

ENVIRONMENTAL STUDIES

Director: James Proctor

Administrative Specialist: Nate Stoll

Environmental studies situates environmental problems and solutions in a scholarly context, working alongside other academic disciplines to build a more livable world. The field crosses traditional disciplinary boundaries, as a deeper understanding of environmental problems and solutions requires attention to a wide range of concepts and analytical methods that span the sciences and humanities. Our students master contemporary scholarship on environmental problems and solutions, develop cutting-edge computer and analytical skills, and demonstrate leadership in applying relevant scholarship and skills toward the environmental issues of today and tomorrow.

The educational objective of the Environmental Studies Program is to provide resources and cultivate an atmosphere whereby students (1) appreciate the intellectual and practical complexities of environmental problems and solutions, (2) master key concepts and methods of environmental analysis drawn from, and integrating, a broad range of disciplines, and (3) fuse this background knowledge and analytical ability with leadership and communication skills to successfully devise and implement creative, academically grounded solutions to environmental problems.

The Environmental Studies Program benefits from the participation of many departments in the College of Arts and Sciences, as well as the School of Law (<http://lclark.edu/law>) and Graduate School of Education and Counseling (<http://lclark.edu/graduate>). We offer students opportunities for environmental research, internships, and engagement on campus, in nearby locations such as Tryon Creek State Park (http://oregonstateparks.org/park_144.php) and the Portland (<http://portlandoregon.gov>) metropolitan area, in the greater Pacific Northwest (http://en.wikipedia.org/wiki/Pacific_Northwest), and throughout the world in conjunction with Lewis & Clark's Overseas and Off-Campus Programs. The Environmental Studies Program thus combines intellectual rigor and breadth with practical experience in a vibrant, transdisciplinary field of scholarly inquiry.

A major in environmental studies is appropriate for students who desire future employment in the environmental arena and/or who want a broad, systematic liberal arts background to support further scholarly study in related natural science, social science, and humanities fields.

The Major Program

The major includes core courses in environmental studies, breadth courses in the natural sciences, social sciences, and humanities, and a concentration or second major. In order to build an intellectually coherent understanding of environmental problems and solutions, core courses are designed to weave together concepts and skills drawn from breadth course fields. The core sequence starts with a broad introductory course followed by development of quantitative and qualitative analytical skills and advanced treatment of environmental problems and solutions. It culminates with a senior capstone representing original scholarly research on a topic of practical relevance. An additional core course builds communication, cultural competency, and other skills toward successful public engagement. Breadth courses in fields including biology, chemistry, geology, economics, sociology, international affairs, history, and philosophy provide important discipline-specific tools for environmental analysis. As preparation for research culminating in the

senior capstone, students choose courses defining a concentration or complete a second major in order to gain greater depth in one particular subfield of environmental studies. Majors often pursue overseas study and international environmental research related to their concentration or second major.

Major Requirements

A minimum of 61 semester credits, including the following (with recommended timing as noted):

- ENVS 160 Introduction to Environmental Studies (typically taken during the first year)
- ENVS 220 Environmental Analysis (typically taken fall semester of the sophomore year; must take ENVS 160 first)
- ENVS 295 Environmental Engagement (taken during the second, third, or fourth year)
- ENVS 330 Situating Environmental Problems and Solutions (typically taken spring semester of the junior year; must take ENVS 160 and ENVS 220 first)
- ENVS 400 Senior Seminar (typically taken fall and spring semesters of the senior year)
- Any two of the following natural sciences courses:

BIO 141 Investigations in Ecology and Environmental Science

CHEM 100 Perspectives in Environmental Chemistry
or CHEM 110 General Chemistry I

(Either CHEM 100 or 110 can be used, but not both)

GEOL 150 Environmental Geology

or GEOL 170 Climate Science

(Either GEOL 150 or 170 can be used, but not both)

- ECON 260 Environmental and Natural Resource Economics
- One of the following social sciences courses:

IA 257 Global Resource Dilemmas

SOAN 249 The Political Economy of Food

SOAN 305 Environmental Sociology

- PHIL 215 Philosophy and the Environment and/or HIST 261 Global Environmental History
- If only one of the above is taken: one additional 4-semester-credit art or humanities elective, approved in conjunction with the concentration proposal (see next item).
- 16 semester credits in a student-designed concentration. The concentration may have a natural science, social science, or humanities focus, or it may blend these areas. The concentration will be the basis for the senior capstone. At least two courses must be upper division. The concentration must be approved as part of declaring the major, generally during fall of the sophomore year. Please contact the Environmental Studies Program for details. Students pursuing a second major at Lewis & Clark do not require a concentration, but will be expected to complete a senior capstone applying their second field to environmental studies.

