



NOTE:

This document is specific to the
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environmental studies

BACHELOR OF ARTS MINOR

PROGRAM DESCRIPTION

The Environmental Studies program can help students use the resources of the entire university to gain an interdisciplinary understanding of such increasingly serious issues as pollution, wildlife and wilderness preservation, land use, biodiversity loss, resource depletion, energy conservation, and a generally healthful relationship between nature and society. The program offers both a major and a minor and also assists students in constructing special majors and identifying programs and individual courses in various departments that concern themselves with environmental questions.

The major is designed to help students understand environmental issues in their political, social, and scientific context. Because dealing with environmental issues requires an interdisciplinary approach, we emphasize the development of strong writing, research, and quantitative skills and a broad liberal arts perspective. Advisors will help the student majoring in Environmental Studies to select a minor from another department.

Environmental Studies students find work primarily in research, analysis, and enforcement activities in state, federal, and local governments. Others work for nonprofit organizations such as Nature Conservancy, Audubon, and Sierra Club. Some work as consultants to private firms, and some graduates become teachers in primary schools, secondary schools and universities. A few have created their own careers in such areas as organic farming, managing cooperatives, and social action.

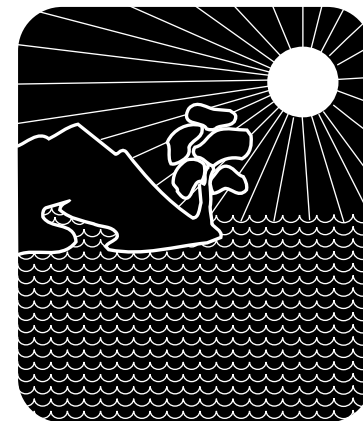
Environmental Studies students often go on to professional and graduate schools in such fields as law, ecology, engineering, journalism, economics, public health, political science, special education, environmental policy, and human ecology.

FACULTY

Dudley Burton, *Chair*

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FEATURES

The state capital in Sacramento offers excellent opportunities for study and employment. One of several ways to incorporate these opportunities into a student's academic program is through Environmental Studies internship experiences. The faculty also carries on a field study program to introduce students to as many features as possible of the extraordinarily varied Northern California region.

Faculty in the Environmental Studies program includes a historian, a biologist, a political scientist, and an environmental manager.

CAREER POSSIBILITIES

Environmental Analyst • Pollution Analyst • Pollution Measurement Technician • Environmental Planner • Naturalist • Environmental Consultant • Energy Conservation Specialist • Environmental Journalist • Environmental Health Specialist • Lobbyist • Environmental Education • Environmental Economist • Recycling Coordinator • Hazardous Materials Specialist • Legislative Researcher • Water Quality Technician • Park Interpretative Specialist • Transportation Planner • Waste Management Specialist • Levee Management Specialist • Conservation Analyst • Environmental Investigator • Environmental Interpreter • Environmental Resource Planner • Park Ranger • Permitting Officer • Ranger • Habitat Assessment Specialist • Environmental Compliance Officer • Legislative Aide • Air Pollution Specialist • Energy Manager • Game Warden • Wildlife Manager • Hazardous Waste Specialist • Pollution Prevention Specialist • Compliance Program Manager • Community Education Officer • Environmental Health and Safety Officer • Mosquito Control Technician • Public Works Program Manager • Water Conservation Manager • Environmental Impact and Review Assessment • Environmental Scientist

DEGREE REQUIREMENTS • BA

Units required for Major: 48 plus a required minor

Minimum total units required for BA: 120

Courses in parentheses are prerequisites.

Note: Students are also required to maintain a portfolio containing samples of their work.

A. Required Lower Division Courses (22 units)

- (3) BIO 010 Basic Biological Concepts
- (4) BIO 011 Animal Biology (BIO 010)
- (4) BIO 012 Plant Biology (BIO 010)
- (5) CHEM 006A Introduction to General Chemistry (One year high school algebra; high school chemistry strongly recommended)
- (3) ECON 001A Introduction to Macroeconomic Analysis
- (3) GEOL 010 Physical Geology

