



BA Program in Environmental Studies



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The BA in Environmental Studies

The Bachelor of Arts degree in Environmental Studies is a major component of the educational arm of a large interdisciplinary program of education, research, and outreach called the Environmental Initiative (EI).

The Environmental Studies BA program examines the cultural, economic, historical, political and social factors that influence local, national, international and global environmental issues and policies. Investigating a wide range of perspectives, it includes a broad exposure to many factors confronting humans as they struggle with complex problems and possible solutions to environmental questions.

The interdisciplinary program includes courses in 4 colleges and 10 different departments. Most of its courses are in social science disciplines but there are also offerings in humanities, education, science, mathematics and engineering. The program has been designed so students will develop a broad understanding of social science environmental concerns, along with a basic familiarity with environmental science, statistics and research methods. Of benefit to all students interested in environmental issues, this new B.A. degree will complement existing B.A. and B.S. programs in Earth and Environmental Sciences and the B.S. program in Environmental Engineering.

The BA Program

The B.A. program is intended for students who are interested in environmental issues from the perspective of the social sciences and humanities. This degree will prepare students for a variety of career options including positions in policy agencies at the federal, state and local government levels, corporate management, non-profit organizations, environmental journalism, environmental education or environmental law. It also will prepare students for graduate studies in a number of environmental policy and social science fields, including the Lehigh MA in Environmental Policy Design.

The B.A. is specifically designed to be broadly inclusive yet flexible enough to allow for double majors and minors in other fields. Double majors or minors in social science fields such as anthropology, communication, history, international relations, journalism, political science, psychology, science and environmental writing or sociology could easily be accomplished. Minors in the sciences, such as Earth and Environmental Sciences, also can be completed. If students are not pursuing a double major, a minor in another field to complement the Environmental Studies major is highly recommended but not required.

The major consists of four required and three core courses, plus three elective courses chosen from a broad spectrum of choices. The B.A. is considered a social science major and most of its courses fulfill college social science distribution requirements. Its collateral requirements, which include a social science research methods course, one course in statistics and two science courses, can be used to fulfill college math and science distribution requirements.

HONORS: To graduate with honors, a major in Environmental Studies must maintain a 3.2 overall average, attain a 3.5 average in the courses constituting the major program, and complete an honors thesis in the senior year.

Minor in Environmental Studies

A minor in Environmental Studies consists of four 4-credit courses, for a total of 16 credits. These should include:

- ES 1, Introduction to Environmental Studies
- One course from the core set for the major
- Two courses from either the core or elective courses for the major. One of the two courses must be at the 300-level course.

Environmental Studies Major

Required and Core Courses (28 Credits)

Required Courses

ES 1	Introduction to Environmental Studies (4)
ES 2 (EES 2)	Environmental Science: Systems and Solutions (3)
ES 4 (EES 4)	The Science of Environmental Issues (1)
ES 105 (POLS 105)	Environmental Policy and Planning (4)
ES 381	Senior Seminar: Issues in Environmental Studies (4)

Core Courses: At Least 3 of the 7 following courses

ES 10	Environment and the Consumer Society (4)
ES 106 (POLS 106)	Environmental Values and Ethics (4)
ES 111 (ECO 111)	Introduction to Environmental Economics (4)
ES 121 (ANTH 121)	Environment and Culture (4)
ES 125 (JOUR125)	Environment, the Public and the Mass Media (4)
ES 171 (CEE 171)	Fundamentals of Environmental Technology (4)
ES 315 (HIST 315)	American Environmental History (4)

Collateral Requirements (14-16 credits) Required (8 credits)

MATH 12. Basic Statistics (4)

A calculus course may be substituted with permission of the program director.

SR 111 Research Methods and Data Analysis (4)

Science Electives: At least one EES and one other science course (6-8 credits), or a minor in EES

Major Electives (12 credits including 1 course at the 200 level or above. In addition, new courses may be offered annually. Students should check with the program director for an updated list.

