



ENVIRONMENTAL STUDIES

BACHELOR OF ARTS
MINOR

PROGRAM DESCRIPTION

The Environmental Studies Center 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 Center 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 problems in their political, social, and scientific context. Because dealing with environmental problems 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 non-profit organizations such as Greenpeace and the Planning and Conservation League. Some work as consultants to private firms, and several are teachers. 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, and special education.

FACULTY

Angus Wright, *Director*

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Barbara Atzmilller, *Department Secretary*

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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 an ambitious field study program to introduce students to as many features as possible of the extraordinarily varied Northern California region.

The full-time faculty of the Environmental Studies Center includes a historian, a biologist, a toxicologist and a biologist with additional training in human ecology and appropriate technologies.

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 • Air Quality Aide • Transportation Planner • Waste Management Specialist • Levee Management Specialist • Conservation Analyst • Environmental Investigator • Environmental Interpreter • Environmental Resource Planner •

MAJOR REQUIREMENTS • BA

Total units required for BA: 124

Total units required for Major: 48 plus a required minor

Courses in parentheses are prerequisites.

A. Required Lower Division Courses (22 units)

- (3) BIO 10 Basic Biological Concepts
- (4) BIO 11 Animal Biology
- (4) BIO 12 Plant Biology
- (5) CHEM 6A Introduction to General Chemistry
- (3) ECON 1A Introduction to Macroeconomic Analysis
- (3) GEOL 10 Physical Geology

B. Required Upper Division Courses (26 units)

- (3) BIO 160 General Ecology (BIO 11, 12)
- (3) ENVS 111 Environmental Ethics (ENVS 10, 110 or equivalent recommended)
- (3) ENVS 112 International Environmental Problems (Passing score on WPE)
- (3) ENVS 118 Environment & the Law (ENVS 111)
- (3) ENVS 120 Quantitative Methods For Environmentalists (programming ability and ability to manipulate algebraic expressions, ENVS 111)
- (2) ENVS 121 Field Methods in Environmental Science (BIO 160, GEOL 10, CHEM 6A, ENVS 118 or concurrent enrollment)
- (3) ENVS 198 Senior Thesis & Research
- (3) Select one of the following:
 - ENVS 130 Environmental Toxicology (CHEM 6A or 1A)
 - GEOL 107 Applied Geology (GEOL 10, 10L, CHEM 1A)
 - GEOL 109 Geographic Information Systems (CSC 1; GEOG 105 or 107)
 - GEOG 111 Elements of Meteorology (GEOG 1)
 - GEOG 113 Climate (GEOG 1)
 - GEOG 115 Geography of Plants (GEOG 1)
- (3) Select one of the following:
 - ECON 123 Resource Economics (ECON 1B)
 - ECON 125 Land Economics (ECON 1B)
 - ECON 162 Energy Economics (ECON 1B)

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 10 Basic Biological Concepts
- (3) BIO 160 General Ecology (BIO 11, 12)
- (3) ECON 1A Introduction To Macroeconomic Analysis
- (3) ENVS 111 Environmental Ethics (ENVS 10, 110 or equivalent recommended)
- (3) ENVS 112 International Environmental Problems (Passing score on WPE)
- (2) ENVS 121 Field Methods in Environmental Science (BIO 160, GEOL 10, CHEM 6A, ENVS 118 or concurrent enrollment)

