

## ENVIRONMENTAL STUDIES

### THE FACULTY

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### THE MAJORS

The department provides students with the tools to analyze complex environmental problems and contribute to their solutions. Two majors are offered; a bachelor of arts in environmental studies, and a bachelor of science in environmental science. Both majors integrate social, ethical, and environmental science understandings of environmental issues. Environmental Studies majors emphasize the social aspects of environmental issues, while Environmental Science majors emphasize the ecological, geological, chemical, and physical aspects of environmental issues. Capstone requirements and honors opportunities are the same for the bachelor of arts and the bachelor of science and are found under the bachelor of science. A minor in a supporting field highly recommended, for example, spatial studies, environmental chemistry for the major in environmental sciences, or business administration for the major in environmental studies.

Students entering the major are expected to have a 2.3 cumulative GPA on a 4.0 scale. Transfer students are expected to have a 2.3 average from their previous school(s).

Learning outcomes for Environmental Studies may be found at [www.redlands.edu/BA-EVST/learning-outcomes](http://www.redlands.edu/BA-EVST/learning-outcomes); learning outcomes for Environmental Science may be found at [www.redlands.edu/BS-EVSS/learning-outcomes](http://www.redlands.edu/BS-EVSS/learning-outcomes).

## BACHELOR OF ARTS: ENVIRONMENTAL STUDIES

### LEARNING OUTCOMES

Upon completion of the major, an environmental studies major should be able to

1. Integrate social and environmental science to critically evaluate complex environmental problems or opportunities, emphasizing social sciences, ethical dimensions, and/or the humanities
2. Use appropriate tools to analyze and communicate environmental problems or opportunities
3. Apply interdisciplinary environmental learning to a specialization in Environmental Studies

## ENVIRONMENTAL STUDIES CATEGORIES AND COURSES: 10 courses

### INTRODUCTORY COURSE: 1 course

-- EVST 100 Introduction to Environmental Studies (4) or equivalent.

### ENVIRONMENTAL HUMANITIES OR ENVIRONMENTAL SOCIAL SCIENCE: 1 course

- EVST 215 Literature of American Environment (4)  
-- EVST 242 Food & Nature (4)  
-- EVST 276 Market-Based Conservation Policy (4)  
-- EVST 277 Environmental Justice (3-4)  
-- EVST 300 Environmental World Views (4)

- EVST 310 Environmental Law (4)
- EVST 311 Environmental Law in Action (3)
- EVST 315 Environmental Nonfiction (4)
- EVST 335 Environment and Development (4)
- REL 122 Religion and Ecology: Environmental Ethics (4)
- PHIL 211 Environmental Ethics (4)
- POLI 207 Environmental Politics and Policy (4)
- ECON 205 Ecological Economics (4)

#### EARTH SCIENCE: 1 course

- EVST 205 Great Environmental Disasters (4)
- EVST 210 Energy and the Environment
- EVST 220 Physical Geography (4)
- EVST 254 Climate Disruption (4)
- EVST 290 Environmental Geology (4)
- EVST 391 Environmental Hydrology (4)
- EVST 392 Oceanography (4)
- EVST 375 Tropical Rainforests: the Amazon, the Andes and the Inca (3)
- EVST 430 Advanced Geology Seminar (4)

#### LIFE SCIENCE: 1 course

- EVST 225 California Plants (4)
- EVST 230 Biodiversity (4)
- EVST 245 Marine Environmental Studies (4)
- EVST 255 Ornithology (4)
- EVST 305 Ecology for Environmental Scientists (4)
- EVST 281 The Palau Expedition: Explorations in Sustainable Development (3)
- EVST 355 The Ecology of Australia and New Zealand (3)

#### TOOLS, APPLICATIONS, AND METHODS: 2 courses

The recommendation SPA 110 and one additional course.

- SPA 110 Introduction to Spatial Analysis & GIS (4)
- EVST 235 Environmental Impact Assessment (4)
- EVST 250 Environmental Design Studio I (4), or EVST 350 Environmental Design Studio II (3-4)
- EVST 325 Public Lands Policy (4)
- EVST 371 Conservation Communication (3)
- EVST 399 Research Methods & Design (4)
- POLI 200 Statistical Analysis and Mapping of Social Science Data (4)
- MATH 111 Elementary Statistics with Applications (4)
- MATH 231 Introduction to Modeling (4)

#### EXPERIENTIAL LEARNING (PRACTICUM): 0 credits

Complete one of the following

- Environmental Study Abroad
- Environmental internship
- Environmental travel course
- Approved environmental community service activity

ADVANCED ENVIRONMENTAL STUDIES ELECTIVE: 1 course

-- Choose from EVST courses numbered 200 and above.

#### ENVIRONMENTAL STUDIES CONCENTRATIONS

At least 2 of your 3 concentration electives must be taken within EVST. There are also many opportunities to strengthen the concentration by choosing concentration-relevant courses inside the core.

##### 1. BUSINESS CONCENTRATION: 3 courses

- EVST 340 Green Business (4)
- EVST 242 Food and Nature (4)
- EVST 276 Market-based Conservation Policy (4)
- EVST 347 Innovation for Sustainability (4)
- ECON 101 Principles of Economics (4)
- ECON 205 Ecological Economics (4)
- BUS 136 Global Marketing (4)
- ACCT 210 Principles of Financial Accounting and Reporting (4)
- BUS 310 Principles of Management and Organizational Behavior (4)

##### 2. SPATIAL STUDIES CONCENTRATION: 3 courses

- SPA 210 Advanced GIS (4)
- SPA 230 Field Methods GIS (3)
- EVST 205 Great Environmental Disasters (4)
- EVST 220 Physical Geography (4)
- EVST 230 Biodiversity (4)
- EVST 250 Environmental Design Studio I (4)
- EVST 350 Environmental Design Studio II (3-4)
- POLI 202 Statistical Analysis and Mapping of Social Science Data (4)

##### 3. POLICY AND MANAGEMENT CONCENTRATION: 3 courses

- EVST 235 Environmental Impact Assessment (4)
- EVST 242 Food and Nature (4)
- EVST 245 Marine Environmental Studies (4)
- EVST 276 Market-Based Conservation Policy (4)
- EVST 277 Environmental Justice (3-4)
- EVST 325 Public Lands Policy (4)
- POLI 207 Environmental Politics and Policy (4)
- PLCY 100 Introduction to Public Policy Analysis (4)
- ECON 101 Principles of Economics (4)
- ECON 205 Ecological Economics (4)

#### CAPSTONES: 4-8 credits

- Junior Capstone (2)
- EVST 475 Senior Capstone (2-6)

See specific information for the capstone courses and honors policy following the Environmental Sciences major requirements.

## BACHELOR OF SCIENCE: ENVIRONMENTAL SCIENCE

### LEARNING OUTCOMES

Upon completion of the major, an environmental science major should be able to

1. Integrate social and environmental science to critically evaluate complex environmental problems or opportunities, with an emphasis in mathematics, ecology, biology, geology, chemistry, or physics.
2. Use appropriate tools to analyze and communicate environmental problems or opportunities
3. Apply interdisciplinary environmental learning to a specialization in Environmental Science

### ENVIRONMENTAL SCIENCE CATEGORIES AND COURSES: 11 courses

#### INTRODUCTORY COURSE: 1 course

- EVST 100 Introduction to Environmental Studies (4) or equivalent.

#### ENVIRONMENTAL HUMANITIES OR ENVIRONMENTAL SOCIAL SCIENCE: 1 course

- EVST 215 Literature of American Environment (4)
- EVST 242 Food and Nature (4)
- EVST 276 Market-Based Conservation Policy (4)
- EVST 277 Environmental Justice (3–4)
- EVST 300 Environmental World Views (4)
- EVST 310 Environmental Law (4)
- EVST 311 Environmental Law in Action (3)
- EVST 315 Environmental Nonfiction (4)
- EVST 335 Environment and Development (4)
- REL 122 Religion and Ecology: Environmental Ethics (4)
- PHIL 211 Environmental Ethics (4)
- POLI 207 Environmental Politics and Policy (4)
- ECON 205 Ecological Economics (4)

#### EARTH SCIENCE: 1 course

- EVST 205 Great Environmental Disasters (4)
- EVST 210 Energy and the Environment (4)
- EVST 220 Physical Geography (4)
- EVST 254 Climate Disruption (4)
- EVST 290 Environmental Geology (4)
- EVST 391 Environmental Hydrology (4)
- EVST 392 Oceanography (4)
- EVST 375 Tropical Rainforests: the Amazon, the Andes and the Inca (3)
- EVST 430 Advanced Geology Seminar (4)

#### LIFE SCIENCE: 1 course

- EVST 225 California Plants (4)
- EVST 230 Biodiversity (4)
- EVST 245 Marine Environmental Studies (4)
- EVST 255 Ornithology (4)
- EVST 305 Ecology for Environmental Scientists (4)
- EVST 281 The Palau Expedition: Explorations in Sustainable Development (3)
- EVST 355 The Ecology of Australia and New Zealand (3)

**CHEMISTRY: 1 course**

- CHEM 131 General Chemistry (4)

**ALLIED SCIENCE: 1 course**

This requirement is satisfied with one course from Chemistry (132 and above), or Biology (200 and above) may also count toward this category.

**MATH: 1 course**

Either statistics or calculus fulfills this requirement. Both are recommended.

- Statistics--choose from EVST 399 Research Methods & Design (4), POLI 202 Statistical Analysis and Mapping of Social Science Data (4), MATH 111 Elementary Statistics with Applications (4)
- MATH 118 or higher, Calculus (4)
- MATH 231 Mathematical Modeling (4)

**EXPERIENTIAL LEARNING (PRACTICUM): 0 credits**

Complete one of the following

- Environmental Study Abroad
- Environmental internship
- Environmental travel course
- Approved environmental community service activity

**ADVANCED ENVIRONMENTAL SCIENCE: 1 course**

- EVST 220 Physical Geography (4)
- EVST 225 California Plants (4)
- EVST 230 Biodiversity (4)
- EVST 245 Marine Environmental Studies (4)
- EVST 254 Climate Disruption (4)
- EVST 255 Ornithology (4)
- EVST 290 Environmental Geology (4)
- EVST 305 Ecology for Environmental Scientists (4)
- EVST 391 Environmental Hydrology (4)
- EVST 392 Oceanography (4)
- EVST 399 Research Methods & Design (4)
- EVST 430 Advanced Geology Seminar (4)

**ENVIRONMENTAL SCIENCE CONCENTRATIONS**

At least 2 of your 3 concentration electives must be taken within EVST. There are also many opportunities to strengthen the concentration by choosing concentration-relevant courses inside the core.

**1. ECOLOGY CONCENTRATION: 3 courses**

- EVST 225 California Plants (4)
- EVST 230 Biodiversity (4)
- EVST 255 Ornithology (4)
- EVST 305 Ecology for Environmental Scientists (4)
- EVST 355 The Ecology of Australia and New Zealand (3)
- Various approved biology courses

## 2. GEOLOGY CONCENTRATION: 3 COURSES

- EVST 205 Great Environmental Disasters (4)
- EVST 220 Physical Geography (4)
- EVST 254 Climate Disruption (4)
- EVST 290 Environmental Geology (4)
- EVST 392 Oceanography (4)
- EVST 430 Advanced Geology Seminar (4)
- PHYS 220 Fundamentals of Physics I (4)
- PHYS 221 Fundamentals of Physics II (4)
- PHYS 231 General Physics I (4)
- PHYS 232 General Physics II (4)
- PHYS 233 General Physics III (4)

## 3. GEOGRAPHIC INFORMATION SCIENCE CONCENTRATION: 3 COURSES

- EVST 205 Great Environmental Disasters (4)
- EVST 250 Environmental Design Studio I (4)
- EVST 350 Environmental Design Studio II (4)
- SPA 110 Introduction to Spatial Analysis & GIS (4)
- SPA 210 Advanced GIS (4)
- SPA 230 Field Methods in GIS (3)
- SPA 425 Remote Sensing Image Analysis (4)

## 5. MARINE SCIENCE CONCENTRATION: 3 courses

- EVST 245 Marine Environmental Studies (4)
- EVST 254 Climate Disruption (4)
- EVST 392 Oceanography (4)
- PHYS 360 Topics in Physics and Astronomy (2-4)

## CAPSTONES: 4-8 credits

- Junior Capstone (2)
- EVST 475 Senior Capstone (2-6)

## CAPSTONE SEQUENCE (4-8 credits)

Each student will complete a 4 to 8 credit capstone sequence for the purpose of producing a senior portfolio that is evaluated by the student's capstone advisor. The portfolio must include a research paper or essay focused on the student's declared area of specialization, along with selected work from previous classes that demonstrates student competence in Environmental Studies learning outcomes. These outcomes involve integrative thinking about the field, application of appropriate tools, and evidence of mastery of a well-defined area of specialization within the major or concentration.

## JUNIOR SELF-DIRECTED STUDY (2)

Required only of students who do not complete EVST 399 Research Methods & Design, this is an individualized study offered normally in spring semester but available to spring study abroad students in the fall of their junior year. Students will investigate and define an area of specialization that reflects their interest and academic strength, and then produce an initial annotated bibliography of major works in the chosen specialty area, and a possible research question or theme to be developed during the senior year. Identification of career planning materials related to the specialization is highly encouraged. The self-directed study in capstone preparation will include efforts by juniors in the major to acquaint

themselves with relevant capstone work produced by seniors and EVST alumnae. Follow-on summer internships or research projects will be encouraged upon completion of the junior independent study.

#### SENIOR CAPSTONE (2–6)

As noted above, the capstone sequence begins in the junior year with EVST 399 Research Methods & Design or a two-credit exercise to define an appropriate area of specialization within the major concentration and write a literature review of major works that are highly relevant for mastering the chosen specialty at an advanced undergraduate level. The literature review must culminate in a proposed research question or theme to be addressed in the specialty paper. The second course, worth 2–4 credits, begins in the senior year and examines the research question or theme posed by the junior self-directed study. This course meets as a class approximately 8 times during the semester, and includes presentations about capstone and career matters by each of the EVST full-time faculty members. Individual meetings with capstone advisors are required. The course material includes exercises in resume writing and career planning, and completion of the portfolio requirement for student demonstration of key learning objectives.

To summarize, the purpose of the senior capstone sequence is (1) to declare an area of specialization that caters to the student's interest and abilities, (2) to prepare a literature review of key knowledge sources and use them to prepare a researchable question or theme about some aspect of the desired specialization, (3) to answer the question or explore a theme in ways that demonstrate high levels of relevant learning, analysis, and synthesis applied to the field of specialization, and (4) to integrate learning in the area of specialization and in previous coursework in ways that demonstrate the three EVST learning outcomes, along with practical knowledge of relevant career opportunities related to planning beyond college.

#### HONORS

Juniors hoping to graduate with an overall GPA or a GPA in the major of 3.7 or higher are eligible to apply for departmental honors during their junior year. Students must work with a faculty advisor to develop a detailed proposal, and then complete an individual honors project during their senior year. For information, speak to an EVST faculty member. Honors are conferred upon approval by a majority of the EVST faculty. Honors capstone projects will follow the normal sequence of steps, but will require high levels of independent and original research, culminating in more ambitious and extensive final products that will be evaluated by multiple members of the Environmental Studies faculty.

#### THE MINOR

6 courses/ 24 credits

Three courses must come from within the department.

INTRODUCTORY COURSE: 1 course

-- EVST 100 Introduction to Environmental Studies (4) or equivalent

ENVIRONMENTAL HUMANITIES OR ENVIRONMENTAL SOCIAL SCIENCE: 1 course

-- EVST 215 Literature of American Environment (4)

-- EVST 242 Food & Nature (4)

-- EVST 276 Market-Based Conservation Policy (4)

-- EVST 277 Environmental Justice (4)

-- EVST 300 Environmental World Views (4)

-- EVST 310 Environmental Law (4)

- EVST 311 Environmental Law in Action (3)
- EVST 315 Environmental Nonfiction (4)
- EVST 335 Environment and Development (4)
- REL 122 Religion and Ecology: Environmental Ethics (4)
- PHIL 211 Environmental Ethics (4)
- POLI 207 Environmental Politics and Policy (4)
- ECON 205 Ecological Economics (4)

EARTH SCIENCE: 1 course

- EVST 205 Great Environmental Disasters (4)
- EVST 210 Energy and the Environment (4)
- EVST 220 Physical Geography (4)
- EVST 254 Climate Disruption (4)
- EVST 290 Environmental Geology (4)
- EVST 391 Environmental Hydrology (4)
- EVST 392 Oceanography (4)
- EVST 375 Tropical Rainforests: the Amazon, the Andes and the Inca (3)
- EVST 430 Advanced Geology Seminar (4)

LIFE SCIENCE: 1 course

- EVST 225 California Plants (4)
- EVST 230 Biodiversity (4)
- EVST 245 Marine Environmental Studies (4)
- EVST 255 Ornithology (4)
- EVST 305 Ecology for Environmental Scientists (4)
- EVST 281 The Palau Expedition: Explorations in Sustainable Development (3)
- EVST 355 The Ecology of Australia and New Zealand (3)

TOOLS, APPLICATIONS, AND METHODS: 1 course

- SPA 110 Introduction to Spatial Analysis & GIS (4)
- EVST 235 Environmental Impact Assessment
- EVST 250 Environmental Design Studio I (4)
- EVST 350 Environmental Design Studio II (3-4)
- EVST 325 Public Lands Policy (4)
- EVST 399 Research Methods & Design (4)
- POLI 202 Statistical Analysis and Mapping of Social Science Data (4)
- MATH 111 Elementary Statistics with Applications (4)
- MATH 231 Introduction to Modeling (4)

ADVANCED ENVIRONMENTAL STUDIES ELECTIVE: 1 course

- Choose from EVST courses numbered 200 and above.

TEACHING CREDENTIAL SUBJECT MATTER PROGRAM IN ENVIRONMENTAL STUDIES

Students who wish to be certified to teach science must pass the CSET and CBEST examinations. The best preparation for these examinations is a B.S. in Environmental Science or B.A. in Environmental Studies. Students must meet with the director of the Center for Science and Mathematics and with an advisor in the School of Education for information concerning certification and the teacher education preparation program process. Most students complete the teacher preparation program, including



student teaching, during a fifth year after graduation. Please refer to the Education section under the College of Arts and Sciences of this Catalog "Preliminary Teacher Credential Program" for a more detailed list of requirements.

#### ADVANCED PLACEMENT IN ENVIRONMENTAL STUDIES

Students who receive a score of four or higher on the Advanced Placement Test will receive credit for EVST 100.

#### PROGRAM HONORS

Students with outstanding records of academic achievement (GPA of 3.7 or higher in the major) may apply for departmental honors during the second semester of their junior year, but no later than the end of the fourth full week of their first semester as a senior. Candidates must complete an honors capstone project on a challenging topic approved by a faculty committee. The project must demonstrate both analysis and synthesis of environmental issues, along with constructive critical thought. Candidates who successfully complete and defend their final projects before a faculty committee will graduate with honors in Environmental Studies.

#### COURSE DESCRIPTIONS (EVST)

##### 100 Introduction to Environmental Studies.

Fall (4), Spring (4).

Overview of the major causes and consequences of pollution, natural resource depletion, and loss of biological diversity. The primary objective is to develop an interdisciplinary understanding of our natural environment, the human impacts that degrade it, and the measures we can take to protect and restore environmental quality.

##### 102 Environmental Geography of Southern California.

Fall (4), Spring (4), May Term (3).

A local geographic "laboratory" for applying environmental concepts and studying the physical and cultural geography of Southern California. Using historical and scientific field surveys, students trace the roots of regional environmental problems.

##### 110 Introduction to Spatial Analysis and GIS.

Fall (4), Spring (4).

Introduction to concepts of spatial analysis and to geographic information systems (GIS). Emphasis on spatial reasoning and analysis. Topics include spatial data models; data requirements and acquisition; spatial analysis using GIS; implementation within an organization; and especially, the application of GIS to problem solving in other disciplines. Two lectures and two laboratories. Not open to students who have received credit for SPA 110.

Prerequisite: EVST 100 or by permission.

##### 205 Great Environmental Disasters.

Fall (4), Spring (4).

This course examines great environmental disasters that have occurred throughout geologic time. From the impact that resulted in the extinction of dinosaurs to the volcanic eruptions at Pompeii to the aftermath of Hurricane Katrina, we develop an understanding of these events and their impacts from an earth science perspective.

210 Energy and the Environment.

Fall (4), Spring (4).

Sources, production, distribution, and consumption of energy are considered with special attention to alternative energy systems—including wind, solar, and geothermal—and conservation. Environmental effects of air and water pollution also are considered. Experiments are conducted to aid in understanding the principles presented. Field trips to regional energy production facilities are included. Prerequisites: MATH 101 or high school algebra and EVST 100 or by permission.

215 American Environmental Literature.

Fall (4).

Investigation of the ways in which American experience with nature is both shaped by and reflected through literary fiction and non-fiction as well as poetry. Numeric grade only.

220 Physical Geography.

Fall (4).

Exploration of the physical geography of Earth by examination of lithospheric, atmospheric, hydrological, and biological processes. Laboratory includes field methods, topographic map reading, and in-depth discussion of these principles. Prerequisite: EVST 100 or by permission.

225 California Plants: Taxonomy and Ecology.

Spring (4).

Exploration of the biodiversity of California plant life. Lectures focus on the varied physical environments and ecology of California plant communities. Laboratories delve into the intimacies of plant taxonomy and identification. Field-trip laboratories will afford first-hand experience with coastal, interior valley, montane and desert plant communities and their environments.

Prerequisite: EVST 100 or by permission.

Offered in alternate years.

230 Biodiversity.

Fall (4).

Examination of global and local biodiversity and the causes and implications of biodiversity decline. Emphasis on threatened and endangered species and human activities related to the decline of species. This course is field-trip and project intensive.

Prerequisite: EVST 100 or by permission.

235 Environmental Impact Assessment.

Fall (4), Spring (4).

Comprehensive overview of environmental impact assessment. Federal and State legislative foundations governing the content and process of environmental review are examined. Culminates in preparation of an environmental impact report analyzing the potential impacts and mitigations.

Prerequisite: EVST 100 and completion of a WA course.

240 Global Environment.

Fall (4), Spring (4).

Analysis of selected problems of global environmental systems, including climate change, ozone depletion, oceanic pollution, and trans-boundary biodiversity issues. Emphasis on the conversion of environmental science into international law and policy. Examines the roles of international organizations, governments, industry, and trade in the effort to achieve sustainable development.

Prerequisite: EVST 100 or by permission.

Offered in alternate years.

242 Food and Nature.

Fall (4), Spring (4).

Examines the ways production, trade, and consumption of food affects workers, consumers, and ecosystems. Topics include the political economy of food systems, genetically modified food, biofuels, the carbon footprints, the modern meat system, and potential solutions such as fair trade, organic certification, the slow food movement, and local food.

Prerequisite: EVST 100 recommended.

245 Marine Environmental Studies.

Fall (4), Spring (4).

Overview of human environmental influence on the oceans. Combines the study of marine science, policy, and management in an effort to understand environmental protection issues arising from coastal development, over fishing, climate change, oil spills, and other threats to marine ecosystems.

Prerequisite: EVST 100 or by permission.

Offered as needed.

250 Environmental Design Studio I.

350 Environmental Design Studio II.

450 Environmental Design Studio III.

Fall (4), Spring (4), EVST 350 only: May Term (3).

Students work collaboratively in teams on environmental problem solving projects. Many studios make use of GIS and other spatial analysis tools. Research concepts and tools become more complex in advanced levels of this sequence.

Prerequisites for EVST 250: EVST 100 and EVST 110 or by permission.

254 Climate Disruption: Science and Sustainability.

Spring (4).

Examines dilemmas in climate science, politics, economics, and ethics—all with an eye to the implications for global and regional sustainability. Emphasis is placed on solutions and practices to minimize or adapt to climate impacts, ranging from green innovations in energy technology to climate-friendly changes in human values and behavior.

Prerequisite: EVST 100 recommended.

Numeric grade only.

255 Ornithology.

Spring (4).

Provides a comprehensive overview of the science and field study of birds, ranging from their origin and evolution, physiology, anatomy, communication, behavior and environment, reproduction and development, population dynamics and conservation. Laboratories introduce students to auditory and field identification methods.

Offered in alternate years.

260 Topics in Environmental Studies.

Fall (1–4), Spring (1–4), May (3).

Topics of current interest in environmental studies such as energy, air quality, water, and environmental justice. May be repeated for degree credit up to a maximum of 8 credits.

275 Conservation in Practice.

Spring (4).

Analyzes the different factors—cultural, socioeconomic, political, and biological—that underlie environmental problems. It reviews some of the most important conservation tools developed and applied by various disciplines in an attempt to integrate them as a trans-disciplinary approach.

Prerequisite: EVST 100 or by permission.

Offered as needed.

276 Market-based Conservation Policy.

Spring (4).

Conservation policy increasingly relies on markets. Examples include non-governmental labels such as organic and fair trade as well as various payment for environmental services policies promoted by governments and international treaties. Concepts like equity, efficiency, the commodity chain, and the commodification of nature will be mobilized to analyze these policies.

Recommended: EVST 100.

277 Environmental Justice.

Fall (4), Spring (4), May Term. (3).

This course will focus on issues of environmental justice with a particular emphasis on racism, classism, and sexism—both in the U.S. and globally—and how situations of environmental degradation impact some groups more significantly than others. Aspects of global capitalism will be examined as a contributing factor to environmental injustice.

281 The Palau Expedition: Explorations in Sustainable Development.

May Term (3).

This course combines the study of Palau's marine ecology and natural history, its clan-based system of social organization, and its efforts to achieve sustainable forms of development. Students participate in a series of interviews with traditional chiefs, elder women, high-government officials, and Palauan conservation and natural resource experts. Extensive field study and immersion in the ocean and rainforests require strong swimming skills and excellent fitness.

### 283 Mapping Animals.

May Term (3).

Investigation of animal movements and behavior from a spatial perspective. Emphasis on using mapping tools to design conservation strategies with an understanding of species' behavioral ecology. Course includes weekly field trips to study local species within their natural environment.

Prerequisite: BIOL 133 or EVST 100 or permission of instructor.

### 285 Tetiaroa Geodatabase Project.

May Term (3)

Students will complete surveys of the flora and fauna of the Tetiaroa atoll, including establishing monitoring programs for terrestrial and marine ecosystems. Data collection using GPS will be entered into a GIS for the project, to be maintained at the U.C. South Pacific Research Station on Moorea, French Polynesia.

Prerequisite: EVST 110 or SPA 100 or SPA 110 or by permission.

### 287 Beaches, Environment, and Society.

May Term (3).

This course represents an interdisciplinary environmental studies exploration of beaches connecting the geology and the ecology of a dynamic environment to the history, economics, and politics of human uses of beaches. Topics include tourism, recreational uses, contests over access, oil extraction, beach replenishment, and sea level rise.

### 290 Environmental Geology.

Spring (4).

This course investigates how critical events in Earth history have shaped the landscape that we see today. Main topics include mountain building, volcanoes, faulting, glaciers, oceans and coastlines, energy resources, the geology of Southern California, and global climate change. Course includes a weekly lab/field component.

Prerequisites: EVST 100 and MATH 101 or higher, or by permission.

### 300 Environmental World Views.

Fall (4), Spring (4).

Interdisciplinary investigation of competing environmental perspectives and paradigms. Emphasis on implications for environmental science, policy, management, and ethics as influenced by world views. Students compare and contrast diverse environmental perspectives, strategic approaches, and decision-making processes with an eye to conflicting paradigms that underlie environmental controversies.

### 305 Ecology for Environmental Scientists.

Spring (4).

Exploration of environmental factors responsible for distributions of species, communities, and biomes with particular reference to human-induced changes in ecology. This is a writing-intensive course with emphasis on scientific writing and the use of the scientific method in ecological research.

Prerequisites: EVST 100 and a WA course.

Offered every year.

### 310 Environmental Law.

Fall (4), Spring (4).

Exploration of the American legal system and the framework of creation, implementation, and interpretation of environmental laws. Study of the central role of regulatory agencies in developing and implementing environmental law and, of course, methods interpreting and shaping it. Includes analysis of major environmental laws and case studies. Emphasis on California and the West.

Offered as needed.

### 311 Environmental Law in Action.

May (3).

This course will introduce environmental law and policy, including the National Environmental Policy Act, the California Environmental Quality Act, the Endangered Species Act, the Clean Water Act, and the Clean Air Act. Through case study analysis, field excursions, and moot court exercises participants will model regulatory and non-regulatory decision-making processes.

Prerequisites: EVST 100 or POLI 206 or POLI 207 and POLI 209.

Course fee applies.

### 315 Environmental Nonfiction.

Spring (4)

This course prepares students to write nontechnical essays, reports, and articles on environmental topics and in various forms, including documentary, lyric, advocacy/public engagement, and experimental. Students read and discuss published nonfiction, write drafts and a final portfolio, and participate in group critiques.

### 320 Environmental Policy and Management.

Fall (4), Spring (4).

Examination of policy actors and institutions shaping environmental management and world views from which they are derived. Study of competing discourses, influence of public and private actors and institutions, and interplay between parties. Examination of policy and management implications from standpoints of decision making content and process.

Offered in alternate years.

### 325 Public Lands Policy

Spring (4).

Overview of the origins and history of public lands in the U.S. (National Parks, National Forests, Bureau of Land Management lands, and others). Exploration of policies governing public lands and historic and current management practices. Controversial issues on public lands will be examined and debated, as will compromises and solutions.

Offered in alternate years.

### 330 Environmental Policy Clinic.

Fall (4), Spring (4).

Students and faculty create innovative policy responses to concrete environmental problems, typically resulting in a report or major presentation about a specific environmental improvement strategy to a government client or a group of stakeholders. Emphasis on policy and management strategy design; focus on political, economic, and managerial feasibility of environmental controversy resolution. May be repeated for degree credit, for a maximum of 8 credits, given a different topic.

Prerequisite: EVST 300 or EVST 320.

Offered in alternate years.

### 335 Environment and Development.

Fall (4), Spring (4).

Identifies threats to biodiversity and culture and relates them to poverty, inequality, and overexploitation. Traces roots of current problems to colonization, international exploitation, and national development models. Examines sustainable development debates and initiatives.

### 340 Green Business.

Fall (4), Spring (4).

Examines various aspects of sustainability and options available to businesses to establish green practices. Explores opportunities that businesses create, the challenges encountered, and the contributions toward protecting the environment while simultaneously sustaining a profit. The role of environmental policy, leadership, technology, and public opinion is also investigated.

Prerequisite: EVST 100 or ACCT 210. Not open to students who have received credit for BUS 308.

### 345 Sustainable Development and Migration in Mexico.

May Term (3).

Through visits, this class examines the role of indigenous communities in conservation and development projects, such as ecotourism, forestry, and environmental service provision. It analyzes the role of local social institutions of self-governance in these projects, and the impacts of migration to the U.S. on institutions, conservation, and development possibilities.

Prerequisite: by permission.

### 347 Innovation for Sustainability.

Fall (4), Spring (4).

Participants join a team to develop sustainable products and services, conduct research with potential customers, build prototypes, and test them with target users. Each time the course is offered, students will be presented with a different design challenge, for example, a solar heated, solar powered, self-filtering shower using recycled water.

Prerequisite: EVST 340.

### 355 The Ecology of Australia and New Zealand.

May Term (3)

This course focuses on 1) evolution of present-day Australia and New Zealand through plate tectonics, geologic, and climatic history; 2) the diverse ecosystems that we will encounter; 3) how the two different cultures of native peoples (Aborigines and Maori) impacted their environments and how white Europeans impacted the native peoples and environments.

360 Advanced Topics in Environmental Studies.

Fall (1–4), Spring (1–4).

Consideration of recent research developments in environmental science with varying topics each semester. Examples include tropical island biogeography, physical biogeography, and California plants' taxonomy and ecology. May be repeated for degree credit up to a maximum of 8 credits.

371 Conservation Communication.

May (3).

A project-based course that develops skills in communicating conservation opportunities. Activities include: writing about science in creative ways, designing engaging materials for museums, science centers, and parks, learning several media tools, and examining evolutionary, cognitive, and neurobiological approaches to the study of narrative.

Prerequisites: BIOL 107, or BIOL 108, or BIOL 109, or BIOL 200, or EVST 100.

Course fee applies.

375 Tropical Rainforests: The Amazon, the Andes & the Inca.

May Term (3).

In this course we will travel to the tropical rainforests and the cloud forests of Peru to explore the climatology, ecology, and biodiversity of this region. We will explore the ancient culture of the Inca, their empire at Machu Picchu, and the modern Peruvian cultures that now thrive in this region.

Prerequisite: Permission of instructor.

385, 485 Advanced Program Internship.

Fall (2–4), Spring (2–4).

May be repeated for degree credit for a maximum of 8 credits with permission of the Chair.

Credit/no credit only.

391 Environmental Hydrology.

Spring (4).

This course examines the ways that water has shaped our planet by exploring the following topics: hydrologic cycling, spatio-temporal patterns of water distribution and scarcity, water quality and pollution, groundwater and stream flow, and the challenges surrounding water resource allocation. Course includes a weekly lab/field component with off-campus field trips.

Prerequisite: EVST 100 and MATH 101 or higher, or by permission.

392 Oceanography.

Fall (4), Spring (4).

In this course, we will examine the oceans from four different perspectives; the geological, chemical, physical, and biological. Select course topics include California beach erosion, coral reefs and atolls, black smokers, thermohaline circulation, the El Niño Southern Oscillation, wave formation, and red tides.

Numeric grade only.

Prerequisite: EVST 100.

Offered as needed.



399 Research Methods & Design.

Spring (4).

A survey course of qualitative and quantitative research methods used by environmental scientists. We will learn techniques from both social and natural sciences. A research proposal that can double as the EVST capstone proposal will be an end-goal of the course. Students from outside EVST can apply to join. Numeric grade only.

Prerequisite: EVST 250.

430 Advanced Geology Seminar.

Spring (4).

From the cliffs of Madagascar to the glacial crevasses of the Transantarctic Mountains to the selenite crystals of Mexico, the Earth is filled with formations that inspire wonder and awe. This course explores the geologic processes that create these amazing formations.

Prerequisite: EVST 205 or EVST 220 or EVST 290 or by permission of instructor.

475 Capstone Senior Project in Environmental Studies.

Fall (2–4), Spring (2–4).

Students complete a substantial project either as part of a group or individually. The work usually extends over two semesters.

Numeric grade only.