ANTH 145	Human Evolution (4)
ANTH 305	Anthropology of Fishing (4)
ARTS 196	Sustainable Development: The Costa Rican Experience (3)
CEE 272	Risk Assessment (2)
CEE 379 (EES 379)	Environmental Case Studies (3-4)
ECO 311	Environmental Economics (3)
ENGL 201-11	The Environmental Imagination (4)
EES 89	Geographical Analysis of our Changing World (4)
ES 100 (GCP 100, EES 100)	Earth System Sciences (4)
ES 107 (POLS 107)	Politics of the Environment (4)
ES 115 (JOUR 115)	Communicating about the Environment
ES 116 (JOUR 116)	Risky Business (4)
ES 122	Sustainable Development: The Costa Rican Experience (3)
ES 131	Internship (1-2)
ES 181	Independent Study (1-4)
ES 254 (REL 254, ASIA 254)	Buddhism and Ecology (4)
ES 328 (POLS 328)	U.S. Politics and Environment (4)
ES 331	U.S. Environmental Law I: Pollution & Risk Abatement (4)
ES 333 (IR 333)	International Environmental Law & Policy (4)
ES 338	Environmental Risk: Perception & Communication (4)
ES 339 (IR 339)	Global Security and the Environment (4)
ES 343 (IR 343)	Comparative Environmental Law & Policy (4)
ES 355 (POLS 355)	Environmental Justice & the Law (4)
ES 367 (TLT 367)	Environmental Education (3)
ES 371	Special Topics (1-4)
ES 375 (POLS 375)	Seminar: Green Polity (4)
ES 391	Honors Thesis (4)
IR 344	Politics of Oil (4)
JOUR 123	Basic Science and Technical Writing (4)
JOUR 323 (STS 323)	Controversies (4)
REL 6	Religion and the Ecological Crisis (4)



ENVIRONMENTAL INITIATIVE

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Environmental Studies Course Descriptions

ES 1. Introduction to Environmental Studies (4) *Fall*

Gateway to the field of Environmental Studies, the course surveys central issues and themes confronting humanity in the natural world on a national and global basis. Topics include humankind's role in environmental change; society's response to the dynamism of nature; cultural evaluations of nature; population dynamics; resource availability and pollution sinks; land use patterns; sustainability and consumerism; environmental justice and ethics; policy and planning. (SS)

ES (EES) 2. Introduction to Environmental Science (3) *Spring*

Focuses on natural and human-induced drivers and consequences of environmental change. Exploring options for mitigating and adapting to environmental change in ecosystems, physical and social systems, we will examine such topics as biogeochemical cycles, population pressure, ecosystem diversity, productivity and food security, energy, water resources, climate change, pollution, ozone, urban issues and sustainability. Stresses interactions and inter-relationships, using a series of case studies. Intended for any student with an interest in the environment. Sahagian (NS/GC)

ES (EES) 4. The Science of Environmental Issues (1)

Analysis of current environmental issues from a scientific perspective. The focus on the course will be weekly discussions based on assigned readings. Prerequisites: none. Kodama, Zeitler. (NS)

ES 10. Environment and the Consumer Society (4). *Spring*

Is there such a thing as sustainable consumption, or will life on Earth become increasingly imbalanced? Will our grandchildren accuse us of "devouring" their future? This multidisciplinary course investigates these issues, both locally and globally from the perspectives of anthropology, history, communication and politics. Topics include cultural causes of and responses to past environmental disasters; biological and cultural limits to growth; over-fishing the commons; resources and land use issues; communication in a consumer culture; and politics and governmental regulations. Team projects researching the environmental impacts of campus consumption will be included. (SS)

ES 100 (GCP 100, EES 100) Earth System Science (4)

Examination of the Earth as an integrated system. Study of interactions and feedbacks between key components such as the atmosphere, biosphere, geosphere, and hydrosphere to permit better understanding of the behavior of the system as a whole. Response of the Earth system to human perturbations such as land use and emissions are explored in the context of predictions of future environmental conditions and their projected impacts back on human systems. Lectures, class discussions, and lab. Prerequisites: EES 22. Felzer (NS)

ES 105 (POLS 105) Environmental Policy and Planning (4) *Fall*

Analysis of the framework that has been established to protect the environment and promote sustainable growth. Focus on the roles of the different branches of the U.S government and the relative responsibilities of state and local governments within this framework. Consideration of the political nature of environmental issues and the social forces influencing environmental protection in different areas of domestic environmental policy, such as climate change, toxic waste disposal, and natural resources conservation. Holland (SS)