B. Required Upper Division Courses (26 units)

- (3) BIO 160 General Ecology (BIO 011, BIO 012)
- (3) ENVS 111 Environmental Ethics (ENVS 010, ENVS 110 or equivalent recommended)
- (3) ENVS 112 International Environmental Problems (Passing score on the WPE)
- (3) ENVS 120 Quantitative Methods for Environmentalists (ability to manipulate algebraic expressions, ENVS 111 or instructor permission)
- (2) ENVS 121 Field Methods in Environmental Science (BIO 160, GEOL 010, CHEM 006A, ENVS 128 or concurrent enrollment)
- (3) ENVS 128 Environment and the Law (ENVS 111 or instructor permission)
- (3) ENVS 190 Senior Seminar
- (3) Select one of the following:
 - ENVS 130 Environmental Toxicology (CHEM 001A or CHEM 006A)
 - GEOG 109 Geographic Information Systems
 - GEOG 111 Elements of Meteorology (GEOG 001 or instructor permission)
 - GEOG 113 Climate (Knowledge of general world distribution of climatic elements as given in an introductory physical geography course)
 - GEOG 115 Geography of Plants and Soils (GEOG 001)
- (3) Select one of the following:
 - ECON 110 Introduction to Public Economics (ECON 001B)
 - ECON 123 Resource Economics (ECON 001B)
 - ECON 162 Energy Economics (ECON 001B)

C. Required Minor

The Environmental Studies Major requires a minor in another discipline.

Note: a minimum grade of "C-" is required in all courses required for the Environmental Studies major.

MINOR REQUIREMENTS

The minor requires 23 units including courses from Environmental Studies and related departments. A minimum of 14 upper division units is required. Specific course requirements are:

- (3) BIO 010 Basic Biological Concepts
- (3) ECON 001A Introduction To Macroeconomic Analysis
- (3) ENVS 010 Environmental Science
- (3) ENVS 111 Environmental Ethics (ENVS 010, ENVS 110 or equivalent recommended)
- (3) ENVS 112 International Environmental Problems (Passing score on the WPE) **OR**

ENVS 128 Environmental Law (ENVS 111 or instructor permission)

(3) Select one of the following:

BIO 011 Animal Biology (BIO 010)
 BIO 012 Plant Biology (BIO 010)
 BIO 102 Natural History of Plants (college biology course or instructor permission)
 BIO 157 General Entomology (BIO 011)
 BIO 160 General Ecology (BIO 011, BIO 012)
 BIO 162 Ichthyology: The Study of Fishes (BIO 011)

BIO 165 Vertebrate Natural History (BIO 011)

BIO 166 Ornithology (BIO 011)

(2-3) Select one of the following:

CHEM 106 Chemical Concepts (PHYS 007, ENGL 020 or an equivalent second semester composition course)

ENVS 120 Quantitative Methods for Environmentalist (Ability to manipulate algebraic expressions (MATH 009 or 011). For Environmental Studies majors ENVS 111 or instructor permission)

ENVS 121 Field Methods in Environmental Science (BIO 160, GEOL 010, CHEM 006A, ENVS 128 or concurrent enrollment)

ENVS 130 Environmental Toxicology (CHEM 001A or CHEM 006A)

GEOG 111 Elements of Meteorology (GEOG 001 or instructor permission)

GEOG 113 Climate (Knowledge of general world distribution of climatic elements as given in an introductory physical geography course)

GEOL 010 Physical Geology

GEOG 109 Geographic Information Systems

GEOG 115 Geography of Plants and Soils (GEOG 001)

(3) Select one of the following:

ECON 110 Introductory Public Economics (ECON 001B)

ECON 123 Resource Economics (ECON 001B)

ECON 162 Energy Economics (ECON 001B)

ENVS 116 The Ecology of Shelter

ENVS 122 Environmental Impact Analysis: The Procedure and the Statement

ENVS 195 Environmental Studies Internship

ENVS 199 Special Problems

Note: a minimum grade of "C-" is required in all courses required for the Environmental Studies major.

LOWER DIVISION COURSES

ENVS 010. Environmental Science. This survey course looks at the earth as an ecosystem composed of biological, chemical, and physical systems. The focus is on the interaction of these systems with each other and with human population, technology, and production. The student should acquire the fundamentals of a scientific understanding of the ecological implications of human activities. Specific topics treated within the context of ecosystem analysis include energy flows, nutrient cycles, pollution, resource use, climate changes, species diversity, and population dynamics. 3 units.

ENVS 096. Experimental Offerings in Environmental Studies. Offered as needed or when a sufficient number of students justifies a course on a particular phase of the environment. 1-3 units.

