

## Environmental Studies (Env S)

www.envs.iastate.edu  
(Interdepartmental Undergraduate Program)  
William G. Crumpton: Coordinator

Environmental Studies deals with the relationship and interactions between humans and the environment. Students in any college at ISU may elect to take a secondary major or minor in Environmental Studies. The curriculum is designed to give students an understanding of current and emerging environmental issues and an appreciation of different perspectives regarding these issues. Courses are provided for students pursuing careers related to the environment and for others who simply want to know more about environmental issues.

### Secondary Major

The Environmental Studies secondary major is taken in addition to one's first major and provides the breadth of preparation and integrated perspective necessary to understand environmental issues. Students seeking a major in Environmental Studies complete 24 credits of Env S coursework including (1) at least one general survey course chosen from Env S 101, 120, 173, and 201, (2) at least one integrative/issues course chosen from Env S 160, 204, 324, 342, 404, 424, and 450, and (3) at least two human/societal perspectives courses chosen from Env S 293, 320, 334, 345, 355, 380, 382, 384, 442, 472, 484, and 491. Beyond these three requirements, any Environmental Studies course and up to six credits of approved environmental coursework outside of Environmental Studies may be applied toward the 24 credit total for the major. Regardless of their home college, Environmental Studies majors must complete at least 9 credits of approved coursework in natural science. Unless prohibited by program or college rules, courses used to fulfill requirements of the Environmental Studies major may also be used to satisfy general education and other requirements of departments and colleges. A combined average grade of C or higher is required in courses applied to the major.

Regardless of their primary major, Environmental Studies graduates have a broad foundation in science and humanities, an understanding of major environmental issues, and an appreciation of the varied and sometimes opposing perspectives regarding these issues.

### Minor

Students seeking a minor in Environmental Studies complete 15 credits of approved Environmental Studies coursework including (1) at least one general survey course chosen from Env S 101, 120, 173, and 201, (2) at least one integrative/ issues course

chosen from Env S 160, 204, 324, 342, 404, 424, and 450, and (3) at least two human/societal perspectives courses chosen from Env S 293, 320, 334, 345, 355, 380, 382, 384, 442, 472, 484, and 491. A combined average grade of C or higher is required in courses applied to the minor, and the minor must include at least 9 credits that are not used to meet any other department, college, or university requirement.

### Courses Primarily for Undergraduate Students

**Env S 101. Environmental Geology: Earth in Crisis.** (Cross-listed with Geol.) (3-0) Cr. 3. F.S. An introduction to geologic processes and the consequences of human activity from local to global scales. Discussion of human population growth, resource depletion, pollution and waste disposal, global warming and ozone depletion, desertification, and geologic hazards such as earthquakes, landslides, flooding, and volcanism.

**Env S 108. Introduction to Oceanography.** (Cross-listed with Geol.) (3-0) Cr. 3. F. Introduction to study of the oceans. Ocean exploration. Waves and currents. Shape, structure, and origin of the ocean basins. Sedimentary record of oceanic life. Composition of seawater and its significance for life. Ocean circulation and its influence on climate. Life of the oceans, including coral reefs. Use and misuse of ocean resources. Anthropogenic impacts on the oceanic environment.

**Env S 120. Introduction to Renewable Resources.** (Cross-listed with Agron, NREM.) (3-0) Cr. 3. F.S. Overview of soil, water, plants, and animals as renewable natural resources in an ecosystem context. History and organization of resource management. Concepts of integrated resource management.

**Env S 130. Natural Resources and Agriculture.** (Cross-listed with NREM.) (3-0) Cr. 3. S. Survey of the ecology and management of fish, forest, and wildlife resources in areas of intensive agriculture, with emphasis on Iowa. Conservation and management practices for private agricultural lands. Designed for nonmajors.

**Env S 160. Water Resources of the World.** (Cross-listed with Agron, Geol, Mteor.) (3-0) Cr. 3. S. Study of the occurrence, history, development, and management of world water resources. Basic hydrologic principles including climate, surface water, groundwater, and water quality. Historical and current perspectives on water policy, use, and the role of water in society and the environment.