ES 106. (EES 106) Environmental Values and Ethics (4)

An introduction to the ethical perspectives and values that shape human relationships to the natural environment in contemporary society. What are the moral implications of these relationships for justice and human collective action? Given these implications, what policy responses to environmental problems are morally or politically justifiable? In answering these questions, the course explores ethical ideas developed in different schools of environmental thought, such as deep ecology and ecofeminism, in addition to ideas that emerge from social movements, such as environmental justice and bioregionalism. Holland (SS)

ES 107. (POLS 107) The Politics of the Environment (4)

A survey of the major environmental, resource, energy and population problems of modern society, focusing on the United States. The politics of man's relationship with nature, the political problems of ecological scarcity and public goods, and the response of the American political system to environmental issues. Wurth (SS)

ES 111 (Eco 111). Introduction to Environmental Economics (4)

An examination of the interactions between our economic systems and the environment. Pollution as a consequence of human activity within a framework for analyzing the relationships between environmental quality, scarcity of resources and economic growth. How to develop appropriate public policies to deal with these issues. Prerequisite: Eco. 1. (SS)

ES 115 (Jour 115). Communicating about the Environment (4)

Introduction to the need for and ways to communicate about environmental issues to laypersons, government officials, journalists, members of the judiciary and technical experts. Explores case studies of good and bad communication about environmental issues. Internet communication, including the efficacy of placing governmental reports and databases on the Web for public consumption, will be evaluated. (SS)

ES 116 (Jour 116). Risky Business (4) summer

This course explores the risks and effects of environmental contamination on human health and behavior as well as the role of the mass media in alerting citizens to potential environmental health risks. Environmental topics vary but usually include air and water pollution, endocrine disrupters and radioactive waste. S. Friedman (SS)

ES 122 Sustainable Development: The Costa Rican Experience (3)

Investigation of the concept of sustainable development as currently being practiced in Costa Rica. Case studies in diverse areas (e.g. agriculture, bioprospecting, ecotourism, energy, and land use) demonstrate how current approaches to sustainable development are influenced by the history and ecology of Costa Rica, as well as the structure of its political, social, and economic systems. Attention to theories of sustainable development and of consumption help to frame the Costa Rican experience. Students maintain individual "sustainability" journals based on their experiences from which they draw for team-based research and writing projects. The course is offered through Lehigh Abroad and consists of 5 evening classes during the fall semester and required course travel to Costa Rica between the fall and winter semesters (approximately 18 days). Final course projects are due early in the spring semester. Course participation will require additional fees as described by Lehigh broad (airfare and program fee). Cutcliffe, Morris, & Weisman (SS)

JOUR 125. (ES 125) Environment, the Public and the Mass Media (4) fall

Extensive exploration of local, national and international environmental problems and their social, political and economic impacts. Analysis of mass media coverage of complex environmental issues and the media's effects on public opinion and government environmental policies. Examination of environmental journalism principles and practices in the United States and around the world. Friedman (SS)

ES 131. Internship (1-2)

Practical experience in the application of environmental studies for both on- and off-campus organizations. Course is designed to provide credit for supervised experiential learning experiences. May be repeated for credit up to four credits. Prerequisite: consent of the program director. (ND)

ES 171 (CEE 171). Fundamentals of Environmental Technology (4)

Pollution control technologies and how they work for water, air and solid wastes. Assessment and management of risk as applied to remediation of contaminated wastes. Role of life cycle analysis of products in risk reduction. Emphasis on technologies leading to sustainable environment. Government policies and regulations, including litigation and Best Engineering Practices. Prerequisite: A course designated NS. Not available to students in RCEAS. (ND)

ES 181. Independent Study (1-4)

Directed readings or research on an Environmental Studies topic. May be repeated for credit up to four credits. Prerequisite: consent of the program director. (HU or SS)

ES 254 (REL 254) (ASIA 254) Buddhism and Ecology (4)

Buddhism's intellectual, ethical, and spiritual resources are reexamined in light of contemporary environmental problems. Is Buddhism the most green of the major world religions? What are the moral implications of actions that affect the environment? Prerequisite: One prior course in religion, environmental studies, or Asian studies. Kraft (HU)

ES 328 (POLS 328) U.S. Politics and the Environment (4)

