Environmental Science, Policy and Management

The Environmental Science, Policy, and Management (ESPM) Graduate Program provides a wealth of opportunities for students interested in careers in academia, government, and non-governmental agencies worldwide. Our faculty are internationally recognized, and ESPM is the campus hub for connections to other renowned Berkeley programs in the environment such as the Energy and Resources Group, Agricultural and Resource Economics, the Goldman School of Public Policy, Integrative Biology, Berkeley Natural History Museums, and Berkeley Law. The Berkeley campus maintains close ties to world-class research facilities at the Lawrence Berkeley National Laboratory, U.S. Geological Survey, California Academy of Sciences, Stanford University, and many other institutions. Students admitted to our program work with their research mentor to select courses, individualize their training, and conduct research projects that meet their interests and goals. Our core graduate courses provide an introduction to the wide breadth and deep expertise of research on the environment within our department and help students apply for funding opportunities early in their graduate program.

The PhD program is the main graduate program in ESPM for students entering with or without previous masters degrees, though we also offer limited numbers of MS degrees in our specialized Master of Range Management and Master of Forestry programs. The goal of the program is to provide both a strong disciplinary education and broadly based experience in cross-disciplinary communication and problem solving. To achieve this, the program leading to the PhD in environmental science, policy, and management requires that students complete three core courses and take additional coursework in the following three areas: area of specialization, research skills, and experiential breadth.

Disciplinary Emphasis

The disciplinary emphasis is the broadest academic area encompassing the student's interests. The three disciplinary emphases within the department are ecosystem sciences, organisms & environment, and society & environment. A student pursuing a strongly interdisciplinary program may study more than one of these disciplines in depth. Specific coursework within each field will be chosen by the guiding committee in conjunction with the student and approved by the graduate mentor.

Area of Specialization

The area of specialization is a narrower field within the context of the disciplinary emphasis. Some examples of these areas are microbial community ecology, ecosystem function, arthropod population and community ecology, biological control of arthropods, arthropod biodiversity science, American environmental history and policy, international forest management, biogeochemistry, Mediterranean grassland ecosystems, remote sensing, and forest management, to name a few.

Application

Prospective graduate students are encouraged to contact a potential PhD mentor directly prior to the application deadline. If possible, prospective graduate students should plan to visit the campus, department, and graduate program. As part of their application, each student will be asked to identify one of the three disciplinary emphases (ecosystem sciences, organisms & environment, and society & environment) most closely associated with her/his interests. If you have questions about which emphasis to choose, please ask your prospective mentor. It is not uncommon for students in ESPM to be co-mentored by two professors, often with different disciplinary emphases. The area of specialization is determined after entry into the program, in consultation with the guiding committee and PhD mentor.

Admission to the University

Minimum Requirements for Admission

The following minimum requirements apply to all graduate programs and will be verified by the Graduate Division:

1. A bachelor's degree or recognized equivalent from an accredited institution;
2. A grade point average of B or better (3.0);
3. If the applicant comes from a country or political entity (e.g., Quebec) where English is not the official language, adequate proficiency in English to do graduate work, as evidenced by a TOEFL score of at least 90 on the iBT test, 570 on the paper-and-pencil test, or an IELTS Band score of at least 7 on a 9-point scale (note that individual programs may set higher levels for any of these); and
4. Sufficient undergraduate training to do graduate work in the given field.

Applicants Who Already Hold a Graduate Degree

The Graduate Council views academic degrees not as vocational training certificates, but as evidence of broad training in research methods, independent study, and articulation of learning. Therefore, applicants who already have academic graduate degrees should be able to pursue new subject matter at an advanced level without the need to enroll in a related or similar graduate program.

Programs may consider students for an additional academic master's or professional master's degree only if the additional degree is in a distinctly different field.

Applicants admitted to a doctoral program that requires a master's degree to be earned at Berkeley as a prerequisite (even though the applicant already has a master's degree from another institution in the same or a closely allied field of study) will be permitted to undertake the second master's degree, despite the overlap in field.

The Graduate Division will admit students for a second doctoral degree only if they meet the following guidelines:

1. Applicants with doctoral degrees may be admitted for an additional doctoral degree only if that degree program is in a general area of knowledge distinctly different from the field in which they earned their original degree. For example, a physics PhD could be admitted to a doctoral degree program in music or history; however, a student with a doctoral degree in mathematics would not be permitted to add a PhD in statistics.
2. Applicants who hold the PhD degree may be admitted to a professional doctorate or professional master's degree program if there is no duplication of training involved.

Applicants may apply only to one single degree program or one concurrent degree program per admission cycle.

Required Documents for Applications

1. **Transcripts:** Applicants may upload *unofficial* transcripts with your application for the departmental initial review. *If the applicant is*

admitted, then *official* transcripts of all college-level work will be required. Official transcripts must be in sealed envelopes as issued by the school(s) attended. If you have attended Berkeley, upload your unofficial transcript with your application for the departmental initial review. *If you are admitted,* an official transcript with evidence of degree conferral *will not* be required.

2. **Letters of recommendation:** Applicants may request online letters of recommendation through the online application system. Hard copies of recommendation letters must be sent directly to the program, not the Graduate Division.
3. **Evidence of English language proficiency:** All applicants from countries or political entities in which the official language is not English are required to submit official evidence of English language proficiency. This applies to applicants from Bangladesh, Burma, Nepal, India, Pakistan, Latin America, the Middle East, the People's Republic of China, Taiwan, Japan, Korea, Southeast Asia, most European countries, and Quebec (Canada). However, applicants who, at the time of application, have already completed at least one year of full-time academic course work with grades of B or better at a US university may submit an official transcript from the US university to fulfill this requirement. The following courses will not fulfill this requirement:
   - courses in English as a Second Language,
   - courses conducted in a language other than English,
   - courses that will be completed after the application is submitted, and
   - courses of a non-academic nature.

   If applicants have previously been denied admission to Berkeley on the basis of their English language proficiency, they must submit new test scores that meet the current minimum from one of the standardized tests. Official TOEFL score reports must be sent directly from Educational Test Services (ETS). The institution code for Berkeley is 4833. Official IELTS score reports must be mailed directly to our office from the British Council. TOEFL and IELTS score reports are only valid for two years.

Where to Apply

Visit the Berkeley Graduate Division application page (http://grad.berkeley.edu/admissions/apply/).

Admission to the Program

Applicants for admission to the graduate program must hold a bachelor's degree from a university or college with curricula and standards equivalent to those of the University of California. The completed undergraduate program should normally be in a field relevant to the disciplinary emphasis chosen. Applicants without this background may be admitted with the understanding that their coursework must compensate for deficiencies in their preparation. We suggest that prospective applicants consult with faculty or the Graduate Student Services Office (https://ourenvironment.berkeley.edu/graduate-student-services/) for advice and course recommendations.

Prospective graduate students are encouraged to contact a potential PhD mentor directly prior to the application deadline. If possible, prospective graduate students should plan to visit the campus, department, and graduate program.

It is critical that all applicants identify on their application faculty whose research and work overlap with their strengths and interests. Without this information, the admission committee will not be able to evaluate your application properly. ***Applicants are strongly encouraged to contact faculty prior to the application process.*** As part of their application, each student will be asked to identify one of the three disciplinary emphases (ecosystem sciences, organisms & environment, and society & environment) most closely associated with her/his interests. If you have questions about which emphasis to choose, please ask your prospective mentor. Faculty sponsorship of entering graduate students will be determined once all applications have been reviewed and final admission offers have been made.

The ESPM admission committee, not individual faculty, makes the final decisions on who will be offered admission to the program. Applications are accepted for the fall semester only.

Time to Advancement

Curriculum

Courses Required

Program of study decided by the Guiding Committee with the student per research interests requires four components:		
Disciplinary Emphasis (broad area) from Ecosystem Sciences; Organisms & Environment; Society & Environment		
Area of Specialization (narrower field within the Disciplinary Emphasis)		
Research Skills		
Experiential Breadth		
ESPM 201A	Research Approaches in Environmental Science, Policy, and Management	3
ESPM 201C	Environmental Forum	1
ESPM 201S	Environmental Science, Policy, and Management Colloquium	1

Environmental Science, Policy and Management

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

ESPM C200 Principles of Phylogenetics 4 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019, Spring 2018, Spring 2016
The core theory and methodology for comparative biology, beginning with issues in building phylogenetic trees, with emphases on both morphology and molecules, and both living and fossil organisms. Also covers the many applications of phylogenetic trees to systematics, biogeography, speciation, conservation, population genetics, ecology, behavior, development, functional morphology, and macroevolution that have revolutionized those fields. Labs are closely integrated with lectures and cover the major algorithms and computer software used to implement these approaches. Requirements include participation in discussions, two exams, and a term project.
Principles of Phylogenetics: 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/Graduate

Grading: Letter grade.

Instructors: Ackerly, Mishler, Will

Also listed as: INTEGBI C200

Principles of Phylogenetics: Read Less [-]

ESPM 201A Research Approaches in Environmental Science, Policy, and Management 3 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019
Research projects and approaches in environmental science, policy, and management. An introduction to the diverse ways environmental problems are researched, comparing the approaches and methods of various disciplines represented among faculty and students. This course is the first of the core course sequence required for all ESPM graduate students.
Research Approaches in Environmental Science, Policy, and Management: Read More [+]

Rules & Requirements

Prerequisites: Graduate standing in ESPM

Hours & Format

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

Additional Details

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

Grading: Letter grade.

Instructor: Mills

Research Approaches in Environmental Science, Policy, and Management: Read Less [-]

ESPM 201C Environmental Forum 1 Unit

Terms offered: Fall 2021, Fall 2020, Fall 2019
Presentation and analysis of current topics in environmental science, policy, and management. This course is required for all ESPM doctoral students.
Environmental Forum: Read More [+]

Rules & Requirements

Prerequisites: Graduate standing in ESPM

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

Hours & Format

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

Additional Details

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

Grading: Offered for satisfactory/unsatisfactory grade only.

Formerly known as: 200C

Environmental Forum: Read Less [-]

ESPM 201S Environmental Science, Policy, and Management Colloquium 1 Unit

Terms offered: Fall 2019, Spring 2019, Fall 2018
Seminars for the presentation and discussion of original work by faculty, visiting scholars, and graduate students. Core course for the ESPM graduate program.
Environmental Science, Policy, and Management Colloquium: Read More [+]

Hours & Format

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

Additional Details

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

Grading: Offered for satisfactory/unsatisfactory grade only.

Environmental Science, Policy, and Management Colloquium: Read Less [-]

ESPM C204 Research Reviews in Animal Behavior: Behavior Review 1 Unit

Terms offered: Fall 2021, Spring 2021, Fall 2020, Spring 2020
This course will provide a rigorous, critical review of current research in animal behavior. Emphases will include hypothesis testing and experimental design, as well as methods of data collection and analysis. Each week, a student in the course will present original research in the form of a seminar presentation, grant proposal, or manuscript. Through discussion with seminar participants, presenters will gain critical feedback regarding their research.
Research Reviews in Animal Behavior: Behavior Review: Read More [+]
Rules & Requirements

Prerequisites: Graduate standing, basic course in animal behavior. Instructor approval required

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

Hours & Format

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

Additional Details

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

Grading: Letter grade.

Instructors: Lacey, Caldwell, Bentley, Elias

Formerly known as: Psychology C204, Integrative Biology C204

Also listed as: INTEGBI C204

Research Reviews in Animal Behavior: Behavior Review: Read Less [-]

ESPM 205 Quantitative Methods for Ecological and Environmental Modeling 3 Units

Terms offered: Prior to 2007
This course will review the background mathematical and statistical tools necessary for students interested in pursuing ecological and environmental modeling. Topics include linear algebra; difference equation, ordinary differential equation, and partial differential equation models; stochastic processes; parameter estimation; and a number of statistical techniques. This course will be recommended as a prerequisite for advanced modeling courses in Integrative Biology, Energy and Resources Group, and Environmental Science, Policy, and Management.
Quantitative Methods for Ecological and Environmental Modeling: Read More [+]
Rules & Requirements

Prerequisites: 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/Graduate

Grading: Letter grade.

Instructor: Wayne Getz

Quantitative Methods for Ecological and Environmental Modeling: Read Less [-]

ESPM C205 Quantitative Methods for Ecological and Environmental Modeling 3 Units

Terms offered: Fall 2015, Fall 2013, Fall 2012, Fall 2011, Fall 2009
This course will review the background mathematical and statistical tools necessary for students interested in pursuing ecological and environmental modeling. Topics include linear algebra; difference equation, ordinary differential equation, and partial differential equation models; stochastic processes; parameter estimation; and a number of statistical techniques. This course will be recommended as a prerequisite for advanced modeling courses in Integrative Biology, Energy and Resources Group, and Environmental Science, Policy, and Management.
Quantitative Methods for Ecological and Environmental Modeling: Read More [+]

Rules & Requirements

Prerequisites: 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/Graduate

Grading: Letter grade.

Also listed as: ENE,RES C205/INTEGBI C205

Quantitative Methods for Ecological and Environmental Modeling: Read Less [-]

ESPM 206 Animal Communication 2 Units

Terms offered: Spring 2017, Spring 2016, Spring 2015
The objective of the course is to explore major topics in animal communication. Topics each year will focus on a different sensory modality and range from visual, acoustic, and chemical senses. Due to the interdisciplinary nature of the study of communication, over the course of the semester, we will draw on a variety of disciplines (including cell biology, ecology, evolution, genetics, neurophysiology, and physics) to understand the mechanisms, function, and evolution of communication.
Animal Communication: Read More [+]

Hours & Format

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

Additional Details

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

Grading: Offered for satisfactory/unsatisfactory grade only.

Instructor: Elias

Animal Communication: Read Less [-]

ESPM C211 Modeling Ecological and Meteorological Phenomena 3 Units

Terms offered: Fall 2015, Fall 2014, Fall 2013
Modeling methods in ecology and meteorology; stability analysis; effects of anthropogenic stress on natural systems. Offered alternate years.
Modeling Ecological and Meteorological Phenomena: Read More [+]

Rules & Requirements

Prerequisites: Integrative Biology 102 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/Graduate

Grading: Letter grade.

Instructor: Harte

Also listed as: ENE,RES C202

Modeling Ecological and Meteorological Phenomena: Read Less [-]

ESPM 215 Hierarchical Statistical Modeling in Environmental Science 2 Units

Terms offered: Spring 2021, Spring 2020, Fall 2017
Hierarchical statistical models include generalized linear mixed models, generalized additive mixed models, state-space models for time-series data, and random field models for spatial data. Introduction to formulation and analysis of such models with frequentist methods, including maximum likelihood via numerical integration and restricted maximum likelihood, and Bayesian methods, including Markov chain Monte Carlo. Background in relevant probability theory.
Hierarchical Statistical Modeling in Environmental Science: Read More [+]

Rules & Requirements

Prerequisites: Calculus and experience with common statistical methods such as linear regression, 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/Graduate

Grading: Offered for satisfactory/unsatisfactory grade only.

Instructor: de Valpine

Hierarchical Statistical Modeling in Environmental Science: Read Less [-]

ESPM C216 Freshwater Ecology 3 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019, Spring 2015, Spring 2014, Spring 2013
This graduate course will combine formal lectures and discussion, with the overall goal of exposing students to general concepts in freshwater ecology. We will discuss a broad range of topics including freshwater environments and biota, natural selection and adaptive evolution, food webs and trophic cascades, cross-ecosystem linkages, and social-ecological resilience of freshwater ecosystems under global change. Upper division undergraduates are welcome, with permission of the instructors.
Freshwater Ecology: 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/Graduate

Grading: Letter grade.

Instructors: Carlson, Power

Also listed as: INTEGBI C216

Freshwater Ecology: Read Less [-]

ESPM 217 Political Economy of Climate Change 3 Units

Terms offered: Fall 2020, Fall 2018, Fall 2017
This course examines the comparative and global political economy of climate change, with a focus on the politics of climate change mitigation in the energy sector. Key themes are the choice of policy strategies and policy instruments, industry and climate policy, global institutions and collective action, markets and technological change, and economic and geo-political transformations in response to climate change. The courses combines theoretical readings with in-depth case studies.
Political Economy of Climate Change: 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/Graduate

Grading: Letter grade.

Instructor: Meckling

Political Economy of Climate Change: Read Less [-]

ESPM C220 Stable Isotope Ecology 5 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019, Spring 2016
Course focuses on principles and applications of stable isotope chemistry as applied to the broad science of ecology. Lecture topics include principles of isotope behavior and chemistry, and isotope measurements in the context of terrestrial, aquatic, and marine ecological processes and problems. Students participate in a set of laboratory exercises involving preparation of samples of choice for isotopic analyses, the use of the mass spectrometer and optical analysis systems, and the anlaysis of data.
Stable Isotope Ecology: Read More [+]
Rules & Requirements

Prerequisites: Graduate standing

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/Graduate

Grading: Letter grade.

Instructors: Amundson, Dawson, Mambelli

Also listed as: EPS C241/INTEGBI C227

Stable Isotope Ecology: Read Less [-]

ESPM 222 Surface and Colloid Chemistry of Natural Particles 3 Units

Terms offered: Fall 2017, Fall 2015, Spring 2011
Structure and coordination chemistry of natural adsorbent particles in aqueous systems; solute adsorption mechanisms and theoretical models; interparticle forces and colloidal phenomena; applications to biogeochemistry and contaminant hydrology.
Surface and Colloid Chemistry of Natural Particles: Read More [+]
Rules & Requirements

Prerequisites: 126 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/Graduate

Grading: Letter grade.

Instructor: Sposito

Surface and Colloid Chemistry of Natural Particles: Read Less [-]

ESPM C225 Isotopics 2 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019
This seminar will explore current topics that employ the use of stable isotopes. Discussion topics include the areas of biology, paleontology, biogeochemistry, soil science, and atmospheric science. Students will be required to lead at least one discussion of relevant literature in the topic area.
Isotopics: Read More [+]
Hours & Format

Fall and/or spring: 10 weeks - 3 hours of seminar per week

Additional Details

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

Grading: Offered for satisfactory/unsatisfactory grade only.

Instructors: Amundson, Dawson, Mambelli

Also listed as: INTEGBI C226

Isotopics: Read Less [-]

ESPM 226 Interdisciplinary Food and Agriculture Studies 3 Units

Terms offered: Spring 2018, Fall 2015, Spring 2014
A graduate seminar exploring the ecological, social, and economic risks inherent in different forms of agriculture, from highly diversified, agroecological farming systems to industrialized agriculture.
We will examine how different farm management techniques, government policies, supply chains, R&D, technology, and science may influence various risks and uncertainties, including climate change, agrobiodiversity, farmer livelihoods, food safety, public health, and nutrition.
Interdisciplinary Food and Agriculture Studies: 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 seminar per week

Additional Details

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

Grading: Letter grade.

Instructors: Iles, Kremen

Interdisciplinary Food and Agriculture Studies: Read Less [-]

ESPM 227 Science Communication 2 Units

Terms offered: Fall 2021, Fall 2020
Effective communication is an important skill that all scientists should master. There are many different forms of communication, and these require different approaches and techniques. The goal of this course is to provide students with the skills to communicate scientific findings to a wide range of audiences. We will discuss approaches to communicating our findings and those of others to other scientists, the public, and the media. We will then prepare and practice communicating through papers, proposals, presentations, sound bites, and podcasts. Exercises and assignments are designed to give students hands on experience developing their own stories and packaging them to selected audiences.
Science Communication: 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/Graduate

Grading: Offered for satisfactory/unsatisfactory grade only.

Instructor: Silver

Science Communication: Read Less [-]

ESPM 228 Advanced Topics in Biometeorology and Micrometeorology 2 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019
Measurement and modeling of trace gases and energy between the terrestrial biosphere and atmosphere. Micrometeorological flux measurement methods, including eddy covariance, profile, and eddy accumulation methods. A hierarchy of biophysical models are discussed for interpreting flux measurements. Information and theory on big-leaf, two-layer, and multi-layer models that couple energy, water, and carbon to predict trace gas fluxes are presented. How models integrate information from leaf to canopy to landscape scales is discussed.
Advanced Topics in Biometeorology and Micrometeorology: Read More [+]
Rules & Requirements

Prerequisites: C129 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/Graduate

Grading: Letter grade.

Instructor: Baldocchi

Advanced Topics in Biometeorology and Micrometeorology: Read Less [-]

ESPM 230 Sociology of Agriculture 4 Units

Terms offered: Spring 2021, Fall 2020, Spring 2020
This graduate seminar explores the sociology of agriculture and food systems, addressing key theories and topics in the field. We begin with the antecedents of the sociology of agriculture, including foundation classical agrarian theories and an overview of the field, followed by topics ranging from pesticide drift to agricultural labor injustice to food sovereignty movements and more. This course is most appropriate for students with some background in agri-food and social systems.
Sociology of Agriculture: 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/Graduate

Grading: Letter grade.

Instructor: De Master

Sociology of Agriculture: Read Less [-]

ESPM C234 Green Chemistry: An Interdisciplonary Approach to Sustainability 3 Units

Terms offered: Spring 2016, Spring 2015, Spring 2014, Spring 2013
Meeting the challenge of global sustainability will require interdisciplinary approaches to research and education, as well as the integration of this new knowledge into society, policymaking, and business. Green Chemistry is an intellectual framework created to meet these challenges and guide technological development. It encourages the design and production of safer and more sustainable chemicals and products.
Green Chemistry: An Interdisciplonary Approach to Sustainability: Read More [+]

Rules & Requirements

Prerequisites: One year of chemistry, including a semester of organic chemistry, or consent of instructors based on previous experience

Hours & Format

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

Summer: 6 weeks - 20 hours of lecture per week

Additional Details

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

Grading: Letter grade.

Instructors: Arnold, Bergman, Guth, Iles, Kokai, Mulvihill, Schwarzman, Wilson

Also listed as: CHEM C234/PB HLTH C234

Green Chemistry: An Interdisciplonary Approach to Sustainability: Read Less [-]

ESPM 235 Indigenous Environmental Studies 4 Units

Terms offered: Spring 2021
This seminar examines the relationship between Indigenous societies and the environments that shape, and are shaped by them. We will discuss defining and supporting sustainability; what environmental governance has looked like as tribal nations and settler governments have grappled for control over natural resources; issues around developing and utilizing “natural resources” on tribal land; how traditional environmental knowledge (TEK) and Indigenous science can be applied in environmental co-management; the struggle to achieve environmental justice and how Indigenous communities fit into the broader EJ movement; and the broader struggle to protect the waters so vital to the perpetuation of healthy communities.
Indigenous Environmental Studies: 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/Graduate

Grading: Letter grade.

Instructor: Hoover

Indigenous Environmental Studies: Read Less [-]

ESPM 244 Spatial Ecology 3 Units

Terms offered: Fall 2018, Fall 2017, Spring 2016
Spatial heterogeneity is a key feature of many ecological patterns and processes. This course will explore how spatial data and analysis can answer fundamental questions in ecology, evolution, and conservation through discussions of recent research and workshops on performing spatial analysis in R. Topics to be covered include spatial autocorrelation, habitat fragmentation, population dynamics, conservation and landscape genetics, simulation methods, niche modeling, and spatial statistics.
Spatial Ecology: Read More [+]

Rules & Requirements

Prerequisites: Graduate Student Standing

Hours & Format

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

Additional Details

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

Grading: Letter grade.

Instructor: Wang

Spatial Ecology: Read Less [-]

ESPM 248 Special Topics and Advanced Seminars in Entomology 0.0 Units

Terms offered: Prior to 2007
Special Topics and Advanced Seminars in Entomology: Read More [+]
Rules & Requirements

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

Additional Details

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

Grading: Letter grade.

Special Topics and Advanced Seminars in Entomology: Read Less [-]

ESPM 249 Bioethics, Law, and the Life Sciences 3 Units

Terms offered: Spring 2013
Developments in biotechnology and the life sciences are unsettling legal and policy approaches to intellectual property, reproduction, health care, medical research, and the criminal justice system. Through reading primary materials and relevant secondary sources, this course investigates ethical, legal, and policy problems associated with these developments, and explores possible solutions.
Bioethics, Law, and the Life Sciences: 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/Graduate

Grading: Letter grade.

Instructor: Winickoff

Bioethics, Law, and the Life Sciences: Read Less [-]

ESPM 250 Environmental History 4 Units

Terms offered: Fall 2003, Fall 2001, Fall 1999
A critical survey of classical and recent literature in the field of environmental history, philosophy, and ethics, with special emphasis on the American environment. Topics will include environmental historiography, theories of environmental history, and the relationships between environmental history, philosophy, ethics, ecology, and policy.
Environmental History: Read More [+]
Rules & Requirements

Prerequisites: Upper division course in history or history of science or a social science

Hours & Format

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

Additional Details

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

Grading: Letter grade.

Instructor: Merchant

Environmental History: Read Less [-]

ESPM 251 International Conservation and Development Policy 3 Units

Terms offered: Spring 2020, Spring 2019, Spring 2013
Changes in Third World rural economy, ecology, and environment and ways in which these are affected by development policies. Historical dimensions of Third World environmental problems. Changing patterns of rural production (especially food) and resource use; alternative theories of natural resource and socioeconomic development; linkages between socioeconomy and environment in agrarian change and development policy; technology and resource control; conservation and development problems.
International Conservation and Development Policy: Read More [+]
Rules & Requirements

Prerequisites: One upper division course in international development

Hours & Format

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

Additional Details

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

Grading: Letter grade.

Instructor: Carr

International Conservation and Development Policy: Read Less [-]

ESPM C252 Topics in Science and Technology Studies 3 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019, Fall 2014, Fall 2013
This course provides a strong foundation for graduate work in STS, a multidisciplinary field with a signature capacity to rethink the relationship among science, technology, and political and social life. From climate change to population genomics, access to medicines and the impact of new media, the problems of our time are simultaneously scientific and social, technological and political, ethical and economic.
Topics in Science and Technology Studies: 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 seminar per week

Additional Details

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

Grading: Letter grade.

Also listed as: ANTHRO C254/HISTORY C250/STS C200

Topics in Science and Technology Studies: Read Less [-]

ESPM 253 Advanced Readings in Political Ecology 4 Units

Terms offered: Spring 2021, Fall 2018, Spring 2017
Critique and comparison of literature in political ecology--an approach to sociological analysis of environmental change focusing on environmental conflict. Initial sessions address the definition of political ecology, its origins, and the politics and discourses of natural resource management. Literature includes domestic and international research involving the combination of social and environmental history, local perspectives, and political economy to discuss accounts of social and environmental change.
Advanced Readings in Political Ecology: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor; significant background in social theory

Hours & Format

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

Additional Details

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

Grading: Letter grade.

Instructor: Peluso

Advanced Readings in Political Ecology: Read Less [-]

ESPM C254 Ethnic and Cultural Diversity in Health Status 4 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019, Spring 2016, Spring 2015, Spring 2013
Focus on ethnic and cultural diversity in health behavior as a basis for public health programs. Consideration of U.S. ethnic minority groups and cultural groups in non-Western societies. Health status and behavior examined in context of relevant social and anthropological theory (social class, acculturation, political economy). Influence of socio-cultural background on concepts of health, illness, and health-seeking behavior. Implications for planning public health programs and policies.
Ethnic and Cultural Diversity in Health Status: 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/Graduate

Grading: Letter grade.

Instructor: Morello-Frosch

Also listed as: PB HLTH C202B

Ethnic and Cultural Diversity in Health Status: Read Less [-]

ESPM C255 Seminar in Sociology of Forest and Wildland Resources 3 Units

Terms offered: Spring 2020, Fall 2014, Spring 2014, Fall 2013
Individual projects and group discussions concerning social constraints to, and effects of, natural resource planning and management. Application of sociological theories to problems of managing wildland ecosystems. Students will examine topics of individual interest related to the management of wildland uses. Enrollment limited.
Seminar in Sociology of Forest and Wildland Resources: Read More [+]

Rules & Requirements

Prerequisites: 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/Graduate

Grading: Letter grade.

Instructor: Fortmann

Also listed as: GEOG C250

Seminar in Sociology of Forest and Wildland Resources: Read Less [-]

ESPM 256 Science, Technology, and the Politics of Nature 3 Units

Terms offered: Fall 2011, Spring 2011, Spring 2009
This course will introduce the methods and theories of Science and Technology Studies (STS) in order to explore the relationships among science, technology, law, and politics in the domains of environment and health. The course will focus some attention on the tension between technocracy and democracy in science policy, and on the role of biotechnology in reshaping the natural and political order. The course will equip graduate students in the social sciences, law, life sciences, and public policy with theoretical and practical tools for analyzing complex problems at the science, technology, and society interface.
Science, Technology, and the Politics of Nature: 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/Graduate

Grading: Letter grade.

Instructor: Winickoff

Science, Technology, and the Politics of Nature: Read Less [-]

ESPM 258 Race, Science, and Resource Policy 3 Units

Terms offered: Fall 2017, Fall 2015, Fall 2014
This course addresses explantation and strategy in natural resource policy with an emphasis on whether, why, and how (a) 'race' distributes access to and control of environmental resources, (b) 'science' creates and arrays perceptions, organization and control of these resources, and (c) public policy shapes racial disparities in natural resource opportunities. Topics are drawn primarily from issues in metropolitan, agricultural, and public resource systems.
Race, Science, and Resource Policy: 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/Graduate

Grading: Letter grade.

Instructor: Romm

Formerly known as: 214

Race, Science, and Resource Policy: Read Less [-]

ESPM 259 Transnational Environmental Politics and Movements 3 Units

Terms offered: Spring 2021, Spring 2018, Spring 2017
Contemporary issues in international environmental politics; impacts of globalization on the environment; comparative transnational environmental movements. Study of current and historical texts. Case studies drawn from around the world with a focus on methods and research techniques.
Transnational Environmental Politics and Movements: Read More [+]
Rules & Requirements

Prerequisites: Upper division course in environmental policy or social science

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/Graduate

Grading: Letter grade.

Instructor: O'Neill

Transnational Environmental Politics and Movements: Read Less [-]

ESPM 260 Governance of Global Production 3 Units

Terms offered: Fall 2021, Spring 2020, Spring 2019
This course explores critical policy and theoretical questions in the governance of global production. Current trends in the restructuring of industrial production; distributions of environmental, labor, and social impacts from this production; and new strategies for democratic governance are analyzed, including corporate self-regulation, monitoring, certification and labeling, fair trade programs, legal strategies, and international accords and agreements.
Governance of Global Production: 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/Graduate

Grading: Letter grade.

Instructor: O'Rourke

Governance of Global Production: Read Less [-]

ESPM 261 Sustainability and Society 3 Units

Terms offered: Fall 2020, Fall 2018, Fall 2017
Science-based technologies that are central to the search for sustainability in contemporary societies and their environmental impacts. Theoretical approaches to investigating how science, technology, and environment intersect. How societies move closer to sustainable technological systems. Redesign of existing technologies and the introduction of new technologies. How adverse impacts can be prevented through policy. Case studies of contemporary developments.
Sustainability and Society: Read More [+]

Rules & Requirements

Prerequisites: Graduate standing 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/Graduate

Grading: Letter grade.

Instructor: Iles

Sustainability and Society: Read Less [-]

ESPM 262 Race, Identity, and the Environment 3 Units

Terms offered: Spring 2021, Spring 2019, Spring 2018
Advanced readings on environment and race. Shifting meanings of "race" and its application and usefulness in theorizing human-environment relationships. Foundations of environmental ideas and attitudes towards the natural environment and their connections to contemporary environmental practices. Construction of environmental narratives and images in defining ideas of racial and place identity. How representations of the natural environment are structurally and culturally racialized within environmental institutions and the media. Post-race possibilities.
Race, Identity, and the Environment: Read More [+]

Rules & Requirements

Prerequisites: Graduate standing 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/Graduate

Grading: Letter grade.

Instructor: Finney

Race, Identity, and the Environment: Read Less [-]

ESPM 263 Indigenous, Feminist, and Postcolonial Approaches to Science, Technology, and Environment 4 Units

Terms offered: Spring 2013, Spring 2012, Spring 2011
This seminar presents material from indigenous studies; feminist and postcolonial science and technology studies (STS), including animal studies; political ecology; and other fields. It engages non-dominant knowledges while interrogating the role of key technoscientific concepts (modernity, objectivity, universality) in colonizations of both humans and nonhumans. This course highlights the role of critical methods in shifting power relations in research, including students' own research.
Indigenous, Feminist, and Postcolonial Approaches to Science, Technology, and Environment: 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/Graduate

Grading: Letter grade.

Instructor: TallBear

Indigenous, Feminist, and Postcolonial Approaches to Science, Technology, and Environment: Read Less [-]

ESPM 264 Silviculture Seminar 1 Unit

Terms offered: Fall 2016, Fall 2010, Fall 2008
A seminar covering various aspects of silviculture and related issues.
Silviculture Seminar: Read More [+]

Rules & Requirements

Prerequisites: 185 or consent of instructor

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

Hours & Format

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

Additional Details

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

Grading: Letter grade.

Instructor: O'Hara

Silviculture Seminar: Read Less [-]

ESPM 265 Seminar on Fire as an Ecological Factor 2 Units

Terms offered: Spring 2020, Fall 2017, Fall 2016
Effect of fire on ecology of forest and rangeland.
Seminar on Fire as an Ecological Factor: Read More [+]

Rules & Requirements

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/Graduate

Grading: Letter grade.

Instructor: Stephens

Seminar on Fire as an Ecological Factor: Read Less [-]

ESPM 268 Seminar in Range Ecology 2 Units

Terms offered: Fall 2021, Spring 2021, Spring 2020
A seminar course dealing with selected topics in ecology of rangelands.
Seminar in Range Ecology: 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 seminar per week

Additional Details

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

Grading: Letter grade.

Seminar in Range Ecology: Read Less [-]

ESPM 271 Advanced Remote Sensing of Natural Resources 3 Units

Terms offered: Fall 2019, Fall 2018, Fall 2014
The course provides a discussion of the advanced topics in remote sensing and image analysis for environmental applications. Topics include airborne and satellite remote sensing data acquisition; spatial, spectral, radiometric, and temporal resolutions; image display systems, classification algorithms; accuracy assessment; and integration in a geospatial context.Students will select either a lab assignment or conduct a project using multispectral, Hyperspectral, RADAR, SAR, LiDAR, etc. data, will write a report and make a presentation to the class; If project option is selected, a working knowledge of ERDAS Imagine or another image processing system is required. The Geospatial Innovation Facility (GIF) will be available to all students.
Advanced Remote Sensing of Natural Resources: Read More [+]

Rules & Requirements

Prerequisites: 172, Statistics 20, 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/Graduate

Grading: Letter grade.

Instructor: Khorram

Advanced Remote Sensing of Natural Resources: Read Less [-]

ESPM C273 Science and Technology Studies Research Seminar 3 Units

Terms offered: Fall 2021, Spring 2021, Fall 2020, Spring 2020, Spring 2019, Spring 2017, Spring 2016, Spring 2015
This course will cover methods and approaches for students considering professionalizing in the field of STS, including a chance for students to workshop written work.
Science and Technology Studies Research Seminar: 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 seminar per week

Additional Details

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

Grading: Offered for satisfactory/unsatisfactory grade only.

Also listed as: ANTHRO C273/HISTORY C251/STS C250

Science and Technology Studies Research Seminar: Read Less [-]

ESPM 276 Advanced Silviculture 2 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016
Advanced topics related to the dynamics and management of forest stands such as competition effects, mixed-species interactions, mutiaged stand silviculture, pruning, thinning regimes, management for old growth features, wood quality effects, and others. Field trips may be included.
Advanced Silviculture: Read More [+]

Rules & Requirements

Prerequisites: 185 or equivalent

Hours & Format

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

Additional Details

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

Grading: Letter grade.

Instructor: O'Hara

Advanced Silviculture: Read Less [-]

ESPM 277 Advanced Topics in Conservation Biology 3 Units

Terms offered: Fall 2018, Fall 2017, Fall 2016
A graduate level seminar covering advanced topics in conservation of biodiversity, focused on designing protected area networks. We will first lay the groundwork for the course by exploring the fundamental papers in ecology and conservation biology that led to systematic conservation planning. Then, we will study various issues at the current frontiers of the discipline, such as incorporating threats, costs, evolutionary processes, and ecosystem services into reserve network design. The class will encourage student engagement through discussions, group projects, peer instruction and peer review of essays.
Advanced Topics in Conservation Biology: Read More [+]

Rules & Requirements

Prerequisites: Undergraduate courses in ecology, population biology, or conservation biology

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/Graduate

Grading: Letter grade.

Instructor: Kremen

Advanced Topics in Conservation Biology: Read Less [-]

ESPM 278 Range Assessment 3 Units

Terms offered: Spring 2011, Spring 2008, Spring 2007
Rangeland vegetation sampling techniques with emphasis on comparing the relative efficiency of different techniques of vegetation measurement. Includes weekly lab exercises on artificial sampling boards and/or in the field. Juniors and seniors are encouraged.
Range Assessment: Read More [+]

Rules & Requirements

Prerequisites: 186 and one semester of statistics

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/Graduate

Grading: Letter grade.

Instructor: Allen-Diaz

Range Assessment: Read Less [-]

ESPM 279 Seminar on Pastoralism 3 Units

Terms offered: Spring 2020, Fall 2019, Spring 2019
A survey of pastoral animal management and production systems, as they influence and are influenced by the rangeland environment. Review of the evolution of animal management practices; contemporary management systems in California,the West, and worldwide; and production systems with both traditional and nontraditional goals. Examination of agroforestry and nomadic and transhumant grazing systems, sheep and cattle production, game ranching, and organic meat production will be included.
Seminar on Pastoralism: Read More [+]

Rules & Requirements

Prerequisites: 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/Graduate

Grading: Letter grade.

Instructor: Huntsinger

Seminar on Pastoralism: Read Less [-]

ESPM 280 Seminar in Range Ecosystem Planning and Policy 3 Units

Terms offered: Fall 2018, Fall 2016, Spring 2016
A seminar course dealing with selected current topics in range ecosystem planning and policy.
Seminar in Range Ecosystem Planning and Policy: 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 per week

Additional Details

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

Grading: Letter grade.

Instructor: Bartolome

Seminar in Range Ecosystem Planning and Policy: Read Less [-]

ESPM 281 Seminar in Wildlife Biology and Management 2 Units

Terms offered: Spring 2021, Spring 2020, Fall 2017
Reading, conference, and discussion. Reports and discussion of recent studies in wildlife biology and management. Open to qualified graduate students from other departments.
Seminar in Wildlife Biology and Management: Read More [+]
Rules & Requirements

Prerequisites: 114 and 187

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/Graduate

Grading: Letter grade.

Seminar in Wildlife Biology and Management: Read Less [-]

ESPM C282 Health Implications of Climate Change 3 Units

Terms offered: Spring 2020, Spring 2019, Spring 2018, Spring 2017, Spring 2016, Spring 2015
The course will provide a basic foundation in the physical mechanisms of, responses to, and health implications of climate change. We will explore the variety of epidemiologic, risk assessment, and statistical methods used to understand the impacts of climate change on health across diverse demographic groups. The public health implications, positive and negative, of efforts to mitigate and adapt to climate change will be elaborated, including discussions of ethical, political, and economic aspects of these efforts. Students will be responsible for leading class discussions and presenting a poster on their choice of a topic related to climate change and health.
Health Implications of Climate Change: Read More [+]
Rules & Requirements

Prerequisites: The material will be presented with minimal expectation of a background in physical science, although some additional reading may be needed for students with no university science courses. A background in epidemiology is also helpful, but not necessary

Hours & Format

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

Additional Details

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

Grading: Letter grade.

Instructors: Jerrett, Morello-Frosch

Also listed as: PB HLTH C271G

Health Implications of Climate Change: Read Less [-]

ESPM 284 Demographic Methods for Population Viability Analysis 3 Units

Terms offered: Fall 2009, Fall 2007, Fall 2002
Application of demographic methods to the management of plant and animal populations. Conservation problems faced by small populations of threatened or exploited species will be emphasized. Implications for life-history theory will also be discussed. Demographic analyses include (1) an understanding of life cycle diagrams, projection matrices, and age- and stage-based approaches; (2) calculation of population growth rate and sensitivity of demographic parameters to perturbation; and (3) advanced tehcniques of stochastic simulation modeling, spatial analyses, and population viability analyses will be learned.
Demographic Methods for Population Viability Analysis: Read More [+]
Rules & Requirements

Prerequisites: Graduate standing 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/Graduate

Grading: Letter grade.

Instructor: Beissinger

Demographic Methods for Population Viability Analysis: Read Less [-]

ESPM 288 Reproducible and Collaborative Data Science 3 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019
Introduction to principles and tools for reproducible and collaborative data science, including data curation and cleaning, version control, virtual machines, scripted work flow, hypothesis-driven exploratory data analysis, data visualization, and communication. Students will be introduced to git, Python,R, and LaTeX. The class will navigate a series of problem-driven analyses, focused on case studies and independent projects, leading to reproducible products that allow updated analyses as new data become available. Projects by first year trainees will be presented at the Annual Symposium.
Reproducible and Collaborative Data Science: Read More [+]
Rules & Requirements

Prerequisites: Previous experience in R programming or equivalent background expected

Hours & Format

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

Additional Details

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

Grading: Letter grade.

Instructor: Boettiger

Reproducible and Collaborative Data Science: Read Less [-]

ESPM C289 Applied Remote Sensing 3 Units

Terms offered: Not yet offered
This course consists of one lecture and one computer lab per week introducing fundamental principles and methods of environmental remote sensing and their practical applications. We will explore strategies for working with different types of remote sensing data and extracting image-based landscape information for various environmental research and planning objectives. This course focuses largely on local to regional scale applications of remote sensing in ecology, environmental planning and design, civil & environmental engineering and natural resource management.
Applied Remote Sensing: Read More [+]
Objectives & Outcomes

Course Objectives:
Learn practical skills and techniques to extracting landscape information from remote sensing data as image interpretation, classification, accuracy assessment, mapping and change analysis.
Become familiar with different types of data and instruments in remote sensing and learn how to choose the optimal remote sensing data and procedure for various landscape and environmental analysis applications.
Explore traditional and novel remote sensing techniques and their use in landscape planning, environmental studies and natural resource management.
Develop the capacity to work with the remote sensing literature and synthesize the relevant knowledge across different studies.

Rules & Requirements

Prerequisites: An introductory GIS course such as LA C188/Geography C188 or equivalent

Credit Restrictions: Students will receive no credit for LD ARCH C289 after completing LD ARCH 289. A deficient grade in LD ARCH C289 may be removed by taking LD ARCH 289.