UPPER DIVISION COURSES

ENVS 110. Contemporary Environmental Issues. An examination of a variety of environmental issues with emphasis on the social aspects of the problems and solutions. The class is conducted primarily through discussion, with an unusually high degree of student responsibility. Group and individual projects are designed to involve students in community affairs as well as to give them an opportunity to develop a personal perspective on environmental issues. 3 units.

ENVS 111. Environmental Ethics. Consideration of how human beings should act with regard to the non-human natural world in the context of complex societal needs. Students will use critical thinking skills to integrate insights from the sciences, social sciences, and humanities to make ethical decisions. **Prerequisite:** ENVS 010, ENVS 110, or equivalent recommended. 3 units.

ENVS 112. International Environmental Problems. A global perspective on current problems of environmental protection and resource use. Population growth, food production, industrialization, technology and cultural change are considered, with heavy emphasis on the social dynamics of environmental problems. A variety of political views is studied, and an attempt is made to develop a perspective useful to students in personal and political decisions. **Prerequisite:** Passing score on the WPE. 3 units.

ENVS 116. The Ecology of Shelter. Discussion of the individual's needs for personal living space and a sense of participation in the larger community. Students will design their own living space, garden and solar home. They will design a community, keeping in mind environmental constraints, and look at global housing needs and associated environmental issues. Assignments will emphasize the importance of meeting shelter needs within a world of finite resources; methods of energy, land, and materials conservation will be stressed. Lecture two hours; laboratory two hours. 3 units.

ENVS 120. Quantitative Methods for Environmentalists. Research tools and methods used by environmentalists including selected statistical procedures, data sources and presentation and interpretation of results. Students will become familiar with the wide range of equipment available to fit their special needs including the computer time-sharing system. **Prerequisite:** Ability to manipulate algebraic expressions (MATH 009 or MATH 011). For Environmental Studies majors ENVS 111 or instructor permission. 3 units.

ENVS 121. Field Methods in Environmental Science. This field course includes the direct observation of human impact on specific environments and examples of mitigation strategies. Students will learn information gathering and data presentation methodologies useful in environmental impact assessment. Lecture three hours per week; one-day and weekend field trips will be arranged. **Prerequisite:** BIO 160, GEOL 010, CHEM 006A. ENVS 128 or concurrent enrollment. 2 units.

ENVS 122. Environmental Impact Analysis: The Procedure and the Statement. A review of legislative and judicial requirements for environmental impact analysis. Students will be asked to review actual project environmental impact reports, analyze the methods employed, understand the relationship of the report to the planning process, and prepare such a document. It is recommended that students complete ENVS 128 or have some actual experience with environmental impact documentation before taking this course. 3 units.

ENVS 128. Environment and the Law. Environmental law offers students an opportunity to explore the legal process in an especially appealing and relevant substantive context. Although environmental law is in large measure the adaptation of traditional legal concepts and doctrines, the recent infusion of extensive litigation and innovative legislation represents an opportunity for meaningful public participation. The student is expected to become sufficiently familiar with the legal process to understand both its possibilities and limitations. **Prerequisite:** ENVS 111, or instructor permission. Cross-listed as GOVT 128; only one may be counted for credit. 3 units.

ENVS 130. Environmental Toxicology. Focuses on the aspects of toxicology which enable us to study and explore environmental issues concerning human and ecosystem health. It will explore the impact of human activity since World War II in contributing to human disease and ecosystem disruption. Risk perception and communication as it concerns environmental toxicology will also be discussed. **Prerequisite:** CHEM 001A or CHEM 006A. 3 units.

ENVS 165. American Environmental History. Traces the development of the changing relationship between human society and the natural environment. Focuses on changing attitudes and behaviors toward the environment from the pre-colonial era through the present. Also examines the relationship between industrialization and the technological revolution and nature and examine past and present conservation and environmental movements. Cross-listed as HIST 165; only one may be counted for credit. 3 units.

ENVS 186B. Ecological and Environmental Issues Seminar. A series of at least 10 seminars in ecological and environmental issues. Topics with each seminar will vary each semester. May be repeated for credit. No more than one unit of ENVS 186B may be counted toward the upper division major requirement. **Prerequisite:** BIO 010, BIO 011, BIO 012. Cross-listed as BIO 186B; only one may be counted for credit. Fall only. Graded Credit/No Credit. 1 unit.