An examination of contemporary American politics and policy dealing with environmental issues. Current controversies in the legislative and regulatory areas will be covered to examine environmental issues and the political process. Significant portions of the course readings will be taken from government publications. Wurth (SS)

ES 331 U.S. Environmental Law I: Pollution & Risk Abatement (4-3)

The purpose of this course is to study the practical reality of environmental regulation as codified law. It is also aimed at understanding the law's foundation in argument and justification as both existing law and proposed policy. We shall approach the reading of cases, statutes, and regulations on air, water, risk, waste and environmental impact with two theoretical models: the Market Sector Approach and the Ecosystem Approach, each with a distinct process model raised upon distinctive sets of normative principles. Utilizing these two legal paradigms for charting the relationship between humanity and nature, we will examine a wide range of environmental law being aware of its ethical, political, economic, scientific, and policy dimensions. Gillroy (SS)

ES 333 (IR 333) International Environmental Law & Policy (4)

This course examines the basic international legal setting for the protection and management of the environment. It examines how international law is made and applied, the role of international environmental regimes or institutions, enforcement strategies, and compliance mechanisms. Emphasis will be placed on human rights and the environment, the interface of free trade and environmental protection, the protection of biodiversity, North-South issues, as well as a review of various regulatory regimes for the protection of the global commons, including the history and legal sources of the Global Climate Change Convention. Gillroy (SS)

ES 338 Environmental Risk: Perception & Communication (4)

Starting with the distinction between traditional pollution problems and environmental risk, this course will focus on risk as it is perceived from outside the institutional policy process and how risk dilemmas are communicated from that institutional structure to experts and the public at large. This course will examine perception and communication experiences within the United States, and abroad. Briggs (SS)

ES 339 (IR339) Global Security and the Environment (4)

This course examines the links between international security and the environment. Topics include the effects of military actions on environment: the environment contributing to international conflict; environmental conditions as security issues; the relationship between public health and security; bioterrorism; ecoterrorism, and biological threats; environmental remediation and conflict resolution (Briggs) (SS)

ES 343 (IR 343) Comparative Environmental Law & Policy (4)

This course studies the different ways in which domestic legal systems handle the regulation of humanity's relationship to the natural world. The first part of the course will be a study of comparative law that will examine the evolution of distinct types of legal systems from their origins in the ancient world (e.g. Roman Law). The second part of the course will specifically and comparatively examine environmental law as it has developed in Canada, China, the European Union and the United States. Overall, we are interested in exploring the range of alternatives for environmental law and policy as practiced in various parts of the world and in creating arguments not only about how environmental law is created but the pros and cons of the different ways humanity has found to regulate its relationship to nature. (Gillroy) (SS)

ES 355 (POLS 355) Environmental Justice & The Law (4)

This course is an in-depth exploration of the various ways in which environmental law and policy can have discriminatory effects. It examines the rise and evolution of the environmental justice movement, and the impact of environmental justice claims on administrative rulemaking at both the state and federal level. Reviewing the history of case law concerning environmental justice suits filed under the 1964 Civil Rights Act, it also examines the future of environmental justice in environmental law and policy. Holland (SS)

ES 367 (TLT 367): Environmental Education (3)

Introductory environmental education course designed to prepare students to implement environmental education opportunities in formal and non-formal education settings. Topics include history and philosophy of environmental education, environmental laws and regulations, GIS, environmental issues and decision-making, curriculum integration and environmental education teaching methodologies. This is a Web-enhanced course containing both online and fieldwork components.

ES 371. Special Topics (1-4)

Intensive, research-oriented study of a subject or issue in Environmental Studies not covered in other courses. For students of demonstrated ability and adequate preparation. May be repeated for credit up to four credits. Prerequisite: consent of the program director. (HU or SS)

ES 381. Senior Seminar: Issues in Environmental Studies (4)

Advanced seminar focusing on discussion and research on specialized subjects in Environmental Studies. Subject matter varies from semester to semester. Intended for Environmental Studies majors and minors but open to others. Prerequisites: ES 1, 2 or another EES course, and one core course or consent of the program director. (SS)

ES 391. Honors Thesis (4)

Directed undergraduate research thesis required of students who apply and qualify for graduation with program honors. Prerequisite: consent of the program director. (HU or SS)



