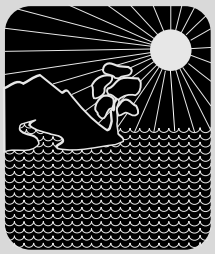
environmental studies



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 The Nature Conservancy, Audubon Society, 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.

Faculty

Mary Brentwood, Dudley Burton, Carlos Davidson, Edward Martinez

Contact Information

Dudley Burton, *Department Chair* ■ Marsha Robinson, *Administrative Support Assistant II* ■ Amador Hall 554A ■ (916) 278-6620; FAX (916) 278-7582 ■ *www.csus.edu/envs*

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

Special Features

- Sacramento, as the state capital, 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.
- Core faculty in the Environmental Studies department includes two biologists, political scientists 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 ■ Environmental Policy Analyst

Requirements ▪ Bachelor of Arts Degree

Units required for Major: 48-49 plus a required minor
Minimum total units required for BA: 120
Minimum GPA: "C-" is required in all courses required for the Environmental Studies major.
Courses in parentheses are prerequisites.

Note: Students are also required to maintain a portfolio containing samples of their work. See your advisor for more details about the portfolio.

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)
(3)	ECON 001A	Introduction to Macroeconomic Analysis
(3)	GEOL 010	Physical Geology

B. Required Upper Division Courses (26-27 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 WPE)
(3)	ENVS 120	Quantitative Methods For Environmentalists (Ability to manipulate algebraic expressions (Math 9 or 11). For Environmental Studies majors ENVS 111 or instructor permission.)
(2-3)	Select one of the following:	
	ENVS 121	Field Methods in Environmental Science (BIO 160, CHEM 006A, or concurrent enrollment; or instructor permission)
	ENVS 175	Aquatic Pollution Assessment (BIO 160, CHEM 006A; or concurrent enrollment)
(3)	Select one of the following:	
	ENVS 128	Environment and the Law (ENVS 111; or instructor permission)
	ENVS 171	Environmental Politics and Policy (ENVS 111 or instructor permission)
(3)	ENVS 190 A, B, or C	Senior Thesis (Passing Score on WPE)
(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 Animals (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.

Requirements ▪ Minor

Units required for Minor: 23-25, including courses from Environmental Studies and related departments. A minimum of 14 upper division units is required.
Specific course requirements are:

(3)	ENVS 010	Environmental Science
(3)	ENVS 111	Environmental Ethics (ENVS 010, ENVS 110 or equivalent recommended)
(3)	BIO 010	Basic Biological Concepts
(3)	ECON 001A	Introduction To Macroeconomic Analysis
(3)	Select one of the following:	
	ENVS 112	International Environmental Problems (passing score on WPE)
	ENVS 128	Environmental Law (ENVS 111 or instructor permission)
	ENVS 171	Environmental Politics and Policy (ENVS 111 or instructor permission)
(3-4)	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:	
	ENVS 120	Quantitative Methods for Environmentalist (Ability to manipulate algebraic expressions (Math 9 or 11). For Environmental Studies majors ENVS 111 or instructor permission.)
	ENVS 121	Field Methods in Environmental Science (BIO 160, CHEM 006A, ENVS 128 or concurrent enrollment; or instructor permission)
	ENVS 130	Environmental Toxicology (CHEM 001A or CHEM 006A)
	ENVS 175	Aquatic Pollution Assessment (BIO 160, CHEM 006A, or concurrent enrollment; or instructor permission)
	CHEM 106	Chemical Concepts (PHYS 007, ENGL 020 or an equivalent second semester composition course)
	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 Animals (GEOG 001)
	GEOL 010	Physical Geology
(3)	Select one of the following:	
	ENVS 122	Environmental Impact Analysis: The Procedure and the Statement
	ENVS 195	Environmental Studies Internship
	ENVS 199	Special Problems
	ECON 110	Cost Benefit Analysis (ECON 001B)
	ECON 123	Resource Economics (ECON 01B)
	ECON 162	Energy Economics (ECON 001B)

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

Lower Division Courses

ENVS 010. Environmental Science. Course looks at the earth as an ecosystem composed of biological, chemical, and physical systems. Focus is on the interaction of these systems with each other and with human population, technology, and production. Students 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 011. Environmental Issues and Critical Thinking. Examines Western cultural values and personal beliefs toward the environment. Teaches critical thinking skills to analyze issues to make informed choices that may impact the earth, its resources and their management as consumers, leaders, professionals and moral agents. 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. 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 or ENVS 110, or equivalent recommended. 3 units.