- (3) Select one of the following:
 - GEOG 111 Elements of Meteorology (GEOG 1)
 - GEOG 113 Climate (GEOG 1)
 - GEOL 10 Physical Geology
 - ENVS 130 Environmental Toxicology (Chem 6A or 1A)
 - GEOL 107 Applied Geology (GEOL 10, 10L, CHEM 1A)
 - GEOG 109 Geographic Information Systems (CSC 1; GEOG 105 or 107)
 - GEOG 115 Geography of Plants (GEOG 1)
- (3) Select one of the following:
 - ECON 123 Resource Economics (ECON 1B)
 - ECON 125 Land Economics (ECON 1B)
 - ECON 162 Energy Economics (ECON 1B)
 - ENVS 115 Environmental Quality & Social Justice
 - ENVS 116 The Ecology of Shelter
 - ENVS 118 Environment & the Law (ENVS 111)
 - ENVS 120 Quantitative Methods For Environmentalists (programming ability and ability to manipulate algebraic expressions, ENVS 111)
 - ENVS 122 Environmental Impact Analysis: The Procedure and the Statement
 - ENVS 169B Environmental Politics & Policy
 - 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

10. 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.

96. 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

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.

111. Environmental Ethics. We assume that the actions of humankind are responsible for the population-resource depletion-pollution crisis. Since our actions are deeply embedded in our value systems, change will involve an ethic. This course explores various aspects of what this new ethic might be and serves as an introduction for majors to the department, although open to all students. **Note:** ENVS 10, 110, or equivalent recommended. 3 units.

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.

115. Environmental Quality and Social Justice. This course explores social conflict involved in the pursuit of environmental protection. We investigate how these conflicts might be resolved. Speakers from community groups will visit the class, and recent local case histories will be used as examples. 3 units.

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 and laboratory two hours. 3 units.

118. Environment and the Law. This course derives from the conviction that environmental law offers 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. 3 units.

120. Quantitative Methods for Environmentalists. A variety of research tools and methods will be discussed including selected statistical procedures, data sources and presentation and interpretation of results. Students will be encouraged to become familiar with the wide range of equipment available to fit their special needs including the computer time-sharing system. **Prerequisites:** permission of instructor or programming ability (CSC 1 or 22) and ability to manipulate algebraic expressions (MATH 9 or 11); VMS proficiency recommended or permission of instructor. **Prerequisite:** ENVS 111. 3 units.

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. **Prerequisites:** BIO 160, GEOL 10, CHEM 6A. ENVS 118 or concurrent enrollment. 2 units.

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 118 or have some actual experience with environmental impact documentation before taking this course. 3 units.

124. Analysis of International Environmental Issues and Protection Strategies. This course provides students an opportunity to analyze problems of the human relationship to the natural environment at an advanced level. Readings provide historical and comparative analysis of environmental issues, including a strong emphasis on the variety of philosophies and strategies used by governments and by citizen organizations. The course aims to give students a complex understanding of the dilemmas and opportunities involved in environmental protection. **Prerequisites:** students must have taken at least one upper division course required in the environmental studies major, or in a related area. 3 units.

130. Environmental Toxicology. Course 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. **Prerequisites:** (CHEM 6A or 1A) 3 units.

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 with HIST 165; only one of these courses may be counted for credit. 3 units.

169B. Environmental Politics and Policy. Politics of human interaction with land, air and water. Political analysis of agenda setting, policy formation and administration (national/state, and local) of environmental programs. Focus on contemporary issues such as energy alternatives, management of toxics, land use, and pollution control. Cross-listed as GOVT 169B, and can only be counted once for credit. 3 units.

194. Environmental — 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. **Prerequisites:** 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.

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 permission of instructor. Graded Credit/No Credit. 3-6 units.

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 permission of instructor. Graded Credit/No Credit. 1 unit.

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.

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. **Prerequisites:** senior standing and appropriate courses as determined by faculty advisor; the proposed project must also be approved by the Senior Thesis Committee. 3 units.

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

GRADUATE COURSES

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.

Prerequisites: 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 GPA 3.0. Graded Credit/No Credit. Units may not be used to meet graduate coursework requirements. 6 or 9 units.

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.

296. Experimental Offerings in Environmental Studies.

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

299. Special Problems: Individual Study. Individual projects or directed reading. **Note:** open only to those students who appear competent to carry on individual work. Admission to this course requires the approval of instructor and Director. 1-3 units.