide.berkeley.edu/archive/2020-21/undergraduate/colleges-schools/natural-resources/quantitative-reasoning-requirement/>): **EEP Majors only**

The Quantitative Reasoning requirement is only required by Environmental Economics and Policy (EEP) majors. The requirement may be satisfied by exam or by taking an approved course.

Undergraduate Breadth

Undergraduate breadth provide Berkeley students with a rich and varied educational experience outside of their major program and many students complete their breadth courses in their first two years. Breadth courses are built into the Rausser College major requirements and each major requires a different number of breadth courses and categories. The EEP major is the only college major that requires the entire 7 course breadth. Refer to the major snapshots on each Rausser College major page (<https://nature.berkeley.edu/advising/majors-minors/>) for additional information.

High School Exam Credit

Rausser College students may apply high school exam credit (Advanced Placement, International Baccalaureate, A-Level Exam) towards many College and Major Requirements. See AP Exam Equivalency Chart and Higher Level IB Exam Equivalency Chart (<https://nature.berkeley.edu/advising/courses-grades/#AP%20Exam%20Equivalency%20Chat>) in the Rausser College Student Handbook (<https://nature.berkeley.edu/handbook/>) for more information.

Unit Requirements

Students must complete at least 120 semester units of courses subject to certain guidelines:

- At least 36 units must be upper division courses, including a minimum of 15 units of upper division courses in the Rausser College.
- A maximum of 16 units of Special Studies coursework (courses numbered 97, 98, 99, 197, 198, or 199) is allowed towards the 120 units; a maximum of four is allowed in a given semester.
- A maximum of 4 units of Physical Education from any school attended will count towards the 120 units.
- Students may receive unit credit for courses graded P (including P/NP units taken through EAP) up to a limit of one-third of the total units taken and passed on the Berkeley campus at the time of graduation.

Semester Unit Minimum

All Rausser College students must enroll in at least 12 units each fall and spring semester.

Semester Unit Maximum

To request permission to take more than 20.5 units in a semester, please see the major adviser.

Semester Limit

Students admitted as freshmen must graduate within 8 fall/spring semesters at UC Berkeley. Students admitted as transfer students must graduate within 4 fall/spring semesters at UC Berkeley. Students who go on EAP and UCDC can petition for additional semesters. Summer session, UC Extension and non-UC study abroad programs do not count towards this semester limit. Students approved for double majors or simultaneous degrees in two colleges may be granted an additional semester. Rausser College does not limit the number of total units a student can accrue.

Senior Residence Requirement

Once you achieve and exceed 90 units (senior status), you must complete at least 24 of the remaining 30 units in residence at the Rausser College of Natural Resources over at least 2 semesters. To count as residence, a semester must consist of at least 6 passed units taken while the student is a member of Rausser. At least one of the two terms must be a fall or spring semester. Senior residence terms do not need to be completed consecutively. All courses offered on campus for the fall, spring, and summer terms by Berkeley departments and programs and all Berkeley online ("W") courses count. Inter-campus Visitor, Education Abroad Program, UC Berkeley Washington Program, and UC Berkeley Extension units do not count toward this requirement.

Students may use Summer Session to satisfy one semester of the Senior Residence Requirement, provided that 6 units of coursework are completed.

Modified Senior Residence Requirement

Participants in a fall, spring or summer UC Education Abroad Program (UCEAP), Berkeley Summer Abroad, or the UC Berkeley Washington Program may meet a modified Senior Residence Requirement by completing 24 of their final 60 semester units in residence (excluding UCEAP). At least 12 of these 24 units must be completed after senior status is reached. International travel study programs sponsored by Summer Sessions and education abroad programs offered outside of the UC system do not qualify for modified senior residence.

Most students automatically satisfy the residence requirement by attending classes here for four years. In general, there is no need to be concerned about this requirement, unless students go abroad for a semester or year or want to take courses at another institution or through University Extension during their senior year. In these cases, students should make an appointment to see an adviser to determine how they can meet the Senior Residence Requirement.

Grade Requirements

- A 2.0 UC GPA is required for graduation.
- A 2.0 average in all upper division courses required of the major program is required for graduation.
- A grade of at least C- is required in all courses for the major

Fall 2020 & Spring 2021 – Changes in Policies and Procedures

After much consultation across the colleges of UC Berkeley, and via our college Executive Committee, the following decisions have been made about the selection of the P/NP grade option (CPN) by undergraduate students during the Fall 2020 & Spring 2021 semesters for the Rausser College of Natural Resources.

- College Course Requirements: Reading and Composition, Quantitative Reasoning, and Foreign Language requirements normally satisfied with letter grades may be met with a passed (P) grade during the Fall 2020 semester. This does not include the system-wide Entry Level Writing requirement. College Writing R1A must be taken for a letter grade and completed with a C or better to fulfill the Entry Level Writing requirement.
- Requirements to Graduate: No changes in policy.
 - Rausser College students must have at least a 2.0 cumulative UC GPA to declare a Rausser College major.
 - Non-Rausser College students must have at least a 3.0 cumulative UC GPA to change to or add a Rausser College major.
 - Students must have at least a 2.0 cumulative UC GPA to graduate, both overall and in the upper-division courses required for the major.
- Academic Probation: The terms for Academic Probation (AP) have been modified.
 - Rausser CNR students currently in good standing who earn all "P" grades will remain in good standing.
 - Students currently in good standing who earn NP grades, Incompletes, or failing letter grades for more than 50% of units will be placed on academic probation and will be required to meet

with their college advisor and complete an Academic Success Plan for the subsequent semester.

- Students on AP must take all coursework for letter grades. Students on AP may be removed from probationary status with sufficient letter graded course work to raise their cumulative GPA above 2.0.
- Students on Academic Probation who do not attain sufficient letter-graded coursework to be removed from AP (ie. enough grade points to raise cumulative GPA above 2.0 cumulative GPA) will remain on AP for the subsequent semester and must complete an Academic Success Plan with their college advisor.
- Students on Academic Probation who earn NP grades, Incompletes, or failing letter grades for more than 50% of units will be Subject to Dismissal and will be required to meet with their college advisor and complete an Academic Success Plan for the subsequent semester.
- Term Probation: Students in this category are placed on academic probation if their GPA falls below 1.5 in any fall or spring semester ("Term"). To get back into good standing, you must earn a UC Berkeley term GPA of 2.0 the following regular semester (fall/spring) and maintain an overall GPA of 2.0. If you fail to meet these conditions, you will be subject to dismissal from the University. For Fall 2020 & Spring 2021, the terms for Term Probation have been modified.
 - Rausser CNR students currently in good standing who earn all "P" grades will remain in good standing and will not be placed on Term Probation.
- Transferring Credit: If you are taking coursework through another institution in Fall 2020 & Spring 2021, P grades earned will be accepted for all degree requirements. Note: This does not include the systemwide Entry Level Writing requirement. College Writing R1A must be taken for a letter grade and completed with a C or better to fulfill the Entry Level Writing requirement.

For additional information, please see Changes to Policies and Procedures for Fall 2020 & Spring 2021 (<https://nature.berkeley.edu/advising/AY-2020-2021-policy-adjustments/>).

S&E Freshman/Sophomore Sample Schedule

Freshman			
	Fall Units	Spring Units	
Reading and Composition course R1A		4 Reading and Composition course R1B	4
MATH 16A or STAT 2		3-4 Breadth	3-4
ESPM Core #1		3-4 ESPM Core #2	3-4
Elective, Seminar, and/or Berkeley Connect		1-4 Elective, Seminar, DeCal, and/or Berkeley Connect	1-4
	11-16		11-16
Sophomore			
	Fall Units	Spring Units	
ECON 1 or ENVECON C1		4 American Cultures	3-4
Breadth		3-4 Breadth	3-4

Breadth	3-4 Breadth	3-4
Elective, Seminar, DeCal, and/or Berkeley Connect	3-4 Elective, Seminar, DeCal, and/or Berkeley Connect	3-4
	13-16	12-16
Total Units: 47-64		

1 **Breadth Courses (select one 3-4 unit course from each of the five breadth categories below:**

- Biological Sciences
- Humanities: Arts & Literature, Historical Studies, or Philosophy & Values
- International Studies
- Physical Sciences
- Social & Behavioral Sciences

2 **Remaining Requirements for Junior & Senior Years:**

- Seven courses from the Area of Concentration Requirement
- One course in Environmental or Political Economics
- Senior Capstone Presentation ESPM 194B (senior year)

3 Freshman/Sophomore Seminars: see FSS website (<http://fss.berkeley.edu/>) for details

4 Berkeley Connect: see Berkeley Connect website (<http://www.berkeleyconnect.berkeley.edu/>) for details

5 DeCal Courses: see DeCal website (<https://decal.berkeley.edu/>) for details

S&E Transfer Sample Schedule

(assumes the completion of IGETC or all lower division requirements)

First Year			
	Fall Units	Spring Units	
S&E Course		3-4 S&E Course	3-4
S&E Course		3-4 S&E Course	3-4
Elective		3-4 Elective	3-4
Berkeley Connect/DeCal		1-4 Elective	3-4
	10-16		12-16
Second Year			
	Fall Units	Spring Units	
S&E Course		3-4 S&E Course	3-4
S&E Course		3-4 S&E Course	3-4
Elective		3-4 S&E Senior Capstone	1
Elective		3-4 Elective	3-4
	12-16		10-13
Total Units: 44-61			

S&E Transfer Sample Schedule - Major & Minor

(assumes the completion of IGETC or all lower division requirements)

First Year			
	Fall Units	Spring Units	
S&E Course		3-4 S&E Course	3-4
S&E Course		3-4 S&E Course	3-4
Minor Course		3-4 Minor Course	3-4
Berkeley Connect/DeCal		1-4 Minor Course	3-4
	10-16		12-16

Second Year			
	Fall Units	Spring Units	
S&E Course		3-4 S&E Course	3-4
S&E Course		3-4 S&E Course	3-4
Minor Course		3-4 S&E Senior Capstone	1
Minor Course		3-4 Minor Course	3-4
	12-16		10-13
Total Units: 44-61			

Learning Goals for the Major

The Society and Environment major develops students' capacities to theorize, analyze, interpret and influence social causes and consequences of environmental problems.

Society and Environment graduates gain an understanding of the complex interactions between social, technological, and natural systems—conceptually, analytically, operationally, and articulately—for their individually chosen environmental problems and solutions. Graduates do the following:

- Learn about social processes that affect environmental equity, productivity, and stability for diverse peoples and generations
- Form and link institutions of science, industry, technology, resource use, and societal governance
- Work across the operational scales of environmental management and policy from the local to global
- Shape operational responses, in policy and practice, to problems of environmental injustice, sustainability, and productivity

Graduates are expected to play effective and credible roles in the public, professional, and scientific arenas in which they choose to work. These arenas include, for example, the politics, policy, and management of urban, agricultural, forest, land, and water systems and the particular sets of socioeconomic, scientific, industrial, and governmental institutions these engage.

Major Maps help undergraduate students discover academic, co-curricular, and discovery opportunities at UC Berkeley based on intended major or field of interest. Developed by the Division of Undergraduate Education in collaboration with academic departments, these experience maps will help you:

- **Explore** your major and gain a better understanding of your field of study
- **Connect** with people and programs that inspire and sustain your creativity, drive, curiosity and success
- **Discover** opportunities for independent inquiry, enterprise, and creative expression
- **Engage** locally and globally to broaden your perspectives and change the world
- **Reflect** on your academic career and prepare for life after Berkeley

Use the major map below as a guide to planning your undergraduate journey and designing your own unique Berkeley experience.

View the Society and Environment Major Map PDF. (https://vcue.berkeley.edu/sites/default/files/society_and_environment.pdf)

In the Rausser College of Natural Resources, we provide holistic, individual advising services to prospective and current students who are pursuing majors and minors in our college. We assist with a range of topics including course selection, academic decision-making, achieving personal and academic goals, and maximizing the Berkeley experience.

If you are looking to explore your options, or you are ready to declare a major, double major, or minor, contact the undergraduate adviser for your intended major. Visit our website (<https://nature.berkeley.edu/advising/meet-cnr-advisors/>) to explore all of our advising services.

Society and Environment

Expand all course descriptions [+]Collapse all course descriptions [-]

ESPM 2 The Biosphere 3 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

An introduction to the unifying principles and fundamental concepts underlying our scientific understanding of the biosphere. Topics covered include the physical life support system on earth; nutrient cycles and factors regulating the chemical composition of water, air, and soil; the architecture and physiology of life; population biology and community ecology; human dependence on the biosphere; and the magnitude and consequences of human interventions in the biosphere.

The Biosphere: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

The Biosphere: Read Less [-]

ESPM 5 FROM FARM TO TABLE: FOOD SYSTEMS IN A CHANGING WORLD 4 Units

Terms offered: Summer 2021 Second 6 Week Session, Summer 2020 Second 6 Week Session, Summer 2019 Second 6 Week Session

This course explores the journey of the U.S. food supply from the farm to the family table. The ecology, management, and politics of farming under a global change scenario, the impact of our changing patterns of demand on food processing and retail, the opportunities and costs of exports, and the way different groups access, use, and consume food.

FROM FARM TO TABLE: FOOD SYSTEMS IN A CHANGING WORLD:

Read More [+]

Hours & Format

Summer: 6 weeks - 7.5 hours of lecture and 2.5 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Hunter, Iles, DeMaster

FROM FARM TO TABLE: FOOD SYSTEMS IN A CHANGING WORLD:

Read Less [-]

ESPM 6 Environmental Biology 3 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

Basic biological and ecological principles discussed in relation to environmental disruptions. Human interactions with the environment; their meaning for animals and plants. Discussion of basic ecological processes as a basis for understanding environmental problems and formulating strategies for their solution.

Environmental Biology: Read More [+]

Rules & Requirements

Prerequisites: One course in introductory college biology is recommended. Intended for nonscience majors

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Chapela

Environmental Biology: Read Less [-]

ESPM 9 Environmental Science Case Study Seminar 3 Units

Terms offered: Spring 2012, Spring 2011, Spring 2010

Utilizing a field intensive seminar format, the course will introduce lower division students to the process of addressing real environmental problems. Through a progression of case studies, students will explore a spectrum of research design and implementation approaches. By the end of the semester, they will be able to frame a researchable question, design a protocol for gathering relevant information, analyze the information, and derive an objective conclusion. Throughout the semester, students will present case study results in oral and written form.