ENVIRONMENTAL INITIATIVE

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Faculty

Professors: **David J. Anastasio**, Ph.D. (Johns Hopkins), Professor of Earth and Environmental Sciences; **Gray E. Bebout**, Ph.D. (U.C., Los Angeles), Professor of Earth and Environmental Sciences; **David Cundall**, Ph.D. (Arkansas), Professor of Biological Sciences; **Stephen H. Cutcliffe**, Ph.D. (Lehigh), Professor of Science, Technology and Society and History and Director of Science, Technology and Society program; **Edward B. Evenson**, Ph.D. (Michigan), Professor of Earth and Environmental Sciences; **Sharon M. Friedman**, M.A. (Penn State), Professor of Journalism and Communication and Director of Science and Environmental Writing Program; **John B. Gatewood**, Ph.D. (Illinois), Professor of Sociology and Anthropology; **John Martin Gillroy**, Ph.D. (Chicago), Professor of Environmental Studies and International Relations; **Kenneth P. Kodama**, Ph.D. (Stanford), Professor of Earth and Environmental Sciences; **Kenneth L. Kraft**, Ph.D. (Princeton), Professor of Religion Studies; **Gerard P. Lennon**, Ph.D. (Cornell), Professor of Civil Engineering; **Anne S. Meltzer**, Ph.D. (Rice), Dean and Professor of Earth and Environmental Sciences; **Sibel Pamukcu**, Ph.D. (L.S.U.), Associate Chairperson of Civil and Environmental Engineering; **Frank J. Pazzaglia**, Ph.D. (Penn State), Chairperson and Professor of Earth and Environmental Sciences; **Stephen P. Pessiki**, (Cornell), Chairperson and P.C. Rossin Professor of Civil and Environmental Engineering; **Dork Sahagian**, Ph.D. (Chicago), Director of the Environmental Initiative and Professor of Earth and Environmental Sciences; **Arup K. Sengupta**, Ph.D. (Houston), Professor of Chemical Engineering; **Richard N. Weisman**, Ph.D. (Cornell), Professor of Civil and Environmental Engineering; **Peter K. Zeitler**, Ph.D. (Dartmouth), Professor of Earth and Environmental Sciences.

Associate Professors: **Alec M. Bodzin**, Ph.D. (North Carolina State), Associate Professor of Education; **Bruce R. Hargreaves**, Ph.D. (U.C. Berkley), Associate Professor of Earth and Environmental Sciences; **Donald P. Morris**, Ph.D. (Colorado), Associate Professor of Earth and Environmental Sciences; **Albert H. Wurth, Jr.**, Ph.D. (North Carolina), Associate Professor of Political Science; **Zicheng Yu**, Ph.D. (Toronto), Associate Professor of Earth and Environmental Sciences; **Weixian Zhang**, Ph.D. (Johns Hopkins), Associate Professor of Civil and Environmental Engineering.

Assistant Professors: **Robert K. Booth**, Ph.D. (Wyoming), Assistant Professor of Earth and Environmental Sciences; **Chad Briggs**, Ph.D. (Carleton), Assistant Professor of Environmental Studies and International Relations; **Derick G. Brown**, Ph.D. (Princeton), Assistant Professor of Civil and Environmental Engineering; **Benjamin S. Flezer**, Ph.D. (Brown), Assistant Professor of Earth and Environmental Sciences; **Breana Holland**, Ph.D. (Chicago), Assistant Professor of Environmental Studies and Political Science; **Kristen L. Jellison**, Ph.D. (MIT), Assistant Professor of Civil and Environmental Engineering. **Stephen C. Peters**, Ph.D. (Michigan), Assistant Professor of Earth and Environmental Sciences; **Joan M. Ramage**, Ph.D. (Cornell), Assistant Professor of Earth and Environmental Sciences.

Principal Research Scientist: **Stephen J. Reid**, Ph.D. (University of Wales, Aberystwyth), Director, Earth System Atlas

Undergraduate Program Director: **Dork Sahagian**, Ph.D. (Chicago), Professor of Earth and Environmental Sciences and Director of the Environmental Initiative; **Graduate Program Director:** **Breana Holland**, Environmental Studies and Department of Political Science. **Environmental Initiative Director:** **Dork Sahagian**.