ENVS 190. Senior Seminar. Senior seminars listed below require students working in a seminar setting to prepare a research paper or project to meet the senior thesis requirement for Environmental Studies majors. In these courses, students will also complete and submit for evaluation their portfolio of work produced in selected majors courses. Non-ENVS majors may participate in this series only with consent of the instructor. 3 units.

ENVS 190A. Environmental Politics and Policy. Seminar on the political process involved in dealing with environmental problems. Includes consideration of the interaction of citizen organizations, government agencies, corporations, and interest groups. **Prerequisite:** Senior standing, ENVS 120 and ENVS 128, passing score on the WPE; or instructor permission. 3 units.

ENVS 190B. Environmental Quality and Social Justice. Explores social conflict involved in the pursuit of environmental protection, with special emphasis on the way environmental problems are related to questions of race, ethnicity, gender, class and neighborhood or locality. **Prerequisite:** Senior standing, ENVS 120 and ENVS 128, passing score on WPE; or instructor permission. 3 units.

ENVS 190C. Special Topics in Environmental Science. Seminar dealing with scientific research related to environmental problems. Particular topics will be chosen as a focus from semester to semester. **Prerequisite:** Senior standing, ENVS 120, ENVS 121 or concurrent enrollment, passing score on the WPE; or instructor permission. 3 units.

ENVS 194. Environmentally Related Work Experience.

Supervised employment doing environmentally related tasks in a company or agency arranged through the Office of Cooperative Education and the Department of Environmental Studies. Requires preparation of application packet, completion of a 3-6 month full-time or part-time work assignment, and a written report. **Note:** Units may not be used to meet ENVS major or graduate coursework requirements. **Prerequisite:** Completion of all lower division coursework for major, junior, senior or graduate level standing; minimum 2.5 GPA; consent of the Department of Environmental Studies. Graded Credit/No Credit. 6 or 12 units.

ENVS 195. Environmental Studies Internship. Supervised work experience in an approved legislative or administrative office at some level of local, state or federal government, or in a public or private organization that is concerned with the environment. Supervision is provided by the faculty instructor and responsible officials in the work situation. **Note:** Open to majors only, subject to instructor permission. Graded Credit/No Credit. 3-6 units.

ENVS 195M. Mini Internship. This introductory work experience is designed for sophomores and juniors. The student must complete 45 hours of environmentally related work in a volunteer position with an environmental organization or participation in an environmentally focused event. Supervision is provided by the faculty instructor and responsible officials in the work situation. **Note:** Open to majors only, subject to instructor permission. Graded Credit/No Credit. 1 unit.

ENVS 196. Experimental Offerings in Environmental Studies.

Offered as needed or when a sufficient number of students justifies a course on a particular phase of the environment. 1-3 units.

ENVS 198. Senior Thesis and Research. The selection, design and implementation, and reporting of an approved environmental research project. Written progress and final reports generally required. **Prerequisite:** Senior standing and appropriate courses as determined by faculty advisor; the proposed project must also be approved by the Senior Thesis Committee. 3 units.

ENVS 199. Special Problems. Individual projects or directed reading. Open only to students who are competent to carry on individual work. Admission requires permission of the Director and the faculty member who will direct the work. 1-3 units.

GRADUATE COURSES

ENVS 294. Environmental Related Work Experience. Supervised employment doing environmentally related tasks in a company or agency arranged through the Cooperative Education Program office and the Department of Environmental Studies. Requires preparation of application packet, completion of 3-6 month full-time or part-time work assignment, and a written report. **Prerequisite:** Completion of all lower division and at least 3/4 of upper division coursework for graduate degree; consent of Environmental Studies Department; graduate level standing; minimum 3.0 GPA. Graded Credit/No Credit. Units may not be used to meet graduate coursework requirements. 6 or 9 units.

ENVS 295. Practicum. Graduate internship experiences in practical setting. Open only to graduate students specializing in environmental studies. **Prerequisite:** Permission of faculty advisor and director. Graded Credit/No Credit. 2-6 units.

ENVS 296. Experimental Offerings in Environmental Studies.

Courses offered on an experimental basis. **Prerequisite:** Instructor permission. 1-3 units.

ENVS 299. Special Problems: Individual Study. Individual projects or directed reading. **Note:** Departmental petition required. 1-3 units.