Environmental Science Case Study Seminar: Read More [\[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of seminar per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Fairfax, Spencer

Environmental Science Case Study Seminar: Read Less [\[-\]](#)

ESPM C10 Environmental Issues 4 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

Relationship between human society and the natural environment; case studies of ecosystem maintenance and disruption. Issues of economic development, population, energy, resources, technology, and alternative systems.

Environmental Issues: Read More [\[+\]](#)

Rules & Requirements

Credit Restrictions: Students will receive no credit for C10 after taking 10.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1.5 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Welter

Also listed as: L & S C30V

Environmental Issues: Read Less [\[-\]](#)

ESPM C11 Americans and the Global Forest 4 Units

Terms offered: Spring 2017, Spring 2015, Spring 2014

This course challenges students to think about how individual and American consumer decisions affect forest ecosystems around the world. A survey course that highlights the consequences of different ways of thinking about the forest as a global ecosystem and as a source of goods like trees, water, wildlife, food, jobs, and services. The scientific tools and concepts that have guided management of the forest for the last 100 years, and the laws, rules, and informal institutions that have shaped use of the forests, are analyzed.

Americans and the Global Forest: Read More [\[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Also listed as: L & S C30U

Americans and the Global Forest: Read Less [\[-\]](#)

ESPM 15 Introduction to Environmental Sciences 3 Units

Terms offered: Fall 2021, Summer 2021 Second 6 Week Session, Spring 2021

Introduction to the science underlying biological and physical environmental problems, including water and air quality, global change, energy, ecosystem services, introduced and endangered species, water supply, solid waste, human population, and interaction of technical, social, and political approaches to environmental management. Introduction to Environmental Sciences: Read More [\[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 2.5 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Goldstein, Potts, Fung

Introduction to Environmental Sciences: Read Less [\[-\]](#)

ESPM C22AC Fire: Past, Present and Future Interactions with the People and Ecosystems of California 4 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

The course presents a diachronic perspective on human-fire interactions with local ecosystems in California that spans over 10,000 years. The course will provide an historical perspective on human-fire interactions at the landscape scale using a diverse range of data sources drawn from the fields of fire ecology, biology, history, anthropology, and archaeology. An important component includes examining how diverse cultures and ethnicity influenced how people perceived and used fire at the landscape scale in ancient, historical and modern times. The implications of these diverse fire practices and policies will be analyzed and the consequences they have had for transforming habitats and propagating catastrophic fires will be explored.

Fire: Past, Present and Future Interactions with the People and Ecosystems of California: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Stephens, Lightfoot

Also listed as: ANTHRO C12AC

Fire: Past, Present and Future Interactions with the People and Ecosystems of California: Read Less [-]

ESPM 24 Freshman Seminar 1 Unit

Terms offered: Fall 2021, Spring 2021, Fall 2020

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman Seminars are offered in all campus departments, and topics may vary from department to department and semester to semester. Enrollment limited to fifteen freshman.

Freshman Seminar: Read More [+]

Rules & Requirements

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1 hour of seminar per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: The grading option will be decided by the instructor when the class is offered. Final exam required.

Freshman Seminar: Read Less [-]

ESPM 39E Freshman/Sophomore Seminar 1 - 3 Units

Terms offered: Fall 2012

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Freshman/Sophomore Seminar: Read More [+]

Rules & Requirements

Prerequisites: Priority given to freshmen and sophomores

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 2-4 hours of seminar per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: The grading option will be decided by the instructor when the class is offered. Final exam required.

Freshman/Sophomore Seminar: Read Less [-]

ESPM 40 Insects and Human Society 3 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

An introduction to the diversity and natural history of insects in natural and human environments. The course examines the wonder of insects, their interactions with the living world, and their contributions to and impacts on human society.

Insects and Human Society: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of discussion per week

Summer: 8 weeks - 4 hours of lecture and 4 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Will, Almeida

Insects and Human Society: Read Less [-]

ESPM 42 Natural History of Insects 3 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

An outline of the main facts and principles of biology as illustrated by insects, with special emphasis on their relations to plants and animals, including humans.

Natural History of Insects: Read More [\[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Will

Natural History of Insects: Read Less [\[-\]](#)

ESPM 44 Biological Control 2 Units

Terms offered: Fall 2014, Fall 2013, Fall 2012

Regulation of populations of organisms, especially insects, through interactions with parasites, predators, pathogens, competitors. Discussion of examples from agricultural, forest, urban, and recreational environments.

Biological Control: Read More [\[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Mills

Biological Control: Read Less [\[-\]](#)

ESPM C46 Climate Change and the Future of California 4 Units

Terms offered: Spring 2021, Spring 2018, Spring 2016

Introduction to California geography, environment, and society, past and future climates, and the potential impacts of 21st-century climate change on ecosystems and human well-being. Topics include fundamentals of climate science and the carbon cycle; relationships between human and natural systems, including water supplies, agriculture, public health, and biodiversity; and the science, law, and politics of possible solutions that can reduce the magnitude and impacts of climate change.

Climate Change and the Future of California: Read More [\[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Ackerly, Sedlak, Silver, Weissman

Also listed as: L & S C46

Climate Change and the Future of California: Read Less [\[-\]](#)

ESPM 50AC Introduction to Culture and Natural Resource Management 4 Units

Terms offered: Fall 2021, Summer 2021 First 6 Week Session, Summer 2021 Second 6 Week Session

An introduction to how culture affects the way we use and manage fire, wildland and urban forests, rangelands, parks and preserves, and croplands in America. The basic concepts and tools for evaluating the role of culture in resource use and management are introduced and used to examine the experience of American cultural groups in the development and management of western natural resources.

Introduction to Culture and Natural Resource Management: Read More [\[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer:

6 weeks - 7.5 hours of lecture and 2.5 hours of discussion per week

8 weeks - 6 hours of lecture and 2 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: 50

Introduction to Culture and Natural Resource Management: Read Less [\[-\]](#)

ESPM 60 Environmental Policy, Administration, and Law 4 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

Introduction to U.S. environmental policy process focuses on history and evolution of political institutions, importance of property, federal and state roles in decision making, and challenges of environmental policy. Emphasis is on use of science in decision making, choices between regulations and incentives, and role of bureaucracy in resource policy. Case studies on natural resource management, risk management, environmental regulation, and environmental justice.

Environmental Policy, Administration, and Law: Read More [\[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 8 hours of lecture and 3 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Environmental Policy, Administration, and Law: Read Less [\[-\]](#)

ESPM 72 Introduction to Geographic Information Systems 3 Units

Terms offered: Summer 2021 Second 6 Week Session, Spring 2021, Summer 2020 Second 6 Week Session

Introduction to computer systems, data processing software for natural resources studies. Components of geographic information systems; concepts of surveying, mapping, and remote sensing as data sources; various methods of data processing and analysis including classification, map overlay, buffer analysis, topographic modeling, spatial interpolation, and map design with a GIS. Intensive hands-on practices with relevant computer software packages.

Introduction to Geographic Information Systems: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Three years of high school math

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 3 hours of laboratory per week

Summer: 6 weeks - 6.5 hours of lecture and 6 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Gong

Introduction to Geographic Information Systems: Read Less [\[-\]](#)

ESPM 88A Exploring Geospatial Data 2 Units

Terms offered: Spring 2017, Spring 2016

From interactive web maps to spatial data analysis, digital geographic data and information are becoming an important part of the data science landscape. Almost everything happens somewhere that can be mapped on the surface of the earth. In many cases the where matters as much to an analysis as the what and the why. Geospatial data analysis allows a researcher to consider location explicitly. This course provides an introduction to working with digital geographic data, or geospatial data. We will explore concepts of geospatial data representation, methods for acquisition, processing and analysis, and techniques for creating compelling geovisualizations. No prior knowledge is assumed or expected.

Exploring Geospatial Data: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: This course is meant to be taken concurrently with Computer Science C8/Statistics C8/Information C8: Foundations of Data Science. Students may take more than one 88 (data science connector) course if they wish, ideally concurrent with or after having taken the C8 course

Hours & Format

Fall and/or spring: 15 weeks - 0.5 hours of lecture, 0.5 hours of discussion, and 1 hour of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Kelly

Exploring Geospatial Data: Read Less [\[-\]](#)

ESPM 88B Data Sciences in Ecology and the Environment 2 Units

Terms offered: Spring 2016

Many of the greatest challenges we face today come from understanding and interacting with the natural world: from global climate change to the sudden collapse of fisheries and forests, from the spread of disease and invasive species to the unknown wealth of medical, cultural, and technological value we derive from nature. Advances in satellites and microsensors, computation, informatics and the Internet have made available unprecedented amounts of data about the natural world, and with it, new challenges of sifting, processing and synthesizing large and diverse sources of information. In this course, students will apply methods and understanding they gain in the Foundations course to realworld ecological and environmental data

Data Sciences in Ecology and the Environment: Read More [+]

Rules & Requirements

Prerequisites: This course is meant to be taken concurrently with Computer Science C8/Statistics C8/Information C8: Foundations of Data Science. Students may take more than one 88 (data science connector) course if they wish, ideally concurrent with or after having taken the C8 course

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Boettiger

Data Sciences in Ecology and the Environment: Read Less [-]

ESPM 90 Introduction to Conservation and Resource Studies Major 2 Units

Terms offered: Fall 2021, Spring 2021, Fall 2020

Introduction to the major, emphasizing each student's educational goals. Overview of ecological problems and contrasting approaches to solutions through institutional and community-based efforts. Required of all CRS sophomore majors and all entering off-campus transfer students to CRS major. Restricted to CRS majors. One field trip is normally required.

Introduction to Conservation and Resource Studies Major: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Instructors: Ignacio Chapela, Gordon Frankie

Introduction to Conservation and Resource Studies Major: Read Less [-]

ESPM 98 Directed Group Study in ESPM 1 - 3 Units

Terms offered: Fall 2016, Spring 2016, Fall 2015

Study of special topics that are not covered in depth in regular courses in the department.

Directed Group Study in ESPM: Read More [+]

Rules & Requirements

Prerequisites: Lower division standing; consent of instructor, adviser, and department chair

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-3 hours of directed group study per week

Summer:

6 weeks - 2.5-7.5 hours of directed group study per week

8 weeks - 1.5-5.5 hours of directed group study per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Directed Group Study in ESPM: Read Less [-]

ESPM 98BC Berkeley Connect 1 Unit

Terms offered: Fall 2021, Spring 2021, Fall 2020

Berkeley Connect is a mentoring program, offered through various academic departments, that helps students build intellectual community. Over the course of a semester, enrolled students participate in regular small-group discussions facilitated by a graduate student mentor (following a faculty-directed curriculum), meet with their graduate student mentor for one-on-one academic advising, attend lectures and panel discussions featuring department faculty and alumni, and go on field trips to campus resources. Students are not required to be declared majors in order to participate.

Berkeley Connect: Read More [+]

Rules & Requirements

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Berkeley Connect: Read Less [-]

ESPM 99 Supervised Independent Study and Research 1 - 3 Units

Terms offered: Spring 2021, Fall 2016, Spring 2016

Supervised independent study or research on topics relevant to department that are not covered in depth by other courses. Open to students in good standing who, in consultation with a faculty sponsor, present a proposal with clearly formulated objectives and means of implementation. Intended for exceptional students.

Supervised Independent Study and Research: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Lower division standing (3.4 GPA or better), consent of instructor, adviser, and department chair. Usually restricted to ESPM majors

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of independent study per week

Summer:

6 weeks - 1-5 hours of independent study per week

8 weeks - 1-4 hours of independent study per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Supervised Independent Study and Research: Read Less [\[-\]](#)

ESPM 100 Environmental Problem Solving 4 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

Analysis of contrasting approaches to understanding and solving environmental and resource management problems. Case studies and hands-on problem solving that integrate concepts, principles, and practices from physical, biological, social, and economic disciplines. Their use in environmental policies and resource and management plans.

Environmental Problem Solving: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: One course in ecology; one course in mathematics or statistics; one course in a social science or economics

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1.5 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Frankie

Environmental Problem Solving: Read Less [\[-\]](#)

ESPM 100ES Introduction to the Methods of Environmental Science 4 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

Introduction to basic methods used in environmental research by biological, physical, and social scientists; designed to teach skills necessary to conduct independent thesis research in the required senior seminar, 196A-196B/196L. Topics include development of research questions, sampling methods, experimental design, statistical analysis, scientific writing and graphics, and introductions to special techniques for characterizing environmental conditions and features. This course is the prerequisite to 196A.

Introduction to the Methods of Environmental Science: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Completion of upper division statistics requirement. Open only to declared Environmental Sciences majors

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture, 1 hour of discussion, and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Instructor: Battles

Introduction to the Methods of Environmental Science: Read Less [\[-\]](#)

ESPM 102B Natural Resource Sampling 2 Units

Terms offered: Fall 2019, Fall 2018, Fall 2017

This course is designed to introduce students to the major sampling systems used in natural resources and ecology. It also introduces students to important sampling and measurement concepts in grassland, forest, wildlife, insect, soil, and water resources. May be taken without laboratory course 102BL.

Natural Resource Sampling: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Statistics 2 or 20

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Biging

Natural Resource Sampling: Read Less [\[-\]](#)

ESPM 102BL Laboratory in Natural Resource Sampling 2 Units

Terms offered: Fall 2019, Fall 2018, Fall 2017

This laboratory course is designed to introduce students to the major sampling systems used in natural resources and ecology. Field data is collected with various important sampling designs and analyzed. Mean values and confidence intervals are constructed from the data collected in this course. This course must be taken in conjunction with lecture course 102B.

Laboratory in Natural Resource Sampling: Read More [+]

Rules & Requirements

Prerequisites: Statistics 2 or 20

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Biging

Laboratory in Natural Resource Sampling: Read Less [-]

ESPM 102C Resource Management 4 Units

Terms offered: Spring 2021, Summer 2020 Second 6 Week Session, Spring 2020

Presents concept and practical approaches to public and private natural resource management decision making. The focus is on goals, criteria, data, models, and technology for quantifying and communicating the consequences of planning options. A range of contemporary air, soil, wetland, rangeland, forest, social, economic, and ecosystem management problems is addressed.