**Env S 173. Environmental Biology.** (Cross-listed with Biol.) (3-0) Cr. 3. F.S. An introduction to the structure and function of natural systems at scales from the individual to the biosphere and the complex interactions between humans and their environment. Discussions of human population growth, biodiversity, sustainability, resource use, and pollution.

**Env S 201. Introduction to Environmental Issues.** (Cross-listed with Biol, EnSci.) (2-0) Cr. 2. F.S. Discussion of current and emerging environmental issues such as human population growth, energy use, loss of biodiversity, water resources, and climate change.

**Env S 204. Biodiversity.** (Cross-listed with Biol.) (4-0) Cr. 2. S. *Prereq:* One course in life sciences. Survey of the major groups of organisms and biological systems. Definition, measurements, and patterns of distribution of organisms. Sources of information about biodiversity. Not intended for major credit in the biological sciences. Half semester course.

**Env S 220. Globalization and Sustainability.** (Cross-listed with Anthr, Globe, Mat E, M E, Soc, T SC.) (3-0) Cr. 3. F.S. An introduction to understanding the key global issues in sustainability. Focuses on interconnected roles of energy, materials, human resources, economics, and technology in building and maintaining sustainable systems. Applications discussed will include challenges in both the developed and developing world and will examine the role of technology in a resource-constrained world.

**Graduation Messages:** Cannot be used for technical elective credit in any engineering department.

### Meets International Perspectives Requirement.

**Env S 250. Environmental Geography.** (Cross-listed with EnSci.) (3-0) Cr. 3. F. The distribution, origins and functions of the earth's physical systems and the spatial relationship between human activity and the natural world.

**Env S 260. Soils and Environmental Quality.** (Cross-listed with Agron.) (3-0) Cr. 3. F.S. Burras. Role of soils in environmental quality and natural resources management. Emphasis on soil erosion and conservation, water quality, and environmental planning. Saturday field trip.

**Env S 270. Foundations in Natural Resource Policy and History.** (Cross-listed with L A, NREM.) (3-0) Cr. 3. Alt. F., offered 2011. The development of natural resource conservation philosophy and policy from the Colonial Era to the present. North American wildlife, forestry, and environmental policy; national parks and other protected lands; federal and state agencies. Relationship to cultural contexts, including urban reform and American planning movement. Discussion of common pool resources, public and private lands.

**Env S 293. Environmental Planning.** (Cross-listed with C R P, DSN S.) (3-0) Cr. 3. F. *Prereq:* *Sophomore classification.* Comprehensive overview of the field of environmental relationships and the efforts being made to organize, control, and coordinate environmental, aesthetic, and cultural characteristics of land, air, and water.

**Env S 320. Ecofeminism.** (Cross-listed with W S.) (3-0) Cr. 3. Alt. F., offered 2011. *Prereq:* *W S 201 or 3 credits in W S at the*

300 level or above. Women's relationships with the earth, non-human nature, and other humans. The course explores the connections between the mastery of women and the mastery of nature; origins of ecofeminism and its relation to the science of ecology and to other branches of feminist philosophies. Critique of modern science, technology, political systems as well as solutions will be included.  
Nonmajor Graduate Credit

**Env S 324. Energy and the Environment.** (Cross-listed with Geol, Mteor.) (3-0) Cr. 3. S. Renewable and non-renewable energy resources. Origin, occurrence, and extraction of fossil fuels. Nuclear, wind, and solar energy. Energy efficiency. Environmental effects of energy production and use, including air pollution, acid precipitation, groundwater contamination, nuclear waste disposal, and global climate change.