ENVS 112. International Environmental Problems. 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 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. Course also substitutes for ENVS 175. **Prerequisite:** BIO 160, CHEM 006A or concurrent enrollment; or instructor permission. 2 units.

ENVS 122. Environmental Impact Analysis: The Procedure and the Statement. 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. **Note:** 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. 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. Course also substitutes for ENVS 171. **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, or instructor permission. 3 units.

ENVS 138. Introduction to Environmental Sociology. The study of human society, the natural environment, and their mutual interactions. Examines environmental sociology at several levels, from the micro level of individual communities to the meso level of government policies to macro theoretical considerations. Analyzes environmental issues in a global context also included. Cross-listed as SOC 138. 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 171. 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 development, and pollution control. Course also substitutes for ENVS 128. **Prerequisite:** ENVS 111 or instructor permission. Cross-listed as GOVT 171; only one may be counted for credit. 3 units.

ENVS 175. Aquatic Pollution Assessment. Examines both the negative and positive impacts that anthropogenic activities have on groundwater, streams and lakes. Introduces the interrelationships among plants, animals, and environmental factors within polluted aquatic ecosystems. Emphasizes laboratory and field procedures used in strategies taken to assess and manage these impacts. Concentrates on the application of field sampling techniques and laboratory analysis currently used to assess the pollution impacts on biotic and abiotic components of groundwater, streams, and lakes. Course also substitutes ENVS 121. **Prerequisite:** BIO 160, CHEM 006A, or concurrent enrollment; or instructor permission. Cross-listed as BIO 175; only one may be counted for credit. 3 units

ENVS 186B. Ecological and Environmental Issues Seminar. Series of at least 10 seminars in ecological and environmental issues. Topics with each seminar will vary each semester. **Note:** 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.

Senior seminars listed below **(ENVS 190A, 190B and 190C)** 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 courses. **Note:** Non-ENVS may participate in this series only with consent of the instructor. 3 units.

ENVS 190A. Environmental Policy Thesis. 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:** ENVS 120 and ENVS 128, or ENVS 171; passing score on the WPE; or instructor permission. 3 units.

ENVS 190B. Environmental Quality and Social Justice Thesis. 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:** ENVS 120 and ENVS 128, or ENV 171; passing score on the WPE; or instructor permission. 3 units.

ENVS 190C. Environmental Science Thesis. Seminar dealing with scientific research related to environmental problems. Particular topics will be chosen as a focus from semester to semester. **Prerequisite:** ENVS 120 and ENVS 121, or ENVS 175; 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 course work requirements. **Prerequisite:** Completion of all lower division course work for major, junior, senior or graduate level status; 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. Independent Senior Thesis Research. Selection, design and implementation, and reporting of an approved environmental research project. For students in special circumstances. In this course, students will also complete and submit for evaluation their portfolio of work produced in selected courses. Written progress and final reports generally required. **Note:** Generally students complete a senior thesis by enrolling in ENVS 190 A, B, or C. **Prerequisite:** Passing score on the WPE and prior consent of a faculty member who will supervise the work. 3 units.

ENVS 199. Special Problems. Individual projects or directed reading. **Note:** 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 though 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. **Note:** Units may not be used to meet graduate course work requirements **Prerequisite:** Completion of all lower division and at least 3/4 of upper division course work for graduate degree; consent of Environmental Studies Department; graduate level status; minimum 3.0 GPA. Graded Credit/No Credit.
6 or 9 units.

ENVS 295. Practicum. Graduate internship experiences in practical setting. **Note:** 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.