ENVIRONMENTAL STUDIES

Meeting the environmental challenges of the 21st century requires research, education and training that spans traditional disciplinary boundaries and emphasizes the interconnections of social and natural sciences, policy and the ethics and other social underpinnings of decision making. With numerous focal areas and connections to research centers both in and out of the academic world, ENVS provides the resources and experiences needed by students seeking to contribute to environmental research and problem solving.

The Department of Environmental Studies awards three graduate degrees: MS, MENV and PhD. In addition to research-based MS and PhD programs, we also offer three dual degrees: an MS/MBA in collaboration with the CU Business School, and an MS/Juris Doctor and PhD/Juris Doctor in collaboration with the CU Law School.

The program is flexibly structured, giving students the opportunity to pursue diverse areas of interest, especially those that do not fall neatly within disciplinary boundaries. Opportunities for interdisciplinary graduate studies and original research leading to the MS and PhD degrees are available with a variety of emphases, including sciences, policy and values, and theory. Particular programs of study are limited only by course offerings and faculty expertise.

For updated information, visit the department's Graduate Students (https://www.colorado.edu/envs/graduate-studies-0/) webpage.

Course codes for this program are ENVS, ENVM and OREC.

Master's Degrees

- Environmental Studies - Master of Science (MS) (https://catalog.colorado.edu/graduate/colleges-schools/arts-sciences/programs-study/environmental-studies/environmental-studies-master-science-ms/)
- Environmental Studies - Masters of the Environment (MENV) (https://catalog.colorado.edu/graduate/colleges-schools/arts-sciences/programs-study/environmental-studies/environment-master-environment-menv/)
- Outdoor Recreation Economy - Master of Science (MS) (https://catalog.colorado.edu/graduate/colleges-schools/arts-sciences/programs-study/environmental-studies/outdoor-recreation-economy-master-science-ms/)

Doctoral Degree

- Environmental Studies - Doctor of Philosophy (PhD) (https://catalog.colorado.edu/graduate/colleges-schools/arts-sciences/programs-study/environmental-studies/environmental-studies-doctor-philosophy-phd/)

Faculty

While many faculty teach both undergraduate and graduate students, some instruct students at the undergraduate level only. For more information, contact the faculty member's home department.

Bailey, Karen (https://experts.colorado.edu/display/fisid_164881/)
Assistant Professor; PhD, University of Florida

Boykoff, Maxwell Thomas (https://experts.colorado.edu/display/fisid_147562/)
Professor, Faculty Director; PhD, University of California, Santa Cruz

Brooks, Cassandra (https://experts.colorado.edu/display/fisid_159275/)
Assistant Professor; PhD, Stanford University

Burgess, Matthew (https://experts.colorado.edu/display/fisid_164178/)
Assistant Professor; PhD, University of Minnesota

Carrico, Amanda R. (https://experts.colorado.edu/display/fisid_153054/)
Associate Professor; PhD, Vanderbilt University

Ciplet, David (https://experts.colorado.edu/display/fisid_156064/)
Assistant Professor; PhD, Brown University

Dilling, Lisa
Professor, Associate Faculty Director; PhD, University of California, Santa Barbara

Doak, Daniel Forest (https://experts.colorado.edu/display/fisid_151963/)
Endowed Chair, Associate Faculty Director, Professor; PhD, University of Washington

Hale, Benjamin Slater (https://experts.colorado.edu/display/fisid_141456/)
Associate Professor; PhD, SUNY at Stony Brook

Hartter, Joel N. (https://experts.colorado.edu/display/fisid_154043/)
Faculty Director, Professor; PhD, University of Florida

Lambert, Joanna E. (https://experts.colorado.edu/display/fisid_156206/)
Professor; PhD, University of Illinois at Urbana–Champaign

Litt, Jill S. (https://experts.colorado.edu/display/fisid_140636/)
Professor; PhD, Johns Hopkins University

Miller, Dale Lee (https://experts.colorado.edu/display/fisid_115748/)
Senior Instructor; MA, University of Colorado Denver

Miller, Steve (https://experts.colorado.edu/display/fisid_166148/)
Assistant Professor; PhD, University of California, Santa Barbara

Neff, Jason C. (https://experts.colorado.edu/display/fisid_117652/)
Professor; PhD, Stanford University

Newton, Peter (https://experts.colorado.edu/display/fisid_154466/)
Assistant Professor; PhD, University of East Anglia (England)

Pielke, Roger A. Jr. (https://experts.colorado.edu/display/fisid_104166/)
Professor; PhD, University of Colorado Boulder

Vodehnal, Carrie (https://experts.colorado.edu/display/fisid_158066/)
Instructor; PhD, Washington University in Saint Louis

Wessman, Carol A. (https://experts.colorado.edu/display/fisid_100909/)
Professor Emerita; PhD, University of Wisconsin–Madison

White, James (https://experts.colorado.edu/display/fisid_102726/)
Professor; PhD, Columbia University

York, Jeffrey Glenn (https://experts.colorado.edu/display/fisid_148387/)
Associate Professor; PhD, University of Virginia

Courses

ENVS 5000 (3) Policy, Science, and the Environment
Introduction to methodologies of the policy sciences with emphasis on applications to environmental issues; role of science in decision making; professional roles and responsibilities as a policy analyst.
Requisites: Restricted to Environmental Studies (ENVS) graduate students only.