**Env S 334. Environmental Ethics.** (Cross-listed with Phil.) (3-0) Cr. 3. F. *Prereq: Three credits in philosophy or junior classification.* Thorough study of some of the central moral issues arising in connection with human impact on the environment, e.g., human overpopulation, species extinction, forest and wilderness management, pollution. Several world views of the proper relationship between human beings and nature will be explored.  
Nonmajor Graduate Credit

**Env S 342. World Food Issues: Past and Present.** (Cross-listed with Agron, FS HN, T SC.) (3-0) Cr. 3. F.S. *Prereq: Junior classification.* Zdorkowski, Ford. Issues in the agricultural and food systems of the developed and developing world. Emphasis on economic, social, historical, ethical and environmental contexts. Causes and consequences of overnutrition/undernutrition, poverty, hunger and access/distribution. Explorations of current issues and ideas for the future. Team projects.  
Nonmajor Graduate Credit  
Topics: H. Honors Section. (For students in the University Honors Program only.)  
**Meets International Perspectives Requirement.**

**Env S 345. Population and Society.** (Cross-listed with Soc.) (3-0) Cr. 3. F. *Prereq: Soc 130 or 134.* Human population growth and structure; impact on food, environment, and resources; gender issues; trends of births, deaths, and migration; projecting future population; population policies and laws; comparison of the United States with other societies throughout the world.

**Env S 355. Literature and the Environment.** (Cross-listed with Engl.) (3-0) Cr. 3. *Prereq: Engl 250.* Study of literary texts that address the following topics, among others: the relationship between people and natural/urban environments, ecocriticism, and the importance of place in the literary imagination.  
Nonmajor Graduate Credit

**Env S 380. Environmental and Resource Economics.** (Cross-listed with Econ.) (3-0) Cr. 3. *Prereq: Econ 101.* Natural resource availability, use, conservation, and

government policy, including energy issues. Environmental quality and pollution control policies.

**Env S 381. Environmental Systems I: Introduction to Environmental Systems.** (Cross-listed with Biol, EnSci, Micro.) (2-2) Cr. 3. F. *Prereq: 12 credits of natural science including biology and chemistry.* Introduction to the structure and function of natural environmental systems. Systems approach to the analysis of material and energy flows in natural environmental systems and the primary environmental factors controlling these systems.  
Nonmajor Graduate Credit

**Env S 382. Environmental Sociology.** (Cross-listed with Soc.) (3-0) Cr. 3. F.S. *Prereq: Soc 130, 134, or 3 credits of Env S.* Environment-society relations; social construction of nature and the environment; social and environmental impacts of resource extraction, production, and consumption; environmental inequality; environmental mobilization and movements; U.S. and international examples.

**Env S 383. Environmental Politics and Policies.** (Cross-listed with Pol S.) (3-0) Cr. 3. F. *Prereq: sophomore classification.* Major ideologies relation to conservation and ecology. Processes, participants, and institutions involved in state, national, and global environmental policymaking. Case studies of environmental controversies and proposals for policy reform.

**Env S 384. Religion and Ecology.** (Cross-listed with Relig.) (3-0) Cr. 3. Introduction to concepts of religion and ecology as they appear in different religious traditions, from both a historical and contemporary perspective. Special attention to religious response to contemporary environment issues.  
Nonmajor Graduate Credit  
**Meets International Perspectives Requirement.**

**Env S 390. Internship in Environmental Studies.** Cr. arr. Repeatable. F.S.SS. *Prereq: Approval of the Environmental Studies Coordinator.* Practical experience with nature centers, government agencies, schools, private conservation groups, and other organizations.  
Satisfactory Fail Only

**Env S 404. Global Change.** (Cross-listed with Agron, EnSci, Mteor.) (3-0) Cr. 3. S. *Prereq: Four courses in physical or biological sciences or engineering; junior standing.* Recent changes in global biogeochemical cycles and climate; models of future changes in the climate system; impacts of global change on agriculture, water resources and human health; ethical issues of global environmental change.  
Nonmajor Graduate Credit

**Env S 407. Watershed Management.** (Cross-listed with EnSci, NREM.) (3-3) Cr. 4. S. *Prereq: A course in general biology.* Managing human impacts on the hydrologic cycle. Field and watershed level best management practices for modifying the impacts on water quality, quantity and timing are discussed. Field project includes

developing a management plan using landscape buffers.

**Env S 417. Urban and Peri-urban Watershed Assessment.** (Cross-listed with L.A.) (2-3) Cr. 3. *Prereq: Junior standing, 6 credits of natural science.* Assessment and reduction of impacts in urban and peri-urban watershed areas. Course prepares students to work with various analysis methods for vegetation, topography, stormwater and stream condition as well as work with data from other disciplines. Emphasis on communicating with the public. Introductory GIS and GPS technologies are utilized. Learning is largely field-based.

**Env S 424. Sustainable and Environmental Horticulture Systems.** (Cross-listed with Hort.) (3-0) Cr. 3. Alt. S, offered 2013. Inquiry into ethical issues and environmental consequences of horticultural cropping systems, production practices and managed landscapes. Emphasis on systems that are resource efficient, environmentally sound, socially acceptable, and profitable.

**Env S 442. The Policy and Politics of Coastal Areas.** (Cross-listed with Pol S.) (3-0) Cr. 3. SS. Exploration of political implications of coastal policy. Issues include: "Carrying capacity," zoning, regulation of human development activities, trade-offs between conservation and jobs, the quality of coastal lifestyle, ways in which citizens participate in policy for coastal areas.

**Env S 450. Issues in Sustainable Agriculture.** (Cross-listed with Agron.) (3-0) Cr. 3. F. Zdorkowski. Agricultural science as a human activity; contemporary agricultural issues from agroecological perspective. Comparative analysis of intended and actual consequences of development of industrial agricultural practices  
**Meets International Perspectives Requirement.**

**Env S 460. Controversies in Natural Resource Management.** (Cross-listed with NREM.) (3-0) Cr. 3. F.S. *Prereq: 120, and A Ecl 312 or NREM 301, and Junior classification.* Analysis of controversial natural resource issues using a case approach that considers uncertainty and adequacy of information and scientific understanding. Ecological, social, political, economic, and ethical implications of issues will be analyzed.  
Nonmajor Graduate Credit

**Env S 461. Introduction to GIS.** (Cross-listed with EnSci, L.A., Ia LL.) Cr. 4. SS. Descriptive and predictive GIS modeling techniques, spatial statistics, and map algebra. Application of GIS modeling techniques to environmental planning and resource management.  
Nonmajor Graduate Credit

**Env S 472. U. S. Environmental History.** (Cross-listed with Hist.) (3-0) Cr. 3. *Prereq: Sophomore classification.* Survey of the interactions of human communities with the North American environment. Focus on the period from presettlement to the present, with a particular concentration on natural resources, disease, settlement patterns, land

use, and conservation policies.  
Nonmajor Graduate Credit

**Env S 484. Sustainable Communities.**

(Cross-listed with C R P, DSN S.) (3-0) Cr. 3. Alt. S., offered 2013. *Prereq: Senior classification.* The history and theory of sustainable community planning. Procedural and substantive dimensions. Case studies of communities engaged in sustainability planning. Use and development of indicators.

**Env S 490. Independent Study.** Cr. arr.

Repeatable. F.S.SS. *Prereq: Permission of instructor and approval of Environmental Studies coordinator.*  
Satisfactory Fail Only

**Env S 491. Environmental Law and Planning.**

(Cross-listed with C R P, DSN S, L A.) (3-0) Cr. 3. S. *Prereq: Six credits in natural sciences.* Environmental law and policy as applied in planning at the local and state levels. Brownfields, environmental justice, water quality, air quality, wetland and floodplain management, and local government involvement in ecological protection through land use planning and other programs.

**Env S 496. Travel Course.** Cr. arr.

Repeatable. *Prereq: Permission of instructor.* Extended field trips to study environmental topics in varied locations. Location and duration of trips will vary. Trip expenses paid by students. Check with department for current offerings.  
A. International Tour  
B. Domestic Tour