

# ENVIRONMENTAL STUDIES

## Interdepartmental Undergraduate Program

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 a 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:

At least one general survey course chosen from:

ENV S 101	Environmental Geology: Earth in Crisis
ENV S 120	Introduction to Renewable Resources
ENV S 173	Environmental Biology
ENV S 201	Introduction to Environmental Issues

At least one integrative/issues course chosen from:

ENV S 160	Water Resources of the World
ENV S 204	Biodiversity
ENV S 324	Energy and the Environment
ENV S 342	World Food Issues: Past and Present
ENV S 404	Global Change
ENV S 424	Sustainable and Environmental Horticulture Systems
ENV S 450	Issues in Sustainable Agriculture

At least two human/societal perspectives courses chosen from:

ENV S 293	Environmental Planning
ENV S 320	Ecofeminism
ENV S 334	Environmental Ethics
ENV S 345	Population and Society
ENV S 355	Literature and the Environment
ENV S 380	Environmental and Resource Economics
ENV S 382	Environmental Sociology
ENV S 383	Environmental Politics and Policies
ENV S 384	Religion and Ecology
ENV S 442	The Policy and Politics of Coastal Areas
ENV S 472	U. S. Environmental History
ENV S 484	Sustainable Communities
ENV S 491	Environmental Law and Planning

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.

## Minor

Students seeking a minor in Environmental Studies complete 15 credits of approved Environmental Studies coursework including:

At least one general survey course chosen from:

ENV S 101	Environmental Geology: Earth in Crisis
ENV S 120	Introduction to Renewable Resources
ENV S 173	Environmental Biology
ENV S 201	Introduction to Environmental Issues

At least one integrative/issues course chosen from:

ENV S 160	Water Resources of the World
ENV S 204	Biodiversity
ENV S 324	Energy and the Environment
ENV S 342	World Food Issues: Past and Present
ENV S 404	Global Change
ENV S 424	Sustainable and Environmental Horticulture Systems
ENV S 450	Issues in Sustainable Agriculture

At least two human/societal perspectives courses chosen from:

ENV S 293	Environmental Planning
ENV S 320	Ecofeminism
ENV S 334	Environmental Ethics
ENV S 345	Population and Society
ENV S 355	Literature and the Environment
ENV S 380	Environmental and Resource Economics
ENV S 382	Environmental Sociology
ENV S 384	Religion and Ecology
ENV S 442	The Policy and Politics of Coastal Areas
ENV S 472	U. S. Environmental History
ENV S 484	Sustainable Communities
ENV S 491	Environmental Law and Planning

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 undergraduates:

### 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 111: Geological Disasters**

(Cross-listed with GEOL). (1-0) Cr. 1. F.S.SS.

Introduction to the catastrophic geologic processes that disrupt ecosystems and human activity. Includes a discussion on the role of plate tectonics, the hydrologic cycle, and humans as the driving forces behind selected case studies on volcanic eruptions, earthquakes, tsunamis, landslides, and floods. Summer - online only.

**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. Meets International Perspectives Requirement.

**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. Does not satisfy biology major requirements.

**ENV S 201: Introduction to Environmental Issues**

(Cross-listed with BIOL, ENSCI). (2-0) Cr. 2. F.

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. Does not satisfy biology major requirements. Half semester course.

**ENV S 220: Global Sustainability**

(Cross-listed with ANTHR, GLOBE, M E, MAT E, SOC, T SC). (3-0) Cr. 3. F.S.

An introduction to 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. 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.

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 odd-numbered years.

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). (3-0) Cr. 3. F.S.

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 odd-numbered years.

*Prereq: W S 201 or 3 credits in Women's Studies at the 300 level or above*  
Women's relationships with the earth, non-human nature, and other humans. The course explores the connections between society's treatment of women and nature; origins of ecofeminism and how it relates to the science of ecology, conventional and sustainable agriculture as well as how ecofeminism relates to other branches of feminist philosophy. Evaluation and critique of modern science, technology, political systems and SOLUTIONS will be included.

**ENV S 324: Energy and the Environment**

(Cross-listed with ENSCI, GEOL, MTEOR). (3-0) Cr. 3. S.

Renewable and non-renewable energy resources. Origin, occurrence, and extraction of fossil fuels. Nuclear, wind, geothermal, biomass, hydroelectric, and solar energy. Biofuels. Energy efficiency. Environmental effects of energy production and use, including air pollution, acid precipitation, coal ash, mountaintop removal mining, oil drilling, hydraulic fracturing, groundwater contamination, nuclear waste disposal, and global climate change. Carbon sequestration and geoenvironmental solutions for reducing atmospheric CO<sub>2</sub> concentrations.

**ENV S 334: Environmental Ethics**

(Cross-listed with PHIL). (3-0) Cr. 3. F.

*Prereq: 3 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.

**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*

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.

Meets International Perspectives Requirement.

**ENV S 342H: World Food Issues: Past and Present, Honors**

(Cross-listed with AGRON, T SC). (3-0) Cr. 3. F.S.

*Prereq: Junior classification*

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.

Meets International Perspectives Requirement.

**ENV S 345: Population and Society**

(Cross-listed with SOC). (3-0) Cr. 3. F.

*Prereq: SOC 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.

Meets International Perspectives Requirement.

**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.

**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). Cr. 3-4. F.

*Prereq: 12 credits of natural science including biology and chemistry*

Introduction to the structure and function of natural environmental systems. Emphasis on the analysis of material and energy flows in natural environmental systems and the primary environmental factors controlling these systems.

**ENV S 382: Environmental Sociology**

(Cross-listed with SOC). (3-0) Cr. 3. F.S.

*Prereq: Soc 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 environmental issues.

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. Offered on a satisfactory-fail basis 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. Also offered online Alt. F, even-numbered years.

**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 classification and 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 odd-numbered years.

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.

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.

**ENV S 460: Controversies in Natural Resource Management**

(Cross-listed with NREM). (3-0) Cr. 3. F.S.

*Prereq: NREM 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.

**ENV S 461: Introduction to GIS**

(Cross-listed with ENSCI, IA LL, L A). 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.

**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.

**ENV S 484: Sustainable Communities**

(Cross-listed with C R P). (3-0) Cr. 3. S.

*Prereq: Junior 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*

**ENV S 490H: Independent Study: Honors**

Cr. arr. Repeatable. F.S.SS.

*Prereq: Permission of instructor and approval of Environmental Studies coordinator.*

**ENV S 491: Environmental Law and Planning**

(Cross-listed with C R P, L A). (3-0) Cr. 3. S.

*Prereq: 6 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.

**ENV S 496A: International Tour**

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.

**ENV S 496B: Domestic Tour**

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.