Hours & Format

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

Additional Details

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

Grading: Letter grade.

Instructor: Dronova

Also listed as: LD ARCH C289

Applied Remote Sensing: Read Less [-]

ESPM 290 Special Topics in Environmental Science, Policy, and Management 1 - 4 Units

Terms offered: Fall 2021, Spring 2021, Fall 2020
Study and critical analysis of topics, research, and texts pertinent to environmental science, policy, and management. Different topics will be available each semester reflecting faculty and student interest.
Special Topics in Environmental Science, Policy, and Management: Read More [+]

Rules & Requirements

Prerequisites: Graduate standing or consent of instructor

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

Hours & Format

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

Additional Details

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

Grading: Letter grade.

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

ESPM 296 Individual Study 1 - 7 Units

Terms offered: Fall 2021, Spring 2021, Fall 2020
Individual study in consultation with a member of the faculty directed to analysis and synthesis of the literature of a specialized subject area in forestry and resource management.
Individual Study: Read More [+]

Rules & Requirements

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

Hours & Format

Fall and/or spring: 15 weeks - 1-7 hours of independent study per week

Additional Details

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

Grading: Offered for satisfactory/unsatisfactory grade only.

Individual Study: Read Less [-]

ESPM 298 Directed Group Study 1 - 6 Units

Terms offered: Fall 2021, Spring 2021, Fall 2020
Advanced study of research topics which vary each semester.
Directed Group Study: 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 - 3-18 hours of directed group study per week

Additional Details

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

Grading: The grading option will be decided by the instructor when the class is offered.

Directed Group Study: Read Less [-]

ESPM 299 Individual Research 1 - 12 Units

Terms offered: Fall 2021, Spring 2021, Fall 2020
Individual research under the supervision of a faculty member.
Individual Research: 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 - 0 hours of independent study per week

Additional Details

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

Grading: Offered for satisfactory/unsatisfactory grade only.

Individual Research: Read Less [-]

ESPM N299 Individual Research 1 - 8 Units

Terms offered: Summer 2021 Second 6 Week Session, Summer 2020 Second 6 Week Session, Summer 2016 8 Week Session
Individual research under the supervision of a faculty member.
Individual Research: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor

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

Hours & Format

Summer:
6 weeks - 2.5-20 hours of independent study per week
8 weeks - 1.5-15 hours of independent study per week
10 weeks - 1.5-12 hours of independent study per week

Additional Details

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

Grading: Offered for satisfactory/unsatisfactory grade only.

Formerly known as: Entomological Sciences 299, Forestry and Resource Management 299, Plant Pathology 299, and Soil Science 299

Individual Research: Read Less [-]

ESPM 300 Supervised Teaching in Environmental Science, Policy, and Management 1 - 6 Units

Terms offered: Fall 2021, Spring 2021, Fall 2020
Teaching methods at the University level; course content; problem set review and development; guidance of laboratory experiments; course development and evaluation; supervised practice teaching.
Supervised Teaching in Environmental Science, Policy, and Management: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor and appointment as graduate student instructor

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

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Professional course for teachers or prospective teachers

Grading: Offered for satisfactory/unsatisfactory grade only.

Supervised Teaching in Environmental Science, Policy, and Management: Read Less [-]

ESPM C302 Effective Scientific Communication 3 Units

Terms offered: Fall 2009, Fall 2007
This course will introduce methods of organizing and delivering oral presentations, initating and organizing manuscripts, and utilizing digital communication methods, such as web-based media. Students will develop effective communication techniques through in-class experience. This class will have an emphasis on the sciences but will be useful and open to graduate students of all disciplines.
Effective Scientific Communication: Read More [+]

Hours & Format

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

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/ Professional course for teachers or prospective teachers

Grading: Letter grade.

Instructors: Resh, Rhew

Also listed as: GEOG C302

Effective Scientific Communication: Read Less [-]

ESPM 375 Professional Preparation: Teaching in Environmental Science, Policy, and Management 2 Units

Terms offered: Fall 2021, Fall 2020, Fall 2019
This course is designed to better prepare graduate students for their GSI appointments, and to foster graduate student professional development in academia.The disciplinary theme for the course is on interdisciplinary teaching and multiple ways of teaching in the environmental fields. GSIs are introduced to their roles and responsibilities as instructors in these various learning environments, and to resources to enhance teaching. The course facilitates experimentation with different teaching methods, serves as a forum for sharing information on pedagogical practices, and provides feedback on teaching. As requested by students, the course is front-loaded with practical tools for classroom teaching.
Professional Preparation: Teaching in Environmental Science, Policy, and Management: 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/ Professional course for teachers or prospective teachers

Grading: Offered for satisfactory/unsatisfactory grade only.

Formerly known as: Environmental Science, Policy, and Management 301

Professional Preparation: Teaching in Environmental Science, Policy, and Management: Read Less [-]

ESPM 400 Professional Training in Research 1 - 6 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019
Training for students in planning and performing research under the supervision of a faculty member. This course is intended to provide credit for experience obtained.
Professional Training in Research: Read More [+]
Rules & Requirements

Prerequisites: Consent of instructor and appointment as graduate student researcher

Credit Restrictions: Course does not satisfy unit or residence requirements.

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

Additional Details

Subject/Course Level: Environ Sci, Policy, and Management/Other professional

Grading: Offered for satisfactory/unsatisfactory grade only.

Professional Training in Research: Read Less [-]

ESPM 601 Individual Study for Master's Students 1 - 8 Units

Terms offered: Spring 2021, Spring 2020, Spring 2019
Individual study for the comprehensive examination in consultation with the field adviser.
Individual Study for Master's Students: Read More [+]
Rules & Requirements

Prerequisites: Consent of instructor

Credit Restrictions: Course does not satisfy unit or residence requirements for master's degree.

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/Graduate examination preparation

Grading: Offered for satisfactory/unsatisfactory grade only.

Individual Study for Master's Students: Read Less [-]

ESPM 602 Individual Study for Doctoral Students 1 - 8 Units

Terms offered: Spring 2020, Spring 2019, Spring 2018
Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D.
Individual Study for Doctoral Students: 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 - 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/Graduate examination preparation

Grading: Offered for satisfactory/unsatisfactory grade only.

Individual Study for Doctoral Students: Read Less [-]