ENVS 5003 (3) Conceptual Foundations of Environmental Studies
Addresses basic theoretical questions underlying common methods employed by those conducting research in environmental science, values, and policy. The course provides a broad overview of the conceptual background relevant to work and research in environmental studies, with an emphasis on understanding many debates that have informed and challenged disciplinary research and, in so doing, shaped the interdisciplinary field of environmental studies.
Requisites: Restricted to Environmental Studies (ENVS) graduate students only.
Grading Basis: Letter Grade

ENVS 5004 (3) Research Design in Environmental Studies
Offers a conceptual understanding of the diverse methodological traditions used in empirical environmental research, when and why methods are deployed, and their relative strengths and weaknesses. Designed for students pursuing interdisciplinary environmental careers or those looking for a broad foundation prior to specializing. Emphasizes foundational research skills of developing a research question, scientific writing, interdisciplinary collaborations, and science communication. Formerly offered as a special topics course.
Requisites: Restricted to graduate students only.
Grading Basis: Letter Grade

ENVS 5005 (2.5) Natural Processes of Sustainability Systems
This course examines the natural systems and planetary boundaries that underlie all sustainability issues. It will provide an overview of foundational environmental science processes (e.g. biogeochemical cycles, the hydrologic cycle, atmospheric circulation, energy distribution), as well as the impacts of anthropogenic land changes, agricultural systems, industrialization, and development. Data of past and present environments will be examined to understand and shape expectations of future environments and climates.
Requisites: Restricted to Masters of Sustainable Business (SUSB-MSSB) and Masters of Sustainable Engineering (SUSE-MSSE) majors only.
Grading Basis: Letter Grade

ENVS 5006 (2.5) Sustainability Policy and Regulations
This course will provide a theoretical understanding of how environmental policies are made and how scientific information can be used to influence and support reasoned decision-making. The course will cover the evolution of modern environmental regulations (e.g. emissions and air quality, water quality, waste management) at local, national, and international levels.
Requisites: Restricted to Masters of Sustainable Business (SUSB-MSSB) and Masters of Sustainable Engineering (SUSE-MSSE) majors only.
Grading Basis: Letter Grade

ENVS 5050 (3) Theories of the Policy Process
Examines the public policy process, including the influences and actors that shape policy outcomes. Focuses on the major theories, frameworks, and models of policy change, along with emerging scholarship that challenges, refines, and advances the theory.
Requisites: Restricted to graduate students only.

ENVS 5087 (3) Distributed Energy Resources
Explores the potential to utilize distributed energy resources such as solar, storage, electric vehicles, and controllable appliances to support a growth and decarbonizing electrical grid. The class will review the legal foundation, technologies, and emerging applications for DERs such as virtual power plants (VPP), as well as the various business models and emerging players in the DER and VPP space.
Requisites: Restricted to graduate students only.
Recommended: Prerequisite ENVM 5072, ENVM 5007, ENVM 5006.

ENVS 5100 (1-3) Special Topics in Environmental Studies
A variety of topics not currently offered in curriculum; offered depending on instructor availability and student demand.
Repeatable: Repeatable for up to 9.0 total credit hours. Allows multiple enrollment in term.
Requisites: Restricted to graduate students only.

ENVS 5110 (1-3) Topics in Environmental Social Science and Humanities
Covers various topics in the social sciences and humanities in environmental studies.
Repeatable: Repeatable for up to 9.0 total credit hours.
Requisites: Restricted to Arts and Sciences, Journalism, Law or Business Graduate Students only.

ENVS 5120 (1-3) Topics in Quantitative Methods
Covers a wide range of quantitative methods used in policy research and their applications. Topics may include decision-making under uncertainty, fundamentals of microeconomics, mathematics of economic efficiency, cost-benefit analysis, system optimization, budgeting, fundamentals or probability, risk assessment, risk perception, risk communication, and decision analysis. Includes practical exercises, as well as readings and discussion, of various strengths and weaknesses of the different methods.
Repeatable: Repeatable for up to 9.0 total credit hours.
Requisites: Restricted to graduate students only.