Resource Management: Read More [+]

Rules & Requirements

Prerequisites: Precalculus. 156, 184, and 70 are recommended

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 3 hours of laboratory per week

Summer: 6 weeks - 7.5 hours of lecture and 7.5 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Resource Management: Read Less [-]

ESPM 102D Climate and Energy Policy 4 Units

Terms offered: Fall 2020, Spring 2020, Spring 2019

This intermediate level course engages with both the politics and the design of climate and clean energy policy, with a focus on the United States. Key themes include political strategies to climate change, the choice of policy instruments, the role of various state actors and interest groups in policy making, the interaction of policy and low-carbon technology markets, and the US and global politics. The course combines the study of analytical concepts with in-depth case studies.

Climate and Energy Policy: Read More [+]

Rules & Requirements

Prerequisites: One of the following is required: - ESPM 60 Environmental Policy, Administration, and Law - ENVECON C1 Introduction to Environmental Economics and Policy, - POL SCI 1 Introduction to American Politics, or - Consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 8 hours of lecture and 2 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Meckling

Climate and Energy Policy: Read Less [-]

ESPM C103 Principles of Conservation Biology 4 Units

Terms offered: Fall 2021, Summer 2021 Second 6 Week Session, Fall 2020

A survey of the principles and practices of conservation biology. Factors that affect the creation, destruction, and distribution of biological diversity at the level of the gene, species, and ecosystem are examined. Tools and management options derived from ecology and evolutionary biology that can recover or prevent the loss of biological diversity are explored.

Principles of Conservation Biology: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Biology 1A-1B or equivalent

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1.5 hours of discussion per week

Summer: 6 weeks - 6.5 hours of lecture and 3 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Beissinger

Formerly known as: Integrative Biology C156, Environ Sci, Policy, and Management C103

Also listed as: INTEGBI C156

Principles of Conservation Biology: Read Less [\[-\]](#)

ESPM C104 Modeling and Management of Biological Resources 4 Units

Terms offered: Fall 2018, Fall 2017, Fall 2015, Fall 2014

Models of population growth, chaos, life tables, and Leslie matrix theory. Harvesting and exploitation theory. Methods for analyzing population interactions, predation, competition. Fisheries, forest stands, and insect pest management. Genetic aspects of population management. Mathematical theory based on simple difference and ordinary differential equations. Use of simulation packages on microcomputers (previous experience with computers not required).

Modeling and Management of Biological Resources: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: A course that includes differential and integral calculus

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 2 hours of laboratory per week

Summer: 6 weeks - 6.5 hours of lecture and 4 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Getz

Also listed as: ENVECON C115

Modeling and Management of Biological Resources: Read Less [\[-\]](#)

ESPM 105A Sierra Nevada Ecology 4 Units

Terms offered: Summer 2021 8 Week Session, Summer 2019 10 Week Session, Summer 2018 8 Week Session

Introduction to silvicultural theory, forest operations, and utilization and manufacture of forest products. Evaluation of silviculture for managing forest stands for multiple objectives including regeneration, stand density control, forest growth, genetic improvement, and prescribed burning. Introduction to harvest and access systems, wood structure and quality, and manufacture of forest product. Field trips and lectures to local areas illustrating different approaches to forest problems.

Sierra Nevada Ecology: Read More [+]

Rules & Requirements

Prerequisites: Eight hours biology

Hours & Format

Summer: 8 weeks - 10 hours of lecture and 30 hours of fieldwork per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: McBride

Sierra Nevada Ecology: Read Less [-]

ESPM 105B Forest Measurements 1 Unit

Terms offered: Summer 2021 8 Week Session, Summer 2019 10 Week Session, Summer 2018 8 Week Session

This course teaches students how to use common forestry tools, maps, and various sampling methods to collect information about the forest environment. Thirty percent of the time is spent in the classroom learning about the techniques and working up field data. The remaining time is spent in the field applying these techniques in real world settings. Skills taught will include tree and plot measurement procedures, map reading, and simple field orienteering principles.

Forest Measurements: Read More [+]

Rules & Requirements

Prerequisites: 105A

Hours & Format

Summer: 8 weeks - 12 hours of lecture and 18 hours of fieldwork per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Forest Measurements: Read Less [-]

ESPM 105C Silviculture and Utilization 3 Units

Terms offered: Summer 2021 8 Week Session, Summer 2019 10 Week Session, Summer 2018 8 Week Session

Introduction to silvicultural theory, forest operations, and utilization and manufacture of forest products. Evaluation of silviculture for managing forest stands for multiple objectives including regeneration, stand density control, forest growth, genetic improvement, and prescribed burning. Introduction to harvest and access systems, wood structure and quality, and manufacture of forest product. Field trips and lectures to local areas illustrating different approaches to forest problems.

Silviculture and Utilization: Read More [+]

Rules & Requirements

Prerequisites: 105A, 105B

Hours & Format

Summer: 8 weeks - 13 hours of lecture and 24 hours of fieldwork per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: O'Hara

Silviculture and Utilization: Read Less [-]

ESPM 105D Forest Management and Assessment 3 Units

Terms offered: Summer 2021 8 Week Session, Summer 2019 10 Week Session, Summer 2018 8 Week Session

Develop skills in evaluating forests and developing management strategies to meet ownership objectives. Develop integrated forest management plan for 160 acre parcel. During first week, inventory and assess ecological condition of the assigned parcel. During second week, develop comprehensive integrated forest resource plan, integrating water, wood, wildlife, range, fisheries, and recreation. Oral reports in both an office and field setting required and written management plan.

Forest Management and Assessment: Read More [+]

Rules & Requirements

Prerequisites: 105A, 105B, and 105C

Hours & Format

Summer: 8 weeks - 34 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Forest Management and Assessment: Read Less [-]

ESPM C105 Natural History Museums and Biodiversity Science 3 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

(1) survey of museum resources, including strategies for accession, conservation, collecting and acquiring material, administration, and policies; (2) strategies for making collections digitally available (digitization, databasing, georeferencing, mapping); (3) tools and approaches for examining historical specimens (genomics, isotopes, ecology, morphology, etc); and (4) data integration and inference. The final third of the course will involve individual projects within a given museum.

Natural History Museums and Biodiversity Science: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructors: Gillespie, Mishler, Will, Marshall, McGuire

Also listed as: INTEGBI C105

Natural History Museums and Biodiversity Science: Read Less [-]

ESPM 106 American Wildlife: Management and Policy in the 21st Century 3 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

This course will introduce the history of key wildlife management and policy paradigms, such as parks and protected areas, threatened and endangered species protections, and state wildlife management. We will then explore in depth a number of species case studies in the Greater Yellowstone Ecosystem, a major laboratory for wildlife science, management and policy. The course will draw on lectures, readings, discussions, and guest perspectives. The course will help students majoring in related fields to prepare for careers in wildlife science and related conservation, management, and policy efforts; but students of any major should come away with a better understanding of key issues facing iconic American wildlife species. American Wildlife: Management and Policy in the 21st Century: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Middleton

American Wildlife: Management and Policy in the 21st Century: Read Less [-]

ESPM C107 Biology and Geomorphology of Tropical Islands 13 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019, Fall 2018

Natural history and evolutionary biology of island terrestrial and freshwater organisms, and of marine organisms in the coral reef and lagoon systems will be studied, and the geomorphology of volcanic islands, coral reefs, and reef islands will be discussed. Features of island biogeography will be illustrated with topics linked to subsequent field studies on the island of Moorea (French Polynesia).

Biology and Geomorphology of Tropical Islands: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 12 hours of lecture and 6 hours of fieldwork per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Also listed as: INTEGBI 158LF

Biology and Geomorphology of Tropical Islands: Read Less [-]

ESPM 108A Trees: Taxonomy, Growth, and Structures 3 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

Study of trees and associated woody species including their taxonomy and distribution, modes of shoot growth and diameter growth, and stem structure. Modes of stem structure and growth will be considered in relation to habitat and life cycles, and to suitability for timber value. Instruction in oral communication. Oral presentation required.

Trees: Taxonomy, Growth, and Structures: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Dodd

Trees: Taxonomy, Growth, and Structures: Read Less [-]

ESPM 108B Environmental Change Genetics 3 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

This course will examine the consequences of environmental change on the levels and distribution of genetic diversity within species. Students will be introduced to methods of analysis and their application to organisms from a range of ecosystems. The fate of populations under rapid environmental change will be assessed in the light of dispersal and adaptation (genetic and epigenetic) potential. Students will learn to use population genetics software to evaluate molecular data.

Environmental Change Genetics: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Biology 1A-1B or equivalents

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Dodd

Environmental Change Genetics: Read Less [\[-\]](#)

ESPM 109A Island and Coral Reef Resilience and Ecosystem Services 3 Units

Terms offered: Prior to 2007

Students will learn the fundamentals of island and reef biology, geology, marine ecology and their inter-connectedness, as well as the physical and biological forces shaping and maintaining these ecosystems. The course will involve a significant amount of time in the field to expose students to the different island habitats and explore the ecosystem services provided by island habitats to local peoples and beyond. Students will interact directly with local people to learn about local perspectives on the value of these systems.

Island and Coral Reef Resilience and Ecosystem Services: Read More [\[+\]](#)

Objectives & Outcomes

- Course Objectives:**
1. To provide fundamentals of island and reef biology, geology, marine ecology and their inter-connectedness, as well as the physical and biological forces shaping and maintaining these ecosystems.
 2. To experience in the field the different island habitats and explore the ecosystem services provided by island habitats to local peoples and beyond.
 3. To interact directly with local people to learn about local perspectives on the value of these systems.

- Student Learning Outcomes:**
1. Students will be able to summarize the fundamentals of Sustainability Science in the context of oceanography, geoscience, genetics, ecology, anthropology, economics, statistics and data science.
 2. Students will be able to demonstrate a quantitative and qualitative understanding of interactions among individual organisms and between species and their biotic and abiotic environment.
 3. Students will be able to design experiments to understand the importance and inter-connectedness of biological and physical forces that shape and maintain island ecosystems.
 4. Students will be able to interpret the value of ecosystem services that islands provide.
 5. Students will be able to articulate the perspective of local people on the value of island ecosystems based on their first hand experiences.
 6. Students will be able to investigate and communicate the connections between the biological and social sciences and humanities as they affect sustainable development.

Hours & Format

Fall and/or spring: 3 weeks - 15 hours of lecture and 15 hours of fieldwork per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Island and Coral Reef Resilience and Ecosystem Services: Read Less [\[-\]](#)

ESPM 109B Polynesian Culture and Society 3 Units

Terms offered: Prior to 2007

This course is based at the Atitia Community Center adjacent to the Gump Station and on Tetiaroa. Students will learn about the history of the peopling of Oceania, and the waves of exploration and interaction that have shaped the Pacific. Students will be immersed into the way in which the first peoples of these islands understand and interact with their island homes, from a traditional to modern perspective, and with insights on human-environment interactions. Students will be presented with necessary historical and cultural context including basic language training, archeological field trips and interactions with local youth and elders at the Atitia Center and beyond to learn about local customs, traditions and attitude.

Polynesian Culture and Society: Read More [+]

Objectives & Outcomes

Course Objectives: 1. To experience Polynesian atoll culture.
2. To provide in immersion in life of first peoples from a traditional to modern perspective, and with insights on human-environment interactions.
3. To present necessary historical and cultural context including basic language training, archeological field trips and interactions with local youth and elders at the Atitia Center and beyond to learn about local customs, traditions and attitude.

Student Learning Outcomes: 1. Students will gain an understanding of Oceania as a whole and Tahiti's place within it.
2. Students will be able to interpret basic languages and legends of Polynesian culture.
3. Students will be able to compare atoll and island culture from both traditional and modern perspectives.
4. Students will be able to articulate challenges to sustainability for island cultures.
5. Students will gain an appreciation of traditional ecological knowledge and how it shapes Tahitian culture.

Hours & Format

Fall and/or spring: 3 weeks - 15 hours of lecture and 15 hours of fieldwork per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Polynesian Culture and Society: Read Less [-]

ESPM 109C Issues in Biodiversity 3 Units

Terms offered: Prior to 2007

An overview of the major issues facing biodiversity globally today including habitat destruction, pollution, invasive species and disease, and examine how these issues are affecting island nations with a focus on French Polynesia. This course will make extensive use of the Biocode Project database to examine biodiversity on Moorea, and discuss genetic resilience and conservation technologies. We will then explore local attitudes and perspectives about these issues and examine local biodiversity initiatives.

Issues in Biodiversity: Read More [+]

Objectives & Outcomes

Course Objectives: 1. To review of the major issues facing biodiversity globally today including habitat destruction, pollution, invasive species and disease.
2. To experience how these issues are affecting island nations with a focus on French Polynesia.
3. To use the Biocode Project database to examine biodiversity on Moorea, and discuss genetic resilience and conservation technologies.
4. To explore local attitudes and perspectives about these issues and examine local biodiversity initiatives.

Student Learning Outcomes: 1. Students will be able to recognize species within some particular group of organisms and interpret key aspects of their ecology, phylogeny, and conservation needs from both a modern scientific approach as well as that of traditional ecological knowledge.
2. Students will be able to articulate the goals and value of fundamental ecological and genetic observatories for sustainability science.
3. Students will obtain skills of database use and visualization.
4. Students will be able to design and evaluate initiatives with the goal to conserve biodiversity.

Hours & Format

Fall and/or spring: 3 weeks - 15 hours of lecture and 15 hours of fieldwork per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Issues in Biodiversity: Read Less [-]

ESPM 109D Environmental Planning, Management, and Policy 3 Units

Terms offered: Prior to 2007

Students will be given an overview of the state of the field, as well as an understanding of current theory and practice; including western approaches and indigenous environmental management of terrestrial and marine resources. Rahui, a traditional Polynesian marine conservation practice will be examined through interaction with local communities that use it. Students will also learn about EU, Pacific-wide and international funding and conservation management initiatives affecting the lives and environment of Polynesians and people worldwide.

Environmental Planning, Management, and Policy: Read More [\[+\]](#)

Objectives & Outcomes

Course Objectives: 1. To provide overview of the state of environment planning, management, and policy, as well as an understanding of current theory and practice; including western approaches and indigenous environmental management of terrestrial and marine resources.

2. To examine, Rahui, a traditional Polynesian marine conservation practice, through interaction with local communities that use it, and the French Polynesian division of the Pew Charitable Trust.
3. To learn about EU, Pacific-wide and international funding and conservation management initiatives affecting the lives and environment of Polynesians.

Student Learning Outcomes: 1. Students will be able to identify, interpret, and communicate sustainability ideas, needs and programs to others in different cultural contexts and multilingual societies, demonstrating effective scientific communication skills through development and delivery of oral presentations and written reports and case studies.

2. Students will be able to articulate the state of environment planning, management, and policy, as well as an understanding of current theory and practice; including western approaches and indigenous environmental management of terrestrial and marine resources.
3. Students will be able to interpret elements of modern marine conservation practice and how different agencies are necessary for effective action.
4. Students will be able to evaluate effectiveness of EU, Pacific-wide and international funding and conservation management initiatives affecting the lives and environment of local peoples.

Hours & Format

Fall and/or spring: 3 weeks - 15 hours of lecture and 15 hours of fieldwork per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Environmental Planning, Management, and Policy: Read Less [\[-\]](#)

ESPM 109E Data Science, Communication and Professionalism 3 Units

Terms offered: Prior to 2007

The course will provide the fundamentals of data science across all disciplines and put them into practice on a project relevant to Island Sustainability. Exercises and group projects will hone oral, written, physical, and multimedia communication skills, with an emphasis on communicating for collaboration and outreach. Professional and ethical behavior will be emphasized in the context of Island Sustainability. Instruction will be primarily related to lecture material but will also cover issues related to conducting fieldwork, interacting with local/host communities, etc.

Data Science, Communication and Professionalism: Read More [\[+\]](#)

Objectives & Outcomes

- Course Objectives:** 1. To understand the fundamentals of data science across all disciplines and put them into practice on a project relevant to Island Sustainability.
2. To develop oral, written, physical, and multimedia communication skills, with an emphasis on communicating for collaboration and outreach.
 3. To understand and practice professional and ethical behavior in the context of Island Sustainability.

Student Learning Outcomes: 1. Students will be able to identify, interpret, and communicate sustainability ideas, needs and programs to others in different cultural contexts and multilingual societies, demonstrating effective scientific communication skills through development and delivery of oral presentations and written reports and case studies.

2. Students will be able to articulate the state of environment planning, management, and policy, as well as an understanding of current theory and practice; including western approaches and indigenous environmental management of terrestrial and marine resources.
3. Students will be able to interpret elements of modern marine conservation practice and how different agencies are necessary for effective action.
4. Students will be able to evaluate effectiveness of EU, Pacific-wide and international funding and conservation management initiatives affecting the lives and environment of local peoples.

Hours & Format

Fall and/or spring: 3 weeks - 15 hours of lecture and 5 hours of fieldwork per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternate method of final assessment during regularly scheduled final exam group (e.g., presentation, final project, etc.).

Data Science, Communication and Professionalism: Read Less [\[-\]](#)

ESPM 110 Primate Ecology 4 Units

Terms offered: Spring 2011, Spring 2010, Spring 2008

This course examines the comparative ecology of sympatric primate species in forests of Central and South America, Africa, and Southeast Asia. In addition to primate ecology, students will master comparative information on the three main tropical forest regions of the world and examine the impact of selective logging on primate densities and diversities in each area.

Primate Ecology: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Milton

Primate Ecology: Read Less [-]

ESPM C110A Ecological Analysis 4 Units

Terms offered: Fall 2021

This course focuses on natural factors of the environment that are fundamental to ecosystem management, land use planning and landscape design and their relationships to one another in different terrestrial ecosystems, from predominantly natural to predominantly anthropogenic. Lectures explore the key concepts on ecosystem structure, function and dynamics and discuss different types of ecological data, their interpretation and visualization that can aid in landscape research, planning and design workflow. Laboratory sections advance lecture topics by providing hands-on training in common types of ecosystem analyses using quantitative methods and geospatial tools.

Ecological Analysis: Read More [+]

Objectives & Outcomes

Course Objectives: Develop an understanding of natural factors of the environment that are fundamental to ecosystem management, landscape design and land use planning and common approaches for their assessment and analysis of their relationships to one another.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 2 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Also listed as: LD ARCH C110A

Ecological Analysis: Read Less [-]

ESPM 111 Ecosystem Ecology 4 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

This course will develop principles of ecosystems ecology, emphasizing terrestrial ecosystems, and will consider how these principles apply to ecosystem recovery and to regional and global fluxes of carbon and nutrients.

Ecosystem Ecology: Read More [+]

Rules & Requirements

Prerequisites: Biology 1B

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Baldocchi, Silver

Formerly known as: C111, Integrative Biology C155

Ecosystem Ecology: Read Less [-]

ESPM 112 Microbial Ecology 3 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

Introduction to the ecology of microorganisms. Topics include the ecology and evolution of microbes and their relationship with each other and the environment. The role and function of microbes in several ecosystems is also discussed.

Microbial Ecology: Read More [+]

Rules & Requirements

Prerequisites: Biology 1A and Biology 1B; Molecular and Cell Biology 102 is recommended

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Almeida, Banfield

Microbial Ecology: Read Less [-]

ESPM 112L Microbial Metagenomic Data Analysis Lab 1 Unit

Terms offered: Spring 2021, Spring 2020, Spring 2019

We will teach students how to perform genome-resolved metagenomics.

We will start with raw data in the form of DNA sequencing reads, assemble the data, reconstruct genomes for coexisting organisms, evaluate overall community composition (which organisms are present and at what abundance levels), predict metabolic capacities, calculate growth rates, and investigate changes in the community over time. Working in pairs, the students will analyze real, unpublished data, identify an interesting question and investigate it. Evaluation is based on a final presentation of research findings.

Microbial Metagenomic Data Analysis Lab: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Concurrent enrollment in Environmental Science Policy and Management 112 will be required for enrollment in Environmental Science Policy and Management 112L. Biology 1A and Biology 1B; Molecular and Cell Biology 102 is recommended

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternate method of final assessment during regularly scheduled final exam group (e.g., presentation, final project, etc.).

Instructors: Almeida, Banfield

Microbial Metagenomic Data Analysis Lab: Read Less [\[-\]](#)

ESPM 113 Insect Ecology 3 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

Ecology of insects: interactions with the physical environment; structure and functioning of insect populations and communities; behavioral ecology of predator-prey interactions; plant-insect interactions; social insects; pollination biology; applied insect ecology.

Insect Ecology: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Biology 1B or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Mills

Insect Ecology: Read Less [\[-\]](#)

ESPM 114 Wildlife Ecology 3 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

Introduction to wildlife ecology and its relationship to management programs. Includes population, community, and ecosystem levels of organization, followed by selected case studies.

Wildlife Ecology: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Upper division or graduate standing

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 6.5 hours of lecture and 2 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Brashares

Wildlife Ecology: Read Less [\[-\]](#)

ESPM 115B Biology of Aquatic Insects 2 Units

Terms offered: Fall 2011, Fall 2009, Spring 2009

Identification and ecology of aquatic insects, including their role as indicators of environmental quality.

Biology of Aquatic Insects: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Introductory course in a biological science

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Resh

Biology of Aquatic Insects: Read Less [\[-\]](#)

ESPM 115C Fish Ecology 3 Units

Terms offered: Fall 2011, Fall 2010, Fall 2009

Introduction to fish ecology, with particular emphasis on the identification and ecology of California's inland fishes. This course will expose students to the diversity of fishes found in California, emphasizing the physical (e.g., temperature, flow), biotic (e.g., predation, competition), and human-related (e.g., dams, fisheries) factors that affect the distribution, diversity, and abundance of these fishes.

Fish Ecology: Read More [+]

Rules & Requirements

Prerequisites: Introductory course in biological science; upper division or graduate standing

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture, 1 hour of fieldwork, and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Carlson

Fish Ecology: Read Less [-]

ESPM C115A Freshwater Ecology 3 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

Lakes, rivers, wetlands, and estuaries are biologically rich, dynamic, and among the most vital and the most vulnerable of Earth's ecosystems. Lectures will introduce general topics including the natural history of freshwater biota and habitats, ecological interactions, and ecosystem linkages and dynamics. Broad principles will be illustrated with results from selected recent research publications. Factors affecting resilience or vulnerability of freshwater ecosystems to change will be examined. Course requirements: two exams and a short synthesis paper projecting the future states of a freshwater or estuarine ecosystem of the student's choice under plausible scenarios of local, regional, or global change.

Freshwater Ecology: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Power, Carlson, Ruhi

Formerly known as: Integrative Biology 171

Also listed as: INTEGBI C171

Freshwater Ecology: Read Less [-]

ESPM C115C Fish Ecology 3 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

Introduction to fish ecology, with particular emphasis on the identification and ecology of California's inland fishes. This course will expose students to the diversity of fishes found in California, emphasizing the physical (e.g., temperature, flow), biotic (e.g., predation, competition), and human-related (e.g., dams, fisheries) factors that affect the distribution, diversity, and abundance of these fishes.

Fish Ecology: Read More [+]

Rules & Requirements

Prerequisites: Introductory course in biological science; upper division or graduate standing

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Carlson

Also listed as: INTEGBI C176L

Fish Ecology: Read Less [-]

ESPM 116B Grassland and Woodland Ecology 4 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

An introduction to the ecology of selected grasslands, woodlands, and shrublands in the western U.S. through a biogeographical survey of rangeland ecosystems. Selected plant communities and their response to management, climate, and environmental factors, and the effects of fire, grazing, and direct manipulation on ecological structure and function. Includes an introduction to rangeland plants.

Grassland and Woodland Ecology: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 2 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Huntsinger

Grassland and Woodland Ecology: Read Less [-]

ESPM 116C Tropical Forest Ecology 3 Units

Terms offered: Spring 2011, Spring 2009, Spring 2008

Introduction to the ecology of terrestrial tropical ecosystems, with particular emphasis on neotropical forests. Explores unique aspects of tropical ecosystems, especially nutrient cycles, net primary productivity, biological diversity, forest structure and dynamics, disturbance ecology, and the natural history of key forest organisms. Basic ecology is integrated with discussion of human disturbances, restoration of tropical ecosystems, and the global importance of tropical forests.

Tropical Forest Ecology: Read More [+]

Rules & Requirements

Prerequisites: One course in ecology and one course in chemistry or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Silver

Tropical Forest Ecology: Read Less [-]

ESPM 117 Urban Garden Ecosystems 4 Units

Terms offered: Summer 2019 First 6 Week Session, Fall 2018, Summer 2018 First 6 Week Session

An ecosystem approach to the study of urban gardens with an organic perspective. Topics include fundamentals of horticulture, soil properties and fertility, pest and disease management, and food preservation. Laboratories include methods in garden design, plant propagation, compost technique, soil preparation, irrigation systems, pest management, individual or group projects, demonstrations, and discussions. Enrollment may be limited.

Urban Garden Ecosystems: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 3 hours of laboratory per week

Summer: 6 weeks - 6.5 hours of lecture and 6 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Altieri

Urban Garden Ecosystems: Read Less [-]

ESPM 118 Agricultural Ecology 4 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

Examines in a holistic framework fundamental biological, technical, socio-economic, and political processes that govern agroecosystem productivity and stability. Management techniques and farming systems' designs that sustain longterm production are emphasized. One Saturday field trip and one optional field trip.

Agricultural Ecology: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 2 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternate method of final assessment during regularly scheduled final exam group (e.g., presentation, final project, etc.).

Instructors: Altieri, Bowles

Agricultural Ecology: Read Less [-]

ESPM 119 Chemical Ecology 2 Units

Terms offered: Fall 2015, Fall 2014, Fall 2013

Plant toxins and their effects on animals, hormonal interactions between plants and animals, feeding preferences, animal pheromones, and defense substances, biochemical interactions between higher plants, and phytoalexins and phytotoxins.

Chemical Ecology: Read More [+]

Rules & Requirements

Prerequisites: Introductory courses in organic chemistry and biology or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Kubo

Chemical Ecology: Read Less [-]

ESPM 120 Science of Soils 3 Units

Terms offered: Spring 2021, Spring 2020, Fall 2018

This course will introduce students to the study and management of soils as natural bodies, as media for plant growth and as integral components of terrestrial ecosystems. It will present basic concepts of soil science including: soil formation and classification, the physical, chemical, and biological properties of soils, the role of soil in supplying water and nutrients to plants and soil organisms, as well as applications of soil concepts in farming or engineering. The course will also introduce the relationships of soils to environmental problems.

Science of Soils: Read More [+]

Rules & Requirements

Prerequisites: Chemistry 1A, 3A

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Amundson, Pallud

Science of Soils: Read Less [-]

ESPM 121 Development and Classification of Soils 3 Units

Terms offered: Fall 2021, Fall 2019, Spring 2015

Development, morphology, and classification of soils as related to geology, environmental factors, and time. Soils as functioning parts of ecosystems; use of soils in archeological and paleoclimatic studies; anthropogenic effects on soil ecosystems.

Development and Classification of Soils: Read More [+]

Rules & Requirements

Prerequisites: Earth and Planetary Sciences 100A-100B, and Chemistry 1A, 3A recommended

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Amundson

Development and Classification of Soils: Read Less [-]

ESPM 122 Field Study of Soil Development 1 Unit

Terms offered: Spring 2015, Spring 2009, Spring 2006

Five day-long Saturday field trips to locations in central California.

The field study of soil development and morphology. Methods of soil morphological descriptions; study of factors controlling soil development; relationship of soil morphology to land use; quaternary geology of central California; use of soils in dating landscapes.

Field Study of Soil Development: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of fieldwork per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Instructor: Amundson

Field Study of Soil Development: Read Less [-]

ESPM C125 Biogeography 4 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

The course will provide a historical background for the field of biogeography and the ecological foundations needed to understand the distribution and abundance of species and their changes over time. It will also discuss developing technologies (including genomic tools and environmental models) together with the availability of big data and increasingly sophisticated analytical tools to examine the relevance of the field to global change biology, conservation, and invasion biology, as well as sustainable food systems and ecosystem services.

Biogeography: Read More [+]

Rules & Requirements

Prerequisites: BIO 1B

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Gillespie

Also listed as: GEOG C148/INTEGBI C166

Biogeography: Read Less [-]

ESPM C126 Animal Behavior 4 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

An introduction to comparative animal behavior and behavioral physiology in an evolutionary context, including but not limited to analysis of behavior, genetics and development, learning, aggression, reproduction, adaptiveness, and physiological substrates.

Animal Behavior: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Biology 1A, 1B, or Environmental Science, Policy, and Management 140. Molecular and Cell Biology 140 and C160 recommended

Credit Restrictions: Students will receive no credit for 144 after taking C144, 145, 146LF, or Psychology C115B.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Lacey, Caldwell, Bentley, Elias

Also listed as: INTEGBI C144

Animal Behavior: Read Less [\[-\]](#)

ESPM C128 Chemistry of Soils 3 Units

Terms offered: Fall 2021, Fall 2020, Spring 2018

Chemical mechanisms of reactions controlling the fate and mobility of nutrients and pollutants in soils. Role of soil minerals and humus in geochemical pathways of nutrient bioavailability and pollutant detoxification. Chemical modeling of nutrient and pollutant soil chemistry. Applications to soil acidity and salinity.

Chemistry of Soils: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: CIV ENG 111

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Also listed as: CIV ENG C116

Chemistry of Soils: Read Less [\[-\]](#)

ESPM C129 Biometeorology 3 Units

Terms offered: Fall 2020, Fall 2018, Fall 2016

This course describes how the physical environment (light, wind, temperature, humidity) of plants and soil affects the physiological status of plants and how plants affect their physical environment. Using experimental data and theory, it examines physical, biological, and chemical processes affecting transfer of momentum, energy, and material (water, CO₂, atmospheric trace gases) between vegetation and the atmosphere. Plant biometeorology instrumentation and measurements are also discussed.

Biometeorology: Read More [\[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Baldocchi

Also listed as: EPS C129

Biometeorology: Read Less [\[-\]](#)

ESPM 130A Forest Hydrology 4 Units

Terms offered: Spring 2019, Spring 2018

This course introduces the fundamental physical principles that are necessary to understand

the distribution and dynamics of water near the Earth's surface. A quantitative approach will provide

mathematical descriptions of hydrological phenomena that will be used for a variety of hydrological

applications to river flow hydraulics, flood frequency analysis, evapotranspiration from terrestrial

ecosystems, groundwater flow, and ecohydrological dynamics. The course will provide an introduction to

hydrological processes and data analysis. The purpose of the laboratory is to illustrate in an experimental

setting the principles and applications introduced in lecture.

Forest Hydrology: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Chemistry 1A, Mathematics 1A-1B, Physics 7A, or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: D'Odorico

Forest Hydrology: Read Less [\[-\]](#)

ESPM C130 Terrestrial Hydrology 4 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019, Spring 2014

A quantitative introduction to the hydrology of the terrestrial environment including lower atmosphere, watersheds, lakes, and streams. All aspects of the hydrologic cycle, including precipitation, infiltration, evapotranspiration, overland flow, streamflow, and groundwater flow. Chemistry and dating of groundwater and surface water. Development of quantitative insights through problem solving and use of simple models. This course requires one field experiment and several group computer lab assignments.

Terrestrial Hydrology: [Read More](#) [+]

Rules & Requirements

Prerequisites: CHEM 1A, MATH 1A, MATH 1B, and PHYSICS 7A; or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Larsen

Also listed as: CIV ENG C103N/GEOG C136

Terrestrial Hydrology: [Read Less](#) [-]

ESPM 131 Soil Microbiology and Biogeochemistry 4 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

Introduction to the organisms that live in the soil and their activities in the soil ecosystem. Lectures will cover the physical and chemical properties of soils and the soil as a habitat for microorganisms, the diversity and ecology of soil microorganisms, and their activity in the context of biogeochemical cycling, plant-microbe interactions, global environmental change and bioremediation. Goals: To gain fundamental knowledge of the occurrence and activities of soil microorganisms and their influence on soil productivity and environmental quality as well as potential applications of soil microbiology.

Soil Microbiology and Biogeochemistry: [Read More](#) [+]

Objectives & Outcomes

Course Objectives: The overall objective of the class is to provide an overview of the soil as a habitat for microorganisms, and to introduce students to the diversity, ecology and activity of soil microorganisms in the context of biogeochemical cycling, plant-microbe interactions, global environmental change and bioremediation.

Rules & Requirements

Prerequisites: Biology 1A-1B

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Pallud, Brodie

Soil Microbiology and Biogeochemistry: [Read Less](#) [-]

ESPM 132 Spider Biology 4 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

Covers topics ranging from mythological ideas about spiders and their importance in traditional cultures and folklore, to diversity patterns, ecology, behavior, and general biology of spiders. In the laboratory section, students learn to identify local spiders and to prepare a collection.

Spider Biology: Read More [+]

Rules & Requirements

Prerequisites: Biology 1A-1B

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Gillespie

Spider Biology: Read Less [-]

ESPM C133 Water Resources and the Environment 3 Units

Terms offered: Spring 2018, Spring 2016

Distribution, dynamics, and use of water resources in the global environment. Water scarcity, water rights, and water wars. The terrestrial hydrologic cycle. Contemporary environmental issues in water resource management, including droughts, floods, saltwater intrusion, water contamination and remediation, river restoration, hydraulic fracturing, dams, and engineering of waterways. The role of water in ecosystem processes and geomorphology. How water resources are measured and monitored. Basic water resource calculations. Effects of climate change on water quantity, quality, and timing.

Water Resources and the Environment: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Larsen

Also listed as: GEOG C135

Water Resources and the Environment: Read Less [-]

ESPM 134 Fire, Insects, and Diseases in Forest Ecosystems 3 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

Study of the influence of fire, insects, and diseases on species diversity, succession, and the survival of North American forests including the evolution of these interactions due to modern human policies of preservation and management and exploitation.

Fire, Insects, and Diseases in Forest Ecosystems: Read More [+]

Rules & Requirements

Prerequisites: One course in biology

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Bruns

Fire, Insects, and Diseases in Forest Ecosystems: Read Less [-]

ESPM C135A Migration in the Contemporary World: California and Beyond 4 Units

Terms offered: Fall 2019

This course is designed to allow students to delve into the topic of migration in the contemporary world. Readings, discussions, and assignments will focus on 1) past and present immigration to California and beyond 2) the impact of immigration in relation to labor, health and the environment and 3) contemporary immigrant activism and organizing. A primary goal of the course is to utilize sociocultural theories to describe the experiences of immigrants in the U.S. Students will communicate what they are learning through discussions, weekly reading reflection, academic papers, and an Op-Ed. A variety of teaching methods will be employed including lectures, discussions and guest presentations (authors and individuals featured in books).

Migration in the Contemporary World: California and Beyond: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructors: Ceniza Choy, Holmes

Also listed as: ETH STD C135A

Migration in the Contemporary World: California and Beyond: Read Less [-]

ESPM 136 Sustainable Industry 3 Units

Terms offered: Fall 2021, Spring 2003, Spring 2001

Academics, policy-makers, workers, communities, consumers, and business leaders are increasingly concerned about the environmental and social impacts of industry. A range of fields have emerged to respond to these concerns, seeking to redesign and re-align industrial systems and activities to be more ecologically and socially sound. This course explores internal firm capabilities (core functions, practices, technologies) and external pressures (governments, NGOs) to advance more sustainable industry. The course examines emerging production and consumption systems, introduces several methods for mapping and measuring the environmental and social impacts of industry, and evaluates recent strategies to advance more sustainable production.

Sustainable Industry: Read More [+]

Rules & Requirements

Credit Restrictions: Students will receive no credit for ESPM 126 after completing ESPM 126. A deficient grade in ESPM 126 may be removed by taking ESPM 126.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: O'Rourke

Sustainable Industry: Read Less [-]

ESPM 137 Landscape Ecology 3 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

This course will cover broad topics in landscape ecology with the goal of answering the core questions of how patterns develop on landscapes, how these patterns relate to biotic and abiotic processes, and how these patterns and processes change through time. Lab exercises will focus on practical aspects of landscape ecological analysis using modern tools like remote sensing, GIS, population modeling, and landscape genetics.

Landscape Ecology: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Wang

Landscape Ecology: Read Less [-]

ESPM C138 Introduction to Comparative Virology 4 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

This course will provide a comparative overview of virus life cycles and strategies viruses use to infect and replicate in hosts. We will discuss virus structure and classification and the molecular basis of viral reproduction, evolution, assembly, and virus-host interactions. Common features used during virus replication and host cellular responses to infection will be covered. Topics also included are common and emerging virus diseases, their control, and factors affecting their spread.

Introduction to Comparative Virology: Read More [+]

Rules & Requirements

Prerequisites: Introductory chemistry (Chemistry 1A or 3A-3B or equivalent) and introductory biology (Biology 1A, 1AL, and 1B or equivalent) and general biochemistry (Molecular and Cell Biology C100A or equivalent--preferably completed but may be taken concurrently)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1.5 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Glaunsinger

Also listed as: MCELLBI C114/PLANTBI C114

Introduction to Comparative Virology: Read Less [-]

ESPM 139 THE ENVIRONMENT AND THE SELF: AN ECO PRACTICUM 2 Units

Terms offered: Fall 2021, Fall 2019, Fall 2017

This course will provide a practical exploration of how to engage effectively with contemporary environmental issues using discussion of scientific and philosophical texts, activities, and group work. We will evaluate how different worldviews influence how humans relate to the natural world and how our own worldview shapes our way of engaging in environmental problem solving.

THE ENVIRONMENT AND THE SELF: AN ECO PRACTICUM: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Rosenblum

THE ENVIRONMENT AND THE SELF: AN ECO PRACTICUM: Read Less [-]

ESPM 140 General Entomology 4 Units

Terms offered: Spring 2020, Spring 2019, Spring 2018

A comprehensive course on the biology of terrestrial and aquatic insects, their morphology, physiology, behavior, taxonomy, and ecology. The lab covers the identification and classification of insect orders and common families, insect collecting and sampling methods, and includes a required insect collection project. Course includes an overnight field trip to a research property.

General Entomology: [Read More](#) [+]

Rules & Requirements

Prerequisites: Introductory course in a biological science

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 6 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Will

General Entomology: [Read Less](#) [-]

ESPM 141 Development of Taxonomic Identification Keys and Natural Language Descriptions 2 Units

Terms offered: Prior to 2007

Tools for identification of organisms to species or higher-level taxonomic groups are critically needed. This course will allow students to learn both the theoretical basis of and practical skills for building traditional dichotomous keys and various types of interactive keys. Emphasis will be on learning to build a web-based interactive key and developing natural language descriptions through students' individual projects. Students can train on the Microptics Digital XLT imaging system and learn to use Lucid and Lucid Phoenix software. Other Internet identification tools will also be surveyed and discussed. Each student will produce an online key as a project.

Development of Taxonomic Identification Keys and Natural Language Descriptions: [Read More](#) [+]

Rules & Requirements

Prerequisites: Prior knowledge of focus group for project

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Instructor: Will

Development of Taxonomic Identification Keys and Natural Language Descriptions: [Read Less](#) [-]

ESPM 141A Climate Change Solutions 4 Units

Terms offered: Summer 2020 Second 6 Week Session

Climate Change Solutions course consists of 18 original video lectures from 23 UC researchers and academics. Students watch assigned lectures in advance, then come to class for rich discussions facilitated by the instructor. Content emphasizes both climate knowledge and solutions across a wide range of academic disciplines, and enables students to use showcase their learning in a capstone project.

Climate Change Solutions: [Read More](#) [+]

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of discussion per week

Summer: 6 weeks - 9 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructors: Silver, Potts

Climate Change Solutions: [Read Less](#) [-]

ESPM 142 Insect Behavior 3 Units

Terms offered: Fall 2020, Fall 2019, Fall 2017

Insects display an incredibly rich array of behaviors, including extravagant displays, rituals, deception, sociality, and slavery. In some cases, these behaviors are innate, but in other cases individual insects can actively learn and modify their future behaviors based on real-life experiences. This course will focus on the development, structure, and function of insect behaviors, using examples from classic and recent publications. We will examine the evolution of insect behavior, how these behaviors play a role in the ecology of the organisms that express them, and explore various modes of communication that allow insects to judge their environment and respond appropriately.

Insect Behavior: Read More [+]

Rules & Requirements

Prerequisites: High school biology course or Bio1B, Biology 1A and 1B

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week, 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Tsutsui

Insect Behavior: Read Less [-]

ESPM 142 Insect Behavior 3 Units

Terms offered: Fall 2020, Fall 2019, Fall 2017

Insects display an incredibly rich array of behaviors, including extravagant displays, rituals, deception, sociality, and slavery. In some cases, these behaviors are innate, but in other cases individual insects can actively learn and modify their future behaviors based on real-life experiences. This course will focus on the development, structure, and function of insect behaviors, using examples from classic and recent publications. We will examine the evolution of insect behavior, how these behaviors play a role in the ecology of the organisms that express them, and explore various modes of communication that allow insects to judge their environment and respond appropriately.

Insect Behavior: Read More [+]

Rules & Requirements

Prerequisites: High school biology course or Bio1B, Biology 1A and 1B

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week, 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Tsutsui

Insect Behavior: Read Less [-]

ESPM 144 Insect Physiology 3 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

A survey of the unique physiological mechanisms of insects, including the analysis of physiological systems at the cellular-molecular level. The roles of the nervous and endocrine systems in coordinating physiological processes are emphasized.

Insect Physiology: Read More [+]

Rules & Requirements

Prerequisites: General biology, zoology, or entomology

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Tanouye

Insect Physiology: Read Less [-]

ESPM 146L Medical and Veterinary Entomology Laboratory 1 Unit

Terms offered: Spring 2005, Spring 2003, Spring 2001

Laboratory identification of the major arthropod vectors of disease agents to humans and other animals, and study of the structural adaptations associated with free-living and parasitic stages and with blood feeding.