All Lewis & Clark courses intended to fulfill environmental studies major requirements must be taken for a letter grade, with the exception of ENVS 244 Practicum.

Although not required for the major, all environmental studies majors are strongly urged to complete MATH 131 Calculus I.

Minor Requirements

A minimum of 25 semester credits (six courses), distributed as follows:

- ENVS 160 Introduction to Environmental Studies
- ENVS 220 Environmental Analysis
- ENVS 200 Situating the Global Environment or ENVS 330 Situating Environmental Problems and Solutions
- One natural science breadth course chosen from the following:

BIO 141	Investigations in Ecology and Environmental Science
CHEM 100	Perspectives in Environmental Chemistry
CHEM 110	General Chemistry I
GEOL 150	Environmental Geology
GEOL 170	Climate Science

- One social science breadth course chosen from the following:

ECON 260	Environmental and Natural Resource Economics
IA 257	Global Resource Dilemmas
SOAN 249	The Political Economy of Food
SOAN 305	Environmental Sociology

- One humanities breadth course chosen from the following:

HIST 261	Global Environmental History
PHIL 215	Philosophy and the Environment

All Lewis & Clark courses intended to fulfill environmental studies minor requirements must be taken for a letter grade.

Honors

Students who distinguish themselves academically (GPA of 3.500 in the major) are invited to apply to the honors program. Honors candidates work with faculty advisors to develop proposals for research theses, which must ultimately be approved by a committee of three Lewis & Clark College faculty members. The honors thesis is initiated prior to, and completed (on an accelerated timetable) as a part of, ENVS 400 Senior Seminar. Each student prepares a written thesis in draft form, which is generally circulated to the committee by the fifth week of the second semester of ENVS 400; the student then prepares a revised version by week nine. Following a formal oral presentation and defense, the faculty committee determines whether to grant honors upon graduation.

Faculty

Barbara A. Balko. Associate professor of chemistry. Physical chemistry. PhD 1991 University of California at Berkeley. AB 1984 Bryn Mawr College.

Anne K. Bentley. Associate professor of chemistry. General, inorganic, and materials chemistry; nanotechnology. PhD 2005 University of Wisconsin at Madison. BA 1997 Oberlin College.

Andrew Bernstein. Associate professor of history. Japanese history. PhD 1999, MPhil 1996, MA 1994 Columbia University. BA 1990 Amherst College.

Paulette F. Bierzychudek. William Swindells Sr. Professor of Natural Sciences. Evolution, ecology, conservation biology, especially of plants and insects. PhD 1981 Cornell University. BS, BA 1974 University of Washington.

Greta J. Binford. Associate professor of biology, director of the Biochemistry and Molecular Biology Program (fall). Invertebrate zoology, biodiversity, evolution of spider venoms. PhD 2000 University of Arizona. MS 1993 University of Utah. BA 1990 Miami University.

Moriah Bellenger Bostian. Associate professor of economics. Environmental and resource economics, econometrics. PhD 2010 Oregon State University. MS 2005 Auburn University. BS 2003 Florida State University.

Kenneth E. Clifton. Professor of biology, chair of the Department of Biology. Animal behavior, marine biology, ecology of coral reefs. PhD 1988 University of California at Santa Barbara. BA 1981 University of California at San Diego.

Julio C. de Paula. Professor of chemistry, chair of the Department of Chemistry (spring). Physical chemistry, biophysical chemistry, nanotechnology. PhD 1987 Yale University. BA 1982 Rutgers University.

Robert Goldman. Professor of sociology. Social theory, cultural studies (advertising, news, television), production and consumption, class relations, modernity, postmodernity. PhD 1977, MA 1973 Duke University. BA 1971 University of Texas.

Reiko Hillyer. Assistant professor of history. U.S. South, African American history, history of the built. PhD 2006, MPhil 2001, MA 1999 Columbia University. BA 1991 Yale University.

Jessica M. Kleiss. Assistant professor of environmental studies. Oceanography, interface between the atmosphere and the ocean. PhD 2009 Scripps Institution of Oceanography, University of California at San Diego. BS 2000 Massachusetts Institute of Technology.

Bob Mandel. Professor of international affairs. Conflict and security, global resource issues, transnational studies, psychological aspects of international affairs, research methods, international relations theory. PhD 1976, MPhil 1975, MA 1974 Yale University. AB 1972 Brown University.

Jay Odenbaugh. Associate professor of philosophy, chair of the Department of Philosophy. Ethics, philosophy and the environment, philosophy of science, metaphysics, logic. PhD 2001 University of Calgary. MA 1996 Southern Illinois University at Carbondale. BA 1994 Belmont University.

Bruce M. Podobnik. Associate professor of sociology. Environmental sociology, social movements, quantitative methods, Latin America. PhD 2000, MA 1994 Johns Hopkins University. BA 1991 University of California at Santa Cruz.

James D. Proctor. Professor of environmental studies, director of the Environmental Studies Program. PhD 1992, MA 1989, MS 1989 University of California at Berkeley. BA 1980 University of Oregon.

Daniel J. Rohlf. Associate professor of law. Environmental law, conservation of biological diversity. JD Stanford University. BA Colorado College.

Elizabeth B. Safran. Associate professor of geological science, coordinator of the Geological Science Program. Geomorphology. PhD 1998 University of California at Santa Barbara. MSc 1993 University of Washington. BA 1989 Harvard University.

Tod Sloan. Graduate professor of counseling psychology. Ecopsychology, social theory, global community psychology. PhD 1982, MS 1977 University of Michigan. BS 1975 Brigham Young University.

Gregory A. Smith. Graduate professor of education. Educational policy, curriculum and instruction, place-based education, school-community relations. PhD 1989 University of Wisconsin at Madison. MA 1976 Southern Oregon University. BA 1970 University of Oregon.

Courses

ENVS 160 Introduction to Environmental Studies

Faculty: Environmental Studies Faculty

Content: Scholarly perspectives on environmental problems and solutions, integrating concepts and analytical skills drawn from the natural sciences, social sciences, and humanities. Foundation for all subsequent courses in the environmental studies major. Lectures, faculty and guest presentations, regular online assignments, individual and group research projects.

Prerequisites: None.

Restrictions: Enrollment limited to first- and second-year students.

Usually offered: Annually, fall and spring semester.

Semester credits: 4.

ENVS 200 Situating the Global Environment

Faculty: Environmental Studies Faculty

Content: Introduction to situated perspective on environmental problems and solutions, including a range of international and overseas program-specific cases. Development of web-based social learning skills to document and share situated research. Regular reading and summary discussions, lectures, fieldwork, online synthesis postings, and final report. Taught in conjunction with an ENVS summer overseas program.

Prerequisites: ENVS 160.

Restrictions: Sophomore standing and acceptance into an overseas program.

Usually offered: Annually, summer only.

Semester credits: 4.

ENVS 220 Environmental Analysis

Faculty: Environmental Studies Faculty

Content: Development of research and analytical skills in environmental studies as preparation for upper-division work by majors and minors.

Emphasis on formulation, practice, and communication of research.

Skills span full range of allied fields, including descriptive and inferential statistics, geographic information systems, survey and interview techniques, qualitative data analysis, and bibliographic research.

Lectures, individual and small-group assignments, and course project.

Accompanying lab provides opportunity for students to build analytical skills via real-world research.

Prerequisites: ENVS 160. Enrollment preference given to departmental majors fulfilling degree requirements.

Corequisites: ENVS 220L.

Restrictions: Sophomore standing required.

Usually offered: Annually, fall semester.

Semester credits: 5.

ENVS 244 Practicum

Faculty: Environmental Studies Faculty

Content: Nonclassroom learning experience combining theoretical concepts and skills learned in the classroom with practical work in an on-campus or off-campus setting. Additional readings and written assignments required. Arrangements for the practicum should be made during the semester prior to enrollment. May be repeated for credit.

Prerequisites: At least two of ENVS 160, ENVS 220, or ENVS 330.

Restrictions: Sophomore standing and consent required.

Usually offered: Annually, fall and spring semester.

Semester credits: 1-4.

ENVS 295 Environmental Engagement

Faculty: ENVS Faculty

Content: Faculty-directed student engagement, connecting environmental scholarship to people in a variety of settings. Identification and finalization of engagement opportunities; development of communication, cultural competency, and related skills; reflection on engagement experiences; and authoring and sharing of outcomes.

Prerequisites: ENVS 160.