ENVS 5135 (3) Dogs, Wolves, and Humans
Humans have a closer and longer history with ancestral and domestic dogs than any other animal species. Ironically, the closest living relative of dogs (wolves) remain one of the world's most persecuted species – an issue that rages today throughout the United States, including Colorado. This class centers on the biology of domestication, evolution of behavior, canid paleontology and genetics, wolf conservation, and the evolutionary, social, and cultural significance of wolves and dogs to humans.
Equivalent - Duplicate Degree Credit Not Granted: ENVS 4135
Recommended: Prerequisite ANTH 2010 or EBIO 1030 or EBIO 1210 or EBIO 1220 or EBIO 2040 or ENVS 2000.

ENVS 5155 (4) Ecosystem Ecology
Integrates information from physics (energetics), chemistry (element properties) and biology (evolutionary traits, photosynthetic pathways) to understand the structure and functioning of ecosystems. Provides an analysis of biotic community responses and feedbacks to environmental change drivers. Strong focus on water, nutrient cycling and carbon dynamics of diverse terrestrial and aquatic landscapes.
Equivalent - Duplicate Degree Credit Not Granted: EBIO 4155, EBIO 5155 and ENVS 4155
Requisites: Restricted to graduate students only.
Grading Basis: Letter Grade

ENVS 5240 (3) Environmental Philosophy
A survey of the major philosophical issues in environmental studies, comprising key issues in environmental ethics, in environmental political philosophy and in the philosophy of biology and ecology.
Equivalent - Duplicate Degree Credit Not Granted: PHIL 5240
Requisites: Restricted to Environmental Studies (ENVS) graduate students only.

ENVS 5340 (4) Conservation Biology and Practice in Brazil's Atlantic Forest
Field Studies. Examines the application of conservation principles in the Atlantic Forest of Brazil, a 'biodiversity-in-crisis' setting. Explores successful conservation strategies integrated with efforts to alleviate socioeconomic issues. Three-week Maymester, Study Abroad Global Seminar.
Equivalent - Duplicate Degree Credit Not Granted: ENVS 4340, EBIO 4340 and EBIO 5340
Recommended: Prerequisites EBIO 2040 or ENVS 2000 or 2000/higher-level course in ANTH, EBIO, ENVS, EVEN, GEOG, IAFS or other discipline related to ecology or sustainability.

ENVS 5510 (1) Environmental Studies Colloquia Series
All first year ENVS graduate students are required to attend the ENVS Colloquia Series. Speakers from around the world and within the department cover topics in all areas of Environmental Studies.
Repeatable: Repeatable for up to 2.0 total credit hours. Allows multiple enrollment in term.
Requisites: Restricted to Environmental Studies (ENVS) graduate students only.
Grading Basis: Pass/Fail

ENVS 5520 (1-3) Seminar in Environmental Studies
Addresses current topics in Environmental Studies. Provides forum for students to critically evaluate the primary literature on a particular theme.
Repeatable: Repeatable for up to 7.0 total credit hours. Allows multiple enrollment in term.
Requisites: Restricted to graduate students only.
Grading Basis: Letter Grade

ENVS 5701 (3) Policy, Politics and Management: Foundations
Examines concepts related to policy and regulatory processes, institutions and management of the environment and natural resources. Explores environmental laws at the international, national, state and local levels as well as how the processes and institutions at various levels of government help shape laws and their implementation. Focuses on policy tools including property rights, regulation, voluntary compliance and market-based mechanisms.
Requisites: Restricted to graduate students only.
Grading Basis: Letter Grade

ENVS 5702 (3) Environmental Governance: Actors and Institutions
Provides an examination of environmental governance issues across scales, from local to global. Focuses on foundational theory while critically examining empirical case studies of success and failure in managing common pool resources. Emphasizes understanding the role of diverse actors and institutions in driving environmental outcomes. Students will obtain practical tools and skills towards facilitating environmental sustainability of natural resources across scales.
Requisites: Restricted to graduate students only.
Grading Basis: Letter Grade

ENVS 5740 (3) Context-Sensitive Research Methods
Prepares students to conduct research on topics where data is not obvious or not easily available. Encompasses variations in context and setting as part of data observations. Methods include interviewing protocols, interpretive methods, cluster analyses, case study methodologies and textual analyses.
Equivalent - Duplicate Degree Credit Not Granted: PSCI 7116
Requisites: Restricted to graduate students only.