Medical and Veterinary Entomology Laboratory: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Lane

Medical and Veterinary Entomology Laboratory: Read Less [-]

ESPM 147 Field Entomology 1 Unit

Terms offered: Fall 2021, Fall 2019, Fall 2018

This course introduces identification methods and techniques for collection and preparation of specimens and associated biological data, field observation, and recording and interpretation of arthropod behavior, relationships to habitats, and plant-arthropod interactions.

Field Entomology: Read More [+]

Rules & Requirements

Prerequisites: 40, 42, 140, or consent of instructor

Repeat rules: Course may be repeated for credit up to a total of 4 units.

Hours & Format

Fall and/or spring: 15 weeks - 1 hour of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only.
Alternative to final exam.

Field Entomology: Read Less [-]

ESPM C148 Pesticide Chemistry and Toxicology 3 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016

Chemical composition of pesticides and related compounds, their mode of action, resistance mechanisms, and methods of evaluating their safety and activity.

Pesticide Chemistry and Toxicology: Read More [+]

Rules & Requirements

Prerequisites: Introductory courses in organic chemistry and biology, or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Casida

Also listed as: NUSCTX C114

Pesticide Chemistry and Toxicology: Read Less [-]

ESPM 150 Special Topics in Environmental Science, Policy, and Management 2 - 4 Units

Terms offered: Fall 2021, Spring 2021, Fall 2020

Special topics in Environmental Science, Policy, and Management.

Topics may vary from semester to semester.

Special Topics in Environmental Science, Policy, and Management: Read More [+]

Rules & Requirements

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 2-3 hours of lecture and 0-1 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Special Topics in Environmental Science, Policy, and Management: Read Less [-]

ESPM 151 Society, Environment, and Culture 4 Units

Terms offered: Spring 2020, Spring 2019, Spring 2018

Society and the natural environment are vitally linked in a number of ways. Environmental problems such as pollution and natural resource depletion are not only problems for society, affecting the way we live our lives; they are also problems of society—the result of patterns of social organization and social practices. In this course we will explore some various issues, concepts, and processes pertaining to the diverse approaches to understanding the relationship between human society, culture, and the environment. Society, Environment, and Culture: Read More [+]

Rules & Requirements

Prerequisites: Upper division standing

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1.5 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Mascarenhas

Society, Environment, and Culture: Read Less [-]

ESPM 152 Global Change Biology 3 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

The course will focus on understanding how anthropogenic changes to the global environment (e.g., climate change, habitat destruction, global trade) impact organisms. We will evaluate responses to global change in a wide diversity of organisms (from microbes to mammals) and ecosystems (from arctic to temperate to tropical). We will also explore conservation and mitigation strategies in the face of global change. Discussions will draw on recent primary research and case studies. Global Change Biology: Read More [+]

Rules & Requirements

Prerequisites: An introductory course in biological science; upper division or graduate standing

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Rosenblum

Global Change Biology: Read Less [-]

ESPM C153 Ecology 3 Units

Terms offered: Not yet offered

Ecology is a scientific discipline that focuses on the interactions between organisms and their environment. This class will provide an overview of core concepts and applications, and will also provide practice with writing, small-group work, critical thinking, and data analysis.

The class will specifically cover principles of population ecology, illustrated with examples from marine, freshwater, and terrestrial habitats. It will consider the roles of physical and biological processes in structuring natural communities. Observational, experimental, and theoretical approaches will be discussed. Topics will include quantitative approaches relying on algebra, visual analysis of graphs, and elementary calculus. Ecology: Read More [+]

Rules & Requirements

Prerequisites: Biology 1B or consent of instructor

Credit Restrictions: Students will receive no credit for INTEGBI C153 after completing ESPM 153, or INTEGBI C153. A deficient grade in INTEGBI C153 may be removed by taking ESPM 153, or INTEGBI C153.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructors: Blonder, Razafindratsima

Formerly known as: Integrative Biology 153

Also listed as: INTEGBI C153

Ecology: Read Less [-]

ESPM 155AC Sociology and Political Ecology of Agro-Food Systems 4 Units

Terms offered: Fall 2020, Fall 2019, Fall 2018

Sociology and political ecology of agro-food systems; explores the nexus of agriculture, society, the environment; analysis of agro-food systems and social and environmental movements; examination of alternative agricultural initiatives--(i.e. fair trade, food justice/food sovereignty, organic farming, urban agriculture).

Sociology and Political Ecology of Agro-Food Systems: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: De Master

Formerly known as: Environ Sci, Policy, and Management 155

Sociology and Political Ecology of Agro-Food Systems: Read Less [-]

ESPM C156 Animal Communication 3 Units

Terms offered: Spring 2020, Spring 2018

Communication is central to the lives of most, if not all animals. How and why animals communicate is thus central to understanding the ecology, behavior, neurobiology, and evolution of animal systems. This course will focus on understanding the basic principles driving the communication system of a species, drawing together topics ranging from the physical properties of the environment, physiology of sensory systems, animal behavior and ecology, using examples from classic and recent publications.

Animal Communication: Read More [+]

Rules & Requirements

Prerequisites: Biology 1B. Animal Behavior (ESPM C126/IB C144) recommended

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Elias

Formerly known as: Environ Sci, Policy, and Management 156

Also listed as: INTEGBI C145

Animal Communication: Read Less [-]

ESPM 157 Data Science in Global Change Ecology 4 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

Many of the greatest challenges we face today come from understanding and interacting with the natural world: from global climate change to the sudden collapse of fisheries and forests, from the spread of disease and invasive species to the unknown wealth of medical, cultural, and technological value we derive from nature. Advances in satellites and micro-sensors, computation, informatics and the Internet have made available unprecedented amounts of data about the natural world, and with it, new challenges of sifting, processing and synthesizing large and diverse sources of information. In this course, students will learn and apply fundamental computing, statistics and modeling concepts to a series of real-world ecological and environment

Data Science in Global Change Ecology: Read More [+]

Rules & Requirements

Prerequisites: No prior knowledge is assumed or expected, though prior exposure to programming, particularly from the Foundations of Data Science (COMPSCI C8 / INFO C8 / STAT C8), will be helpful

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Boettiger

Data Science in Global Change Ecology: Read Less [-]

ESPM 158 Biodiversity Conservation in Working Landscapes 4 Units

Terms offered: Spring 2017, Spring 2016, Spring 2015

Most of the world's lands and seas occur outside of protected areas, so this course examines biodiversity conservation in "working landscapes" like farms, ranches, and urban areas. Students will study fundamental concepts in ecology and conservation biology, and evaluate case studies to assess how conservation approaches have evolved and which are working. Students will gain skills in evaluating and summarizing scientific literature, and in-depth knowledge of conservation in practice.

Biodiversity Conservation in Working Landscapes: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Biology IB is required; Environmental Science Policy and Management C103/Integrative Biology C156 or other ecology course desired

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 2 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Kremen

Biodiversity Conservation in Working Landscapes: Read Less [\[-\]](#)

ESPM C159 Human Diet 4 Units

Terms offered: Spring 2016, Spring 2015, Spring 2013

Since we eat every day, wouldn't it be useful to learn more about human dietary practices? A broad overview of the complex interrelationship between humans and their foods. Topics include the human dietary niche, biological variation related to diet, diet and disease, domestication of staple crops, food processing techniques and development of regional cuisines, modern diets and their problems, food taboos, human attitudes toward foods, and dietary politics.

Human Diet: Read More [\[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Milton

Also listed as: NUSCTX C159

Human Diet: Read Less [\[-\]](#)

ESPM 160AC American Environmental and Cultural History 4 Units

Terms offered: Spring 2021, Summer 2019 Second 6 Week Session, Summer 2018 Second 6 Week Session

History of the American environment and the ways in which different cultural groups have perceived, used, managed, and conserved it from colonial times to the present. Cultures include American Indians and European and African Americans. Natural resources development includes gathering-hunting-fishing; farming, mining, ranching, forestry, and urbanization. Changes in attitudes and behaviors toward nature and past and present conservation and environmental movements are also examined. Readings are from primary source documents supplemented by recent essays.

American Environmental and Cultural History: Read More [\[+\]](#)

Rules & Requirements

Credit Restrictions: Students will receive no credit for Environ Sci, Policy, and Management ESPM 160AC/HIST120AC after taking Environ Sci, Policy and Management ESPM 160AC

Requirements this course satisfies: Satisfies the American Cultures requirement

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1.5 hours of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 3 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Worthy

Formerly known as: 160AC

Also listed as: HISTORY 120AC

American Environmental and Cultural History: Read Less [\[-\]](#)

ESPM 161 Environmental Philosophy and Ethics 4 Units

Terms offered: Summer 2021 Second 6 Week Session, Summer 2020 Second 6 Week Session, Fall 2019

A cross-cultural comparison of human environments as physical, socio-economic, and technocultural ecosystems with special emphasis on the role of beliefs, attitudes, ideologies, and behavior. An examination of contemporary environmental literature and the philosophies embodied therein.

Environmental Philosophy and Ethics: Read More [+]

Rules & Requirements

Credit Restrictions: Students will receive no credit for Environ Sci, Policy, and Management ESPM 161 after taking Environ Sci, Policy and Management 161, summer session.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1.5 hours of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 3 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Environmental Philosophy and Ethics: Read Less [-]

ESPM 161A Thinking With Animals 4 Units

Terms offered: Not yet offered

Animals have long been the subject of human inquiry. As historian Harriet Ritvo writes, "Learned attention to the animal is far from new." However, in recent decades social movements, artists, and scholars have focused more frequently, and perhaps more urgently, on what Derrida called "the question of the animal." In this course we will look to how centering the animal challenges human exceptionalism, anthropocentrism, and traditional critical discourse. Tracing the ways work in animal studies denaturalizes hierarchical taxonomies, defines key concepts such as human and animal, and articulates boundaries between species, this course will follow the various political, relational, ethical and imaginative implications of thinking with animals.

Thinking With Animals: Read More [+]

Objectives & Outcomes

Course Objectives: To be able to interrogate the taxonomies and hierarchical systems that have traditionally served to divide human from animal

To develop an understanding of the key concepts emerging from the field of animal studies

To develop questions of and from course texts;

To discuss the methods that have been used to critique, resist, and challenge traditional Western understandings of species hierarchy

To identify the ways in which cultural beliefs about "animals" are shaped by categories of human difference

To read critically, carefully, generously, creatively, and playfully;

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Taylor

Thinking With Animals: Read Less [-]

ESPM 162 Bioethics and Society 4 Units

Terms offered: Spring 2019, Fall 2017, Fall 2016

Exploration of the ethical dilemmas arising from recent advances in the biological sciences: genetic engineering, sociobiology, health care delivery, behavior modification, patients'; rights, social or private control of research.

Bioethics and Society: [Read More](#) [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 3 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Worthy

Bioethics and Society: [Read Less](#) [-]

ESPM 162A Health, Medicine, Society and Environment 4 Units

Terms offered: Fall 2020, Fall 2019, Fall 2018

Introduces students to intersections between health, medicine, society, and environment through medical and environmental anthropology, political ecology, medical geography, and the social studies of science, technology and the natural environment. Readings, discussions, and assignments will explore the sociocultural, political economic, and environmental aspects of illness, care, disease, biomedicine, and health (in)equity.

Health, Medicine, Society and Environment: [Read More](#) [+]

Objectives & Outcomes

Course Objectives: This course will provide an overview of key theoretical and methodological approaches as well as central arguments to understand the relationships between health, medicine, society and environment. The course will lend context and highlight concepts that are important to understandings of and movements toward social and health equity.

Student Learning Outcomes: Critically assess social and health issues appearing in scholarly publications and the popular press;; Practice communicating ideas and analyses in language that can be generally understood;; Work with classmates from multiple disciplines and backgrounds in order to realize the importance of multidisciplinary approaches for solving social and health inequities;; Apply sociocultural, political economic, and critical theory frameworks for understanding conflicts in the realms of public health, global health, medicine, and public policy.; Demonstrate knowledge in major areas of health and society in relation to current debates in medical anthropology and cognate social sciences;; Engage with increasingly popular subfields of the medical social sciences including those on issues of health inequities, care, medical science, sickness, anguish, and resistance.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternate method of final assessment during regularly scheduled final exam group (e.g., presentation, final project, etc.).

Health, Medicine, Society and Environment: [Read Less](#) [-]

ESPM 163AC Environmental Justice: Race, Class, Equity, and the Environment 4 Units

Terms offered: Fall 2021, Fall 2020, Spring 2020

Overview of the field of environmental justice, analyzing the implications of race, class, labor, and equity on environmental degradation and regulation. Environmental justice movements and struggles within poor and people of color communities in the U.S., including: African Americans, Latino Americans, and Native American Indians. Frameworks and methods for analyzing race, class, and labor. Cases of environmental injustice, community and government responses, and future strategies for achieving environmental and labor justice.

Environmental Justice: Race, Class, Equity, and the Environment: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: O'Rourke

Formerly known as: Sociology 128AC

Also listed as: SOCIOL 137AC

Environmental Justice: Race, Class, Equity, and the Environment: Read Less [-]

ESPM 164 GIS and Environmental Science 3 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

The objectives of the course are 1) review the GIS workflow (acquisition, representation, validation, analysis, and output), 2) to understand the issues surrounding, and algorithms used in a particular GIS application, 3) to learn about advanced topics in geospatial science across environmental and social sciences, and 4) to develop an operational GIS project in a chosen area.

GIS and Environmental Science: Read More [+]

Rules & Requirements

Prerequisites: Upper division status and an introductory course in GIS and a course in programming

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of laboratory and 3 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Kelly

GIS and Environmental Science: Read Less [-]

ESPM 165 International Rural Development Policy 4 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

Comparative analysis of policy systems governing natural resource development in the rural Third World. Emphasis on organization and function of agricultural and mineral development, with particular consideration of rural hunger, resource availability, technology, and patterns of international aid.

International Rural Development Policy: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Carr

International Rural Development Policy: Read Less [-]

ESPM C167 Environmental Health and Development 4 Units

Terms offered: Summer 2021 Second 6 Week Session, Spring 2021, Summer 2020 Second 6 Week Session

The health effects of environmental alterations caused by development programs and other human activities in both developing and developed areas. Case studies will contextualize methodological information and incorporate a global perspective on environmentally mediated diseases in diverse populations. Topics include water management; population change; toxics; energy development; air pollution; climate change; chemical use, etc.

Environmental Health and Development: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 6.5 hours of lecture and 2 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Morello-Frosch

Also listed as: PB HLTH C160

Environmental Health and Development: Read Less [-]

ESPM 168 Political Ecology 4 Units

Terms offered: Spring 2021, Spring 2020, Fall 2018

Analysis of environmental problems in an international context with a focus on political and economic processes, resource access, and representations of nature. Discussion of the ways in which film, literature, and the news media reflect and influence environmental politics.

Approaches to policy analysis arising from recent social theory.

Political Ecology: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Peluso

Political Ecology: Read Less [-]

ESPM 169 International Environmental Politics 4 Units

Terms offered: Fall 2021, Fall 2020, Summer 2020 Second 6 Week Session

The dynamics of international politics are examined over the last 25 years. Attention is paid to different perspectives in global environmental politics, the actors involved, how well international agreements address the problems they are supposed to solve, and the main debates in the field, including trade-environmental conflicts, security, and environmental justice issues. Issues covered vary, but may include climate change, biodiversity, population, and toxics.

International Environmental Politics: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 3 hours of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: O'Neill

International Environmental Politics: Read Less [-]

ESPM W169 International Environmental Politics 4 Units

Terms offered: Summer 2021 Second 6 Week Session

The dynamics of international politics are examined over the last 25 years. Attention is paid to different perspectives in global environmental politics, the actors involved, how well international agreements address the problems they are supposed to solve, and the main debates in the field, including trade-environmental conflicts, security, and environmental justice issues. Issues covered vary, but may include climate change, biodiversity, population, and toxics.

International Environmental Politics: Read More [+]

Rules & Requirements

Credit Restrictions: Students will receive no credit for ESPM W169 after completing ESPM 169. A deficient grade in ESPM W169 may be removed by taking ESPM 169.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of web-based lecture and 1 hour of web-based discussion per week

Summer:

6 weeks - 7.5 hours of web-based lecture and 2.5 hours of web-based discussion per week

8 weeks - 6 hours of web-based lecture and 2 hours of web-based discussion per week

Online: This is an online course.

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: O'Neill

International Environmental Politics: Read Less [-]

ESPM C170 Carbon Cycle Dynamics 3 Units

Terms offered: Fall 2021, Spring 2019, Spring 2016

The focus is the (unsolved) puzzle of the contemporary carbon cycle. Why is the concentration of atmospheric CO₂ changing at the rate observed? What are the terrestrial and oceanic processes that add and remove carbon from the atmosphere? What are the carbon management strategies under discussion? How can emission protocols be verified? Students are encouraged to gain hands-on experience with the available data, and learn modeling skills to evaluate hypotheses of carbon sources and sinks.

Carbon Cycle Dynamics: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Instructor: Fung

Also listed as: EPS C183

Carbon Cycle Dynamics: Read Less [-]

ESPM 171A Critical Zone Characterization using Geophysical Methods 2 Units

Terms offered: Spring 2021, Spring 2019

This class provides an introduction to the use of environmental geophysical methods and data integration approaches to quantify critical zone properties and interactions across compartments, from within the bedrock through the vegetative canopy.

Critical Zone Characterization using Geophysical Methods: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 1.5 hours of lecture per week

Summer: 6 weeks - 2.5 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Hubbard

Critical Zone Characterization using Geophysical Methods: Read Less [-]

ESPM 172 Remote Sensing of the Environment 3 Units

Terms offered: Spring 2020, Fall 2013, Spring 2010

The course will introduce junior/senior undergraduate students to the basic physical concepts of remote sensing as they relate to different earth surface processes. It will introduce students to a variety of recently developed ground, airborne, and satellite instruments and their applications to monitor and analyze environmental processes. These include active (e.g., Lidar), and passive (radiometers) sensors, optical (e.g., Landsat, MODIS), microwave (e.g., SMAP), and gravitational (e.g., GRACE) satellites.

Remote Sensing of the Environment: Read More [+]

Rules & Requirements

Credit Restrictions: Students will receive no credit for ESPM 172 after completing FOREST 102.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Girotto

Remote Sensing of the Environment: Read Less [-]

ESPM C172 Remote Sensing of the Environment 4 Units

Terms offered: Fall 2021, Fall 2020, Spring 2001

The course will introduce junior/senior undergraduate students to the basic physical concepts of remote sensing as they relate to different earth surface processes. It will introduce students to a variety of recently developed ground, airborne, and satellite instruments and their applications to monitor and analyze environmental processes. These include active (e.g., Lidar), and passive (radiometers) sensors, optical (e.g., Landsat, MODIS), microwave (e.g., SMAP), and gravitational (e.g., GRACE) satellites.

Remote Sensing of the Environment: Read More [\[+\]](#)

Rules & Requirements

Credit Restrictions: Students will receive no credit for ESPM C172 after completing CIV ENG 172, or ESPM 172. A deficient grade in ESPM C172 may be removed by taking CIV ENG 172, or ESPM 172.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Giroto

Also listed as: CIV ENG C172

Remote Sensing of the Environment: Read Less [\[-\]](#)

ESPM 173 Introduction to Ecological Data Analysis 3 Units

Terms offered: Fall 2021, Fall 2020, Fall 2018

Introduces concepts and methods for practical analysis of data from ecology and related disciplines. Topics include data summaries, distributions, and probability; comparison of data groups using t-tests and analysis of variance; comparison of multi-factor groups using analysis of variance; evaluation of continuous relationships between variables using regression and correlation; and a glimpse at more advanced topics. In computer laboratories, students put concepts into practice and interpret results.

Introduction to Ecological Data Analysis: Read More [\[+\]](#)

Rules & Requirements

Credit Restrictions: Students will receive no credit for ESPM 173 after completing STAT 131A. A deficient grade in ESPM 173 may be removed by taking STAT 131A.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: de Valpine

Introduction to Ecological Data Analysis: Read Less [\[-\]](#)

ESPM 174 Design and Analysis of Ecological Research 4 Units

Terms offered: Spring 2019, Spring 2017, Fall 2014

Surveys major designs and analyses for biological field and laboratory studies. Topics include data distributions; regression; analysis of variance; fixed and random effects; blocking, split plots, and repeated measures; maximum likelihood; Generalized Linear Models; basic computer programming. Relies on math to interpret and manipulate equations supported by computer simulations. Examples include population, ecosystem, behavioral, and evolutionary ecology. Design and Analysis of Ecological Research: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: One year calculus; one semester statistics or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: de Valpine

Design and Analysis of Ecological Research: Read Less [\[-\]](#)

ESPM 174A Applied Time Series Analysis for Ecology and Environmental Sciences 3 Units

Terms offered: Fall 2021, Fall 2020

In this course we will learn how to analyze time-series data using real-world examples from ecology and environmental sciences. We will study how to mathematically describe a time series, and test hypotheses about the underlying processes generating the observed patterns.

We will cover univariate and multivariate state-space models, with an incursion into statistical forecasting and analyses in the frequency domain (e.g., Discrete Fast Fourier Transform).

Applied Time Series Analysis for Ecology and Environmental Sciences: Read More [a]

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Ruhi

Applied Time Series Analysis for Ecology and Environmental Sciences: Read Less [-]

ESPM 175A Senior Research Seminar in Environmental Sciences 3 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

Students design and conduct a senior thesis project, which requires identifying a testable question or problem, designing and executing a research protocol, analyzing data, deriving conclusions, and presenting the research in a scientific paper and an oral presentation. Lectures and assignments emphasize research design, data analysis, scientific writing, and scientific communication.

Senior Research Seminar in Environmental Sciences: Read More [a]

Rules & Requirements

Prerequisites: Senior standing in Environmental Science, Policy, and Management major and completion of Environmental Science, Policy, and Management 100

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of seminar per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Formerly known as: Environmental Science 196A

Senior Research Seminar in Environmental Sciences: Read Less [-]

ESPM 175B Senior Research Seminar in Environmental Sciences 3 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

Students design and conduct a senior thesis project, which requires identifying a testable question or problem, designing and executing a research protocol, analyzing data, deriving conclusions, and presenting the research in a scientific paper and an oral presentation. Lectures and assignments emphasize research design, data analysis, scientific writing, and scientific communication.

Senior Research Seminar in Environmental Sciences: Read More [a]

Rules & Requirements

Prerequisites: Senior standing in Environmental Science, Policy, and Management major and completion of Environmental Science, Policy and Management 100 and Environmental Science, Policy, and Management 175A

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of seminar per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Formerly known as: Environmental Science 196B

Senior Research Seminar in Environmental Sciences: Read Less [-]

ESPM 175L Senior Research Laboratory in Environmental Sciences 1 Unit

Terms offered: Fall 2020, Fall 2019, Spring 2019

Independent laboratory or field research in support of the required senior seminar project.

Senior Research Laboratory in Environmental Sciences: Read More [a]

Rules & Requirements

Prerequisites: Must be taken concurrently with Environmental Science, Policy, and Management 175A-175B

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Formerly known as: Environmental Science 196L

Senior Research Laboratory in Environmental Sciences: Read Less [-]

ESPM H175A Senior Research Seminar in Environmental Sciences 3 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

ESPM H175A and H175B are honors courses that eligible Environmental Sciences students may substitute for ESPM 175A and 175B. Students design and conduct a senior thesis project, which requires identifying a research question or problem, designing and executing a research protocol, analyzing data, deriving conclusions, and presenting the research in a scientific paper and an oral presentation. Lectures and assignments emphasize research design, data analysis, scientific writing, and scientific communication.

Senior Research Seminar in Environmental Sciences: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: ESPM 100ES, upper division standing, and minimum GPA. See CNR Honors website for current minimum GPA. http://nature.berkeley.edu/site/honors_program.php

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of seminar per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructors: Spreyer, Mendez

Senior Research Seminar in Environmental Sciences: Read Less [\[-\]](#)

ESPM H175B Senior Research Seminar in Environmental Sciences 3 Units

Terms offered: Spring 2016, Spring 2015

ESPM H175A and H175B are honors courses that eligible Environmental Sciences students may substitute for ESPM 175A and 175B. Students design and conduct a senior thesis project, which requires identifying a research question or problem, designing and executing a research protocol, analyzing data, deriving conclusions, and presenting the research in a scientific paper and an oral presentation. Lectures and assignments emphasize research design, data analysis, scientific writing, and scientific communication.

Senior Research Seminar in Environmental Sciences: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: ESPM 100ES, upper division standing, and minimum GPA. See CNR Honors website for current minimum GPA. http://nature.berkeley.edu/site/honors_program.php

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of seminar per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructors: Spreyer, Mendez

Senior Research Seminar in Environmental Sciences: Read Less [\[-\]](#)

ESPM H175L Senior Research Laboratory in Environmental Sciences 1 Unit

Terms offered: Fall 2016, Spring 2016, Fall 2015

ESPM H175L is an honors course that eligible Environmental Sciences students may substitute for ESPM 175L. Independent laboratory or field research in support of the required senior seminar project.

Senior Research Laboratory in Environmental Sciences: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Must be taken concurrently with Environmental Science, Policy, and Management 175A-175B or H175A-H175B

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Instructors: Spreyer, Mendez

Senior Research Laboratory in Environmental Sciences: Read Less [\[-\]](#)

ESPM 177A Sustainable Water and Food Security 4 Units

Terms offered: Summer 2021 Second 6 Week Session, Summer 2020 Second 6 Week Session, Spring 2019

In this class we will study basic principles of environmental sustainability from the perspective of water and food security, and apply them to human use of land and land based resources. An analysis of major mechanisms of land degradation and of the major technological advances that are expected to burst food production worldwide will be used as the basis for a discussion on the extent to which the Earth can sustainably feed humanity.

Sustainable Water and Food Security: Read More [\[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of laboratory per week

Summer: 6 weeks - 7.5 hours of lecture and 2.5 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: D'odorico

Formerly known as: Environ Sci, Policy, and Management 177

Sustainable Water and Food Security: Read Less [\[-\]](#)

ESPM C177 GIS and Environmental Spatial Data Analysis 4 Units

Terms offered: Spring 2017, Spring 2016, Spring 2015

This course offers an introduction to spatial data analysis. It integrates ArcGIS analysis with spatial statistical analysis for the study of pattern and process applicable to a wide variety of fields. Major topics covered include: spatial sampling, processing data with ARC Info, exploratory GIS analysis, spatial decomposition, spatial point patterns and Ripley's K function, spatial autocorrelation, geostatistics, spatially weighted regression, spatial autoregression, generalized linear models and generalized linear mixed models.

GIS and Environmental Spatial Data Analysis: Read More [+]

Rules & Requirements

Prerequisites: Requirements are course in GIS and a course in probability and statistics. We invite participation of undergraduates and graduate students from: ESPM, Landscape Architecture & Environmental Planning, City and Regional Planning, IB, Civil Engineering, Energy and Resources Group, Public Health, Earth and Planetary Science, and other campus departments or units with students interested in learning and using spatial analysis for the environment- both natural and built

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructors: Biging, Radke

Also listed as: LD ARCH C177

GIS and Environmental Spatial Data Analysis: Read Less [-]

ESPM 178B Environmental Science Education Practicum 4 Units

Terms offered: Fall 2015, Spring 2010, Spring 2009

Framed around the topic of sustainability, the course engages students from different science majors to apply the content knowledge from their discipline to build curriculum pieces for presentation in high school classrooms. Students develop pedagogical content knowledge and relate teaching theory to practice. Additional topics covered include classroom management and leadership, lesson planning, presentation skills, and readings in science education.

Environmental Science Education Practicum: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture, 1 hour of discussion, and 3 hours of fieldwork per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Environmental Science Education Practicum: Read Less [-]

ESPM C179A GC-Maker Lab I: Skills and Theory 2 Units

Terms offered: Fall 2016

In the environmental and biological sciences, one of the biggest challenges in transitioning from student to researcher is learning how to measure something without an off-the-shelf device. This course will provide the theoretical background and the practice of building a Gas Chromatograph (GC) system for environmental research. The first semester is for students who seek to develop fundamental skills in instrumental development and design. The second semester (c179b) is only open to those who have taken this first semester course and will entail the construction of a working gas chromatograph system. This class will be especially useful for students who wish to pursue research following graduation.

GC-Maker Lab I: Skills and Theory: [Read More](#) [+]

Rules & Requirements

Prerequisites: Chem 3AL, or instructor permission

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Rhew

Also listed as: GEOG C179A

GC-Maker Lab I: Skills and Theory: [Read Less](#) [-]

ESPM C179B GC-Maker Lab II: Instrument development 4 Units

Terms offered: Spring 2017

In the environmental and biological sciences, one of the biggest challenges in transitioning from student to researcher is learning how to measure something without an off-the-shelf device. This course will involve the actual building a gas chromatograph (GC) system for environmental research. In addition, we will provide the option of building a mini datalogging sensor for measuring basic environmental parameters using the Arduino platform. This course offered in the spring semester is only open to those who have taken this first semester course (c179A), which covers the fundamental skills required to undertake this project. This class is designed for upper division undergraduates to early graduate students.

GC-Maker Lab II: Instrument development: [Read More](#) [+]

Rules & Requirements

Prerequisites: Chem 3AL, GC-Maker Lab I (fall semester)

Hours & Format

Fall and/or spring: 15 weeks - 6 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Rhew

Also listed as: GEOG C179B

GC-Maker Lab II: Instrument development: [Read Less](#) [-]

ESPM C180 Air Pollution 3 Units

Terms offered: Spring 2021, Spring 2020, Spring 2018

This course is an introduction to air pollution and the chemistry of earth's atmosphere. We will focus on the fundamental natural processes controlling trace gas and aerosol concentrations in the atmosphere, and how anthropogenic activity has affected those processes at the local, regional, and global scales. Specific topics include stratospheric ozone depletion, increasing concentrations of green house gasses, smog, and changes in the oxidation capacity of the troposphere.

Air Pollution: Read More [+]

Rules & Requirements

Prerequisites: CHEM 1A, CHEM 1B, and PHYSICS 8A or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Goldstein

Also listed as: CIV ENG C106/EPS C180

Air Pollution: Read Less [-]

ESPM 181A Fire Ecology 3 Units

Terms offered: Spring 2021, Spring 2019, Spring 2018

Fundamentals of wildland fire including fire behavior modeling, fire history methods, prescribed fire techniques, fire ecology, fire management, fire in the urban-wildland intermix, wildland fire, and ecosystem sustainability. Laboratories on inventory methods, fire history, modeling of fire behavior and risk, and prescribed burning.

Fire Ecology: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Stephens

Fire Ecology: Read Less [-]

ESPM 182 Forest Operations Management 3 Units

Terms offered: Fall 2020, Fall 2018, Fall 2016

Examination of "on the ground" activities necessary to manage forests. Planning, design, and implementation of activities such as road building, forest harvesting, erosion control, and fire suppression are the central focus of the course. Aspects of timber harvest planning, archaeological surveys related to forest management, road closure, stream bank stabilization, and legislative control of forest operations will also be explored.

Forest Operations Management: Read More [+]

Rules & Requirements

Prerequisites: 101A, 101B, 101C and 101D

Hours & Format

Fall and/or spring: 15 weeks - 1 hour of lecture, 1 hour of discussion, and 4 hours of laboratory per week

Summer: 6 weeks - 3 hours of lecture, 3 hours of discussion, and 6 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: York

Forest Operations Management: Read Less [-]

ESPM 183 Forest Ecosystem Management and Planning 4 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

Introduces students to concepts and quantitative tools needed for the sustainable management and planning of multi-use forest ecosystems.

Topics covered include: forest regulation; estimation of ecological, economic, and social values; construction of dynamic forest models; methods for optimal decision-making; development of forest management plans; and ethics of natural resource management. Application to current issues in temperate and tropical forest management are discussed. Quantitative, analytical, and communication skills are emphasized. Oral presentation required.

Forest Ecosystem Management and Planning: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: ESPM 102C or instructor permission

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: O'Hara

Forest Ecosystem Management and Planning: Read Less [\[-\]](#)

ESPM C183 Forest Ecosystem Management 4 Units

Terms offered: Spring 2016, Spring 2015, Spring 2014

Introduces students to concepts and quantitative tools needed for the sustainable management of multi-use forest ecosystems. Topics covered include: estimation of ecological, economic, and social values; construction of dynamic forest models, methods for optimal decision-making, and development of forest management plans. Application to current issues in temperate and tropical forest management are discussed. Quantitative, analytical, and communication skills are emphasized. Oral presentation required.

Forest Ecosystem Management: Read More [\[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Potts

Also listed as: ENVECON C183

Forest Ecosystem Management: Read Less [\[-\]](#)

ESPM 184 Agroforestry Systems 3 Units

Terms offered: Fall 2010, Fall 2009, Fall 2008

Agroforestry principles and systems in use worldwide are examined, with emphasis on contemporary temperate agroforestry system design and management. Economic, biologic, social, and political conditions for successful agroforestry systems are analyzed. Some laboratory sessions will be field trips that will extend beyond the scheduled lab time.

Agroforestry Systems: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Upper division standing

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Altieri

Agroforestry Systems: Read Less [\[-\]](#)

ESPM 185 Applied Forest Ecology 4 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019

Concepts and applications of silviculture for the establishment, growth, composition, and quality of forest trees and stands. Silviculture is presented as a tool to meet multiple resource and ecosystem management objectives related to wildlife habitat, watershed resources, forest health, or timber production. Two weekend field trips will be scheduled in lieu of several laboratories.

Applied Forest Ecology: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: IB 153, ESPM 102A or course in community ecology

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 4 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: O'Hara

Applied Forest Ecology: Read Less [\[-\]](#)

ESPM 186 Management and Conservation of Rangeland Ecosystems 4 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019

Begins with the evolution and domestication of grazing animals, continues through ranching and rangeland stewardship practices, and explores new institutional arrangements for conservation and restoration. Woodlands, grasslands, and shrublands provide biodiversity, wildlife habitat, watershed, recreation, open space, and forage. Human practices and ecosystem dynamics meet in rangeland management. Methods for changing, predicting, or assessing the results.

Management and Conservation of Rangeland Ecosystems: Read More [\[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Bartolome, Huntsinger

Management and Conservation of Rangeland Ecosystems: Read Less [\[-\]](#)

ESPM 187 Restoration Ecology 4 Units

Terms offered: Spring 2014, Spring 2013, Spring 2012

This course covers ecological theories that inform the practice of ecological restoration, with particular focus on local (Bay Area) restoration and linkages with social, political, and economic factors. Laboratories focus on assessment techniques and cumulate with formulation of a restoration management plan. Laboratories will be based at the Richmond Field Station, served by campus shuttle.

Restoration Ecology: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: One course in ecology; upper division or graduate standing

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture, 1 hour of fieldwork, and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Suding

Restoration Ecology: Read Less [\[-\]](#)

ESPM 188 Case Histories in Wildlife Management 2 Units

Terms offered: Spring 2014, Spring 2013, Spring 2012

Seminar format with presentation and discussion by each student, with long term paper requirement. Examination in depth of current issues in wildlife management.

Case Histories in Wildlife Management: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: 114

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of seminar per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Instructor: Barrett

Case Histories in Wildlife Management: Read Less [\[-\]](#)

ESPM 190 Seminar in Environmental Issues 3 Units

Terms offered: Spring 2017, Fall 2010, Fall 2009

Interdisciplinary study of issues for advanced students. Designed to develop skills in critical analysis of specific issues. Different topics will be available each semester reflecting faculty and student interest. Major research project required.

Seminar in Environmental Issues: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Upper division standing and consent of instructor

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Seminar in Environmental Issues: Read Less [\[-\]](#)

ESPM C191 The American Forest: Its Ecology, History, and Representation 4 Units

Terms offered: Spring 2012, Spring 2011, Spring 2007, Fall 2004

The American forest will be examined in terms of its ecology, history, and representations in paintings, photographs, and literary essays. This examination seeks to understand the American forest in its scientific and economic parameters, as well as the historic, social, and ideological dimensions which have contributed to the evolution of our present attitudes toward the forest.

The American Forest: Its Ecology, History, and Representation: Read More [\[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Lovell, McBride

Also listed as: AMERSTD C112F/HISTART C189/UGIS C136

The American Forest: Its Ecology, History, and Representation: Read Less [\[-\]](#)

ESPM C192 Molecular Approaches to Environmental Problem Solving 2 Units

Terms offered: Fall 2020, Spring 2019, Fall 2018

Seminar in which students consider how modern biotechnological approaches, including recombinant DNA methods, can be used to recognize and solve problems in the area of conservation, habitat and endangered species preservation, agriculture and environmental pollution. Students will also develop and present case studies of environmental problems solving using modern molecular methods. Molecular Approaches to Environmental Problem Solving: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Junior or senior standing in the Genetics and Plant Biology or Microbial Biology major, or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Lindow

Formerly known as: Environ Sci, Policy, and Management 192

Also listed as: PLANTBI C192

Molecular Approaches to Environmental Problem Solving: Read Less [\[-\]](#)

ESPM C193A Environmental Education 3 Units

Terms offered: Fall 2012, Fall 2011, Fall 2010

Theory and practice of translating ecological knowledge, environmental issues, and values into educational forms for all age levels and all facets of society, including schools. Concentrated experience in participatory education.

Environmental Education: Read More [\[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 5.5 hours of lecture and 6 hours of fieldwork per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Hurst

Also listed as: EDUC C193A

Environmental Education: Read Less [\[-\]](#)

ESPM 194A Senior Seminar in Conservation and Resource Studies 2 Units

Terms offered: Fall 2021, Spring 2021, Fall 2020

Seminar in which students synthesize their knowledge, skills, and interests into a holistic perspective. A one-hour oral presentation in the area of interest and a senior thesis synthesizing the area of interest are required. Required final semester for all CRS majors.

Senior Seminar in Conservation and Resource Studies: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Senior standing in CRS major

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of seminar per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Senior Seminar in Conservation and Resource Studies: Read Less [\[-\]](#)

ESPM 194B Capstone Course in Society and Environment 1 Unit

Terms offered: Spring 2020, Fall 2019, Spring 2019

Senior capstone project in the student's primary area of concentration and presentation to the ESPM Society and Environment faculty and majors. Required of all graduating seniors in the ESPM and Society and Environment major. Students who have completed ESPM 195, H196, or 197 may substitute that course for ESPM 194B.

Capstone Course in Society and Environment: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Senior standing in ESPM Society and Environment major

Hours & Format

Fall and/or spring: 8 weeks - 1.5 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Capstone Course in Society and Environment: Read Less [\[-\]](#)

ESPM 195 Senior Thesis 3 - 4 Units

Terms offered: Spring 2021, Fall 2020, Fall 2019

Supervised independent research specific to aspects of ESPM, followed by a written report.

It is recommended that students conduct 3-4 units of research for at least one semester prior to enrolling in ESPM 195 in their senior year.

Senior Thesis: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Senior standing in ESPM major; 3.0 GPA

Hours & Format

Fall and/or spring: 15 weeks - 3-4 hours of independent study per week

Summer:

6 weeks - 7.5-10 hours of independent study per week

8 weeks - 6-7.5 hours of independent study per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Senior Thesis: Read Less [\[-\]](#)

ESPM H196 Honors Research 4 Units

Terms offered: Spring 2020, Spring 2019, Fall 2016

Supervised independent honors research specific to aspects of environmental science, policy, and management, followed by a written report to department. Submission of no more than 300 words required for approval.

Honors Research: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Open only to upper division Environmental Science, Policy, and Management majors, 3.2 minimum GPA. Eligibility restrictions related to GPA and unit accumulation

Repeat rules: Course may be repeated for credit up to a total of 8 units.

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of independent study per week

Summer:

6 weeks - 30 hours of independent study per week

8 weeks - 22.5 hours of independent study per week

10 weeks - 18 hours of independent study per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Honors Research: Read Less [\[-\]](#)

ESPM 197 Field Study in Environmental Science, Policy, and Management 1 - 4 Units

Terms offered: Spring 2021, Fall 2020, Spring 2020

Supervised experience in off-campus organizations relevant to specific aspects of environmental science, policy, and management. Regular individual meetings with faculty sponsor and written reports required.

Field Study in Environmental Science, Policy, and Management: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Upper division standing. Campus and departmental restrictions apply

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of fieldwork per week

Summer:

6 weeks - 1-9 hours of fieldwork per week

8 weeks - 1-7 hours of fieldwork per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Field Study in Environmental Science, Policy, and Management: Read Less [\[-\]](#)

ESPM 198 Directed Group Studies for Advanced Undergraduates 1 - 3 Units

Terms offered: Fall 2021, Fall 2020, Spring 2020

Group study of special topics in environmental science, policy, and management that are not covered in depth in regular courses in the department.

Directed Group Studies for Advanced Undergraduates: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Upper division standing; consent of instructor; campus and departmental restrictions apply

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-3 hours of directed group study per week

Summer:

6 weeks - 2.5-7.5 hours of directed group study per week

8 weeks - 1.5-5.5 hours of directed group study per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Directed Group Studies for Advanced Undergraduates: Read Less [\[-\]](#)

ESPM 198BC Berkeley Connect 1 Unit

Terms offered: Fall 2021, Spring 2021, Fall 2020

Berkeley Connect is a mentoring program, offered through various academic departments, that helps students build intellectual community. Over the course of a semester, enrolled students participate in regular small-group discussions facilitated by a graduate student mentor (following a faculty-directed curriculum), meet with their graduate student mentor for one-on-one academic advising, attend lectures and panel discussions featuring department faculty and alumni, and go on field trips to campus resources. Students are not required to be declared majors in order to participate.

Berkeley Connect: Read More [\[+\]](#)

Rules & Requirements

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Berkeley Connect: Read Less [\[-\]](#)

ESPM 199 Supervised Independent Study and Research 1 - 4 Units

Terms offered: Spring 2021, Fall 2020, Spring 2020

Enrollment restrictions apply; see the Courses and Curricula section of this catalog. Supervised independent study and research specific to aspects of environmental science, policy, and management.

Supervised Independent Study and Research: Read More [\[+\]](#)

Rules & Requirements

Prerequisites: Upper division standing; campus and departmental restrictions apply

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of independent study per week

Summer:

6 weeks - 1-5 hours of independent study per week

8 weeks - 1-4 hours of independent study per week

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/
Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Supervised Independent Study and Research: Read Less [\[-\]](#)