Restrictions: Sophomore standing required.

Usually offered: Annually, fall and spring semester.

Semester credits: 2.

ENVS 311 (Un)Natural Disasters

Faculty: Safran

Content: Causes and consequences of "natural disasters" (earthquakes, volcanic eruptions, landslides, tornadoes, hurricanes, fires, tsunamis), with a focus on the interplay between the human and physical landscapes that make these events so deadly and imbued with diverse meanings. Perspectives drawn from the humanities, social sciences, and natural sciences to examine both historical events whose consequences have played out and recent dramas whose aftermaths are still unfolding. Contrast of impacts and perceptions of these events with select examples of anthropogenic disasters (Chernobyl, Bhopal, Deep Water Horizon); anticipation of future natural disasters and consideration of the science of living with risk.

Prerequisites: ENVS 220. GEOL 150 or GEOL 170.

Restrictions: Sophomore standing required.

Usually offered: Alternate Years, fall and spring semester.

Semester credits: 4.

ENVS 330 Situating Environmental Problems and Solutions

Faculty: Environmental Studies Faculty

Content: Advanced analysis of environmental problems and solutions, situating them in time, space, and biophysical/human context to provide greater appreciation for their complexity as well as to help devise successful responses. Development of interdisciplinary conceptual and analytical skills via inclusion and integration of topics including environmental change, biophysical and human drivers, related social movements, and environmental politics and policy. Lectures, regular assignments, individual and team research projects, and field trips.

Prerequisites: ENVS 160. ENVS 220.

Restrictions: Junior standing required.

Usually offered: Annually, spring semester.

Semester credits: 4.

ENVS 350 Environmental Theory

Faculty: Proctor

Content: Advanced exploration of major theoretical assumptions underlying environmental studies, including the nature of environment, environmental knowledge (including role of sciences and humanities), and environmental problems and solutions. Intensive reading and writing, class discussions, and project-based application of theory to contemporary topics.

Prerequisites: ENVS 160, ENVS 220.

Restrictions: Sophomore standing required.

Usually offered: Alternate Years, spring semester.

Semester credits: 4.

ENVS 400 Senior Seminar

Faculty: Environmental Studies Faculty

Content: An advanced, integrative keystone seminar involving primary research for all senior environmental studies majors, and taken twice for a total of four credits. Research capstones (theses or alternative outcomes) are based on each student's concentration within the major and include both oral and written components. Students start planning their capstones during their first enrollment in the course, and complete them in their second enrollment. Students should have completed all other environmental studies core courses prior to taking this course.

Prerequisites: ENVS 330.

Restrictions: Senior standing required.

Usually offered: Annually, fall and spring semester.

Semester credits: 2.

ENVS 460 Topics in Environmental Law and Policy

Faculty: Law Faculty

Content: Introduction to issues in environmental law and policy. Taught by environmental and natural resources law faculty of Lewis Clark Law School, the course covers major areas in environmental law. Topics vary and may include water law, the Endangered Species Act, hazardous waste law, environmental justice, environmental law enforcement, the World Trade Organization, public lands law, the Clean Air Act, and the National Environmental Policy Act. Panels discuss careers in law and study of law. A unique opportunity for students interested in careers in environmental law and policy.

Prerequisites: ENVS 160.

Restrictions: Junior standing required.

Usually offered: Alternate Years, fall semester.

Semester credits: 4.

ENVS 490 Topics in Environmental Studies

Faculty: Environmental Studies Faculty

Content: Application of concepts and skills from ENVS 160 and ENVS 220 to the understanding of specific environmental issues. Potential topics include biodiversity, climate change, energy, environmental justice, international agreements, land use, natural resource depletion, pollution, sustainability, transportation, and urban sprawl. May be taken twice for credit with change of topic.

Prerequisites: ENVS 160 and ENVS 220.

Restrictions: Sophomore standing required.

Usually offered: Alternate Years, fall and spring semester.

Semester credits: 4.

ENVS 499 Independent Study

Faculty: Environmental Studies Faculty

Content: Opportunity for the well-prepared student to design and pursue a substantive course of independent learning on an advanced level. Details determined by the student and the supervising instructor. Students should have completed ENVS 160 and ENVS 220 prior to taking this course. May be repeated for credit.

Prerequisites: ENVS 160, ENVS 220.

Restrictions: Sophomore standing and consent required.

Usually offered: Annually, fall and spring semester.

Semester credits: 1-4.