ENVS 5750 (3) Climate Politics and Science-Policy
Explores, understands and critically analyzes influences and trends in climate politics and science-policy. Course participants will gain an improved understanding of the myriad factors, pressures and processes that are involved in contemporary climate politics under-girding explicit policy proposals. Course participants will more capably identify consequential spaces of decision-making, recognize tractable places for change and fashion constructive strategies for their own research by way of best available evidence from work done in these areas. Overall, our attention to these course themes, concepts and case studies will help us to more capably understand, analyze and engage in the high-stakes 21st century arena of climate politics and science-policy. Previously offered as a special topics course.
Equivalent - Duplicate Degree Credit Not Granted: ENVM 5750, GEOG 5750 and SOCY 5750
Requisites: Restricted to graduate students only.
Grading Basis: Letter Grade

ENVS 5760 (2) Inclusive Pedagogy
Classroom instructors have a critical role in promoting student success through inclusive teaching approaches. This graduate seminar will prepare graduate students in key areas of inclusive teaching. Students will explore questions like: How can you foster a class climate that supports a sense of belonging for all students? How can clear and transparent learning outcomes promote student success for all students? How can course assignments and teaching strategies contribute to inclusive teaching? Students will also examine the literature on inclusive teaching and create a teaching statement that integrates aspects of inclusivity.
Grading Basis: Letter Grade

ENVS 5810 (3) Water Resources and Environmental Sustainability
Assesses impacts of climate variability and regional growth on western U.S. water resources, and examines successes and failures of different management strategies, as well as ways that science is used and misused in support of water management.
Requisites: Restricted to Arts and Sciences, Journalism, Law or Business Graduate Students only.

ENVS 5820 (3) Energy Policy in the 21st Century
Examines energy policy and the problem of sustainability through a variety of disciplinary and topical perspectives: historical, political, behavioral, techno-economic and legal. A critical approach is applied to arguments about energy policy processes, systems and desired outcomes, with special emphasis on the role of renewable and sustainable energy in the changing global system.
Requisites: Restricted to graduate students only.

ENVS 5830 (3) Critical Issues in Climate and the Environment
Discusses current issues such as ozone depletion, global warming and air quality for graduate students in nonscientific fields. Provides the scientific background necessary to understand, follow scientific developments and critically evaluate these issues.
Equivalent - Duplicate Degree Credit Not Granted: ATOC 4800 and ATOC 5000

ENVS 5840 (3) Global Biogeochemical Cycles
Focuses on the cycling of elements at the global scale with a particular emphasis on human modification of biogeochemical cycles. Major biogeochemical cycles, their past dynamics, present changes and potential future scenarios will be addressed. Ecosystem to global-scale model of the earth system will be discussed along with global scale measurements of element fluxes from satellites, aircraft and measurement networks.
Equivalent - Duplicate Degree Credit Not Granted: ERTH 5305
Requisites: Restricted to graduate students only.
Recommended: Prerequisite general chemistry, some organic chemistry.

ENVS 5909 (1-3) Independent Study
Only 3 hours of independent study can be used towards degree requirements.
Repeatable: Repeatable for up to 6.0 total credit hours. Allows multiple enrollment in term.

ENVS 5930 (2) Internship
Provides academically supervised opportunities for environmental studies majors to work in public and private organizations on projects related to the students' research and career goals, and to relate classroom theory to practice.

ENVS 6007 (3) Foundations of Environmental Sociology
Provides overview of environmental sociological theory and research including topics such as: public environmental perception, concern, and knowledge; environmentalism as a social movement; environmental justice; energy, technology, and risk; human dimensions of environmental change; and natural hazards and disasters.
Equivalent - Duplicate Degree Credit Not Granted: SOCY 6007

ENVS 6201 (3) Qualitative Research Methods for Environmental Studies
Introduces students to research design, data collection and analysis methods. Exploration of the rationale underlying the use of various methods, the skills needed to employ qualitative method and the process of designing a research protocol will provide graduate students with a sound foundation to begin their own thesis research.
Requisites: Restricted to graduate students only.
Grading Basis: Letter Grade

ENVS 6222 (2-3) Environmental Decision-Making
Explores the foundational issues that underlie agency decision-making, including environmental ethics, cost-benefit analysis, risk assessment, constitutional law and administrative law. Compares and contrasts National Environmental Policy Act and the National Historic Preservation Act and the Endangered Species Act.
Equivalent - Duplicate Degree Credit Not Granted: LAWS 7222
Grading Basis: Letter Grade

ENVS 6301 (3) Environmental and Energy Economics
Introduces non-economists to the study of energy markets, environmental externalities, economic regulation and public policy. This applied course uses examples from electricity generation, renewable energy, manufacturing, transportation and other energy intensive industries. A variety of policy instruments will be studies, including: technology standards, subsidies, environmental mandates, rate-based policies, emissions taxes and cap-and-trade systems.
Requisites: Restricted to graduate students only.
Grading Basis: Letter Grade

ENVS 6302 (3) Sustainable Landscapes, Sustainable Livelihoods
Examines rural transformation and the adoption of recreation economies in communities across the U.S. West in response to burgeoning recreation industry and interest in public lands. Students will evaluate different approaches for developing and managing recreation economies in small towns that consider diverse social, cultural, economