

ENVIRONMENTAL STUDIES

THE FACULTY

Lamont Hempel
Hillary Jenkins
Daniel Klooster
Timothy Krantz
Blodwyn McIntyre
Valerie Rountree

THE MAJORS

The department provides students with the tools to analyze complex environmental problems and contribute to their solutions. Three majors are offered; a bachelor of arts in environmental studies, a bachelor of science in environmental science, and a bachelor of science in sustainable business. All three majors integrate social, ethical, and environmental science understandings of environmental issues. Environmental Studies majors examine the social, economic and political aspects of environmental issues, Environmental Science majors study the ecological, geological, chemical, and physical sciences to provide a quantitative understanding of environmental issues, and Sustainable Business majors integrate environmental challenges with successful business strategy and management practices. Capstone requirements and honors opportunities are the same for all three degrees and are found under the bachelor of science. A minor in a supporting field highly recommended, for example, spatial studies or environmental chemistry for the major in environmental science, or business administration for the major in environmental studies. The Sustainable Business degree contains the Business Administration minor embedded within it.

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 <http://www.redlands.edu/BA-EVST/learning-outcomes>; learning outcomes for Environmental Science may be found at www.redlands.edu/BS-EVSS/learning-outcomes; learning outcomes for Sustainable Business may be found at www.redlands.edu/BS-EVEM/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: 13 courses

FOUNDATION COURSE: 1 course at the 100 level.

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

EARTH SCIENCE CORE: 1 course at the 200 level. Choose 1 from the following:

- EVST 220 Physical Geography (4)
- EVST 290 Environmental Geology (4)

ENVIRONMENTAL SOCIAL SCIENCE CORE: 1 course at the 200 level.

- EVST 240 Global Environment (4)

LIFE SCIENCE CORE: 1 course at the 200 level. Choose 1 from the following:

- EVST 305 Ecology for Environmental Scientists (4)
- EVST 245 Marine Environmental Studies (4)

TOOLS, APPLICATIONS, AND METHODS: 2 courses.

The recommendation is SPA 110 and one additional course. Choose from the following:

- SPA 110 Introduction to Spatial Analysis & GIS (4)
- EVST 235 Environmental Impact Assessment (4)
- EVST 250 Environmental Design Studio I (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)

EXPERIENTIAL LEARNING (PRACTICUM): 0 credits

Complete one of the following:

- Environmental Study Abroad
- Environmental Internship
- Environmental Travel Course
- Approved Environmental Community Service Activity

ENVIRONMENTAL STUDIES ELECTIVE: 1 course. Choose any course in EVST numbered 200 and above.

ADVANCED ENVIRONMENTAL STUDIES COURSES: 4 courses. Note at least 3 courses must be selected from the Social Science Electives List and at least 3 of the 4 must be taken within EVST.

Choose at least three from the following:

SOCIAL SCIENCE ELECTIVES

- EVST 210 Energy and the Environment (4)
- 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 325 Public Lands Policy (4)
- EVST 335 Environment and Development (4)
- EVST 340 Green Business (4)
- EVST 347 Innovation for Sustainability (4)
- EVST 350 Environmental Design Studio II (3-4)

- EVST 351 Panamapping: Geodesign to Conserve the Rainforest (3)
- EVST 451 Leadership in GIS Analysis in Panama (3)
- ACCT 210 Principles of Financial Accounting and Reporting (4)
- BUS 136 Global Marketing (4)
- BUS 310 Principles of Management and Organizational Behavior (4)
- ECON 205 Ecological Economics (4)
- PHIL 211 Environmental Ethics (4)
- PLCY 100 Introduction to Public Policy Analysis (4)
- POLI 207 Environmental Politics and Policy (4)
- REL 122 Religion and Ecology: Environmental Ethics (4)
- SPA 210 Advanced GIS (4)
- SPA 230 Field Methods in GIS (3)

Choose no more than one from the following:

NATURAL SCIENCE ELECTIVES

- EVST 205 Great Environmental Disasters (4)
- EVST 225 California Plants (4)
- EVST 230 Biodiversity (4)
- EVST 254 Climate Disruption (4)
- EVST 255 Ornithology (4)
- EVST 281 The Palau Expedition: Explorations in Sustainable Development (3)
- EVST 355 The Ecology of Australia and New Zealand (3)
- EVST 375 Tropical Rainforests: the Amazon, the Andes and the Inca (3)
- EVST 391 Environmental Hydrology (4)
- EVST 392 Oceanography (4)
- EVST 430 Advanced Geology Seminar (4)

CAPSTONE: 1 course. Taken in the spring of senior year.

- EVST 475 Senior Capstone (4)

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: 14 courses

FOUNDATION COURSE: 1 course at the 100 level.

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

EARTH SCIENCE CORE: 1 course at the 200 level. Choose 1 from the following:

- EVST 220 Physical Geography (4)
- EVST 290 Environmental Geology (4)

ENVIRONMENTAL SOCIAL SCIENCE CORE: 1 course at the 200 level.

- EVST 240 Global Environment (4)

LIFE SCIENCE CORE: 1 course at the 200 level. Choose 1 from the following:

- EVST 305 Ecology for Environmental Scientists (4)
- EVST 245 Marine Environmental Studies (4)

CHEMISTRY: 1 course. General Chemistry is recommended. Choose 1 from the following:

- CHEM 102 Chemistry of the Environment (4)
- CHEM 131 General Chemistry (4)
- EVST 290 Environmental Geology (4)

ALLIED SCIENCE: 1 course.

Take 1 course from Physics, Chemistry (132 and above), Biology (200 and above), or Spatial Studies (200 and above).

MATH: 1 course.

Either statistics or calculus fulfills this requirement. Both are recommended. Choose one from the following:

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

ENVIRONMENTAL STUDIES ELECTIVE: 1 course. Choose any course in EVST numbered 200 and above.

ADVANCED ENVIRONMENTAL SCIENCE COURSES: 4 courses. Note at least 3 courses must be selected from the Natural Sciences Electives List and at least 3 of the 4 must be taken within EVST.

Choose at least 3 from the following:

NATURAL SCIENCE ELECTIVES

- EVST 205 Great Environmental Disasters (4)
- EVST 225 California Plants (4)
- EVST 230 Biodiversity (4)
- EVST 250 Environmental Design Studio I (3-4)
- EVST 254 Climate Disruption (4)
- EVST 255 Ornithology (4)
- EVST 281 The Palau Expedition: Explorations in Sustainable Development (3)
- EVST 350 Environmental Design Studio II (3-4)
- EVST 355 The Ecology of Australia and New Zealand (3)
- EVST 375 Tropical Rainforests: the Amazon, the Andes and the Inca (3)
- EVST 391 Environmental Hydrology (4)
- EVST 392 Oceanography (4)
- EVST 430 Advanced Geology Seminar (4)

Choose no more than 1 from the following:

SOCIAL SCIENCE ELECTIVES

- EVST 210 Energy and the Environment (4)
- 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 325 Public Lands Policy (4)
- EVST 335 Environment and Development (4)
- EVST 340 Green Business (4)
- EVST 347 Innovation for Sustainability (4)
- EVST 351 Panamapping: Geodesign to Conserve the Rainforest (3)
- EVST 451 Leadership in GIS Analysis in Panama (3)
- CHEM 312 Advanced Environmental Chemistry (4)
- CHEM 132 General Chemistry I (4)
- CHEM 231 Organic Chemistry I (4)
- CHEM 232 Organic Chemistry II (4)
- CHEM 331 Physical Chemistry (4)
- MATH 118 Integrated Calculus I (4)
- MATH 121 Calculus I (4)
- MATH 150 Techniques in Problem Solving (1)
- MATH 231 Introduction to Modeling (4)
- MATH 312 Mathematical Statistics (4)
- MATH 335 Advanced Modeling (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)
- SPA 210 Advanced GIS (4)
- SPA 230 Field Methods in GIS (3)
- SPA 425 Remote Sensing Image Analysis (4)

CAPSTONE: 1 course. Taken in the Spring of Senior Year.

- EVST 475 Senior Capstone (4)

CAPSTONE (4 credits)

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.

To that end, each student produce 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, and/or 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. Students graduating in the Fall rather than the spring should consult their advisor to determine whether to take this course in the Junior spring or as an independent study in the fall of senior year.

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.

BACHELOR OF SCIENCE: SUSTAINABLE BUSINESS

LEARNING OUTCOMES

Upon completion of the major, a sustainable business major should be able to

1. Integrate social, economic, and environmental factors to critically evaluate problems and opportunities at the intersections of business and the environment
2. Use appropriate tools and methods of business analysis to analyze and communicate social, economic, and environmental factors of problems and opportunities at the intersections of business and the environment
3. Apply interdisciplinary learning to a specialization in Sustainable Business

SUSTAINABLE BUSINESS CATEGORIES AND COURSES: 16 courses

FOUNDATION COURSE: 1 course at the 100 level.

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

EARTH SCIENCE CORE: 1 course at the 200 level. Choose 1 from the following:

-- EVST 220 Physical Geography (4)

-- EVST 290 Environmental Geology (4)

ENVIRONMENTAL SOCIAL SCIENCE CORE: 1 course at the 200 level. Choose 1 from the following:

-- EVST 240 Global Environment (4)

LIFE SCIENCE CORE: 1 course at the 200 level. Choose 1 from the following:

-- EVST 305 Ecology for Environmental Scientists (4)

-- EVST 245 Marine Environmental Studies (4)

TOOLS, APPLICATIONS, AND METHODS: 2 courses.

The recommendation is SPA 110 and one additional course. Choose from the following:

-- SPA 110 Introduction to Spatial Analysis & GIS (4)

-- EVST 235 Environmental Impact Assessment (4)

-- EVST 250 Environmental Design Studio I (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)

SUSTAINABILITY CORE: 3 courses. Choose from the following:

-- EVST 248 Introduction to Sustainable Business (4) or EVST 340 Green Business (4)

-- EVST 348 Advanced Sustainable Business (4)

-- ECON 205 Ecological Economics (4) or ECON 455 Environmental & Resource Economics (4)

BUSINESS CORE: 6 courses. Choose from the following:

-- ECON 101 Principles of Economics (4)

-- BUS 136 Global Marketing (4)

-- BUS 226 The Rise of American Capitalism 1860-1932 (4) or GLB 228 Globalization 1870 to Present (4)

-- EVST 310 Environmental Law (4) or BUS 240 Business Law (4)

-- ACCT 210 Principles of Financial Accounting and Reporting (4)

-- BUS 310 Principles of Management and Organizational Behavior (4) or BUS 410 Organizational Consulting (4) or BUS 430 Human Resource Management (4)

CAPSTONE: 1 course. Taken in the spring of senior year.

-- EVST 475 Senior Capstone (4)

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

THE MINOR

6 courses/ 24 credits

Three courses must come from within the department.

FOUNDATION COURSE: 1 course at the 100 level.

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

EARTH SCIENCE CORE: 1 course at the 200 level. Choose 1 from the following:

-- EVST 220 Physical Geography (4)

-- EVST 290 Environmental Geology (4)

ENVIRONMENTAL SOCIAL SCIENCE CORE: 1 course at the 200 level.

-- EVST 240 Global Environment (4)

LIFE SCIENCE CORE: 1 course at the 200 level. Choose 1 from the following:

-- EVST 305 Ecology for Environmental Scientists (4)

-- EVST 245 Marine Environmental Studies (4)

TOOLS, APPLICATIONS, AND METHODS: 1 course.

The recommendation is SPA 110. Choose one from the following:

-- SPA 110 Introduction to Spatial Analysis & GIS (4)

-- EVST 235 Environmental Impact Assessment (4)

-- EVST 250 Environmental Design Studio I (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)

ENVIRONMENTAL STUDIES ELECTIVE: 1 course. Choose any course in EVST 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.

Recommended: EVST 100

Offered as needed.

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.

248 Introduction to Sustainable Business

Spring (4).

Examines various aspects of sustainability and options available to businesses to establish sustainable 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.

Prerequisites: EVST 100.

Numeric and Evaluation grade only.

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.

Fall (4), 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.

Offered as needed

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.

448 Sustainable Business Capstone.

Spring (4).

Students complete a substantial sustainable business project either as part of a group or individually.

Prerequisites: EVST 340 OR EVST 248.

May be repeated for a maximum of 8 credits.

Offered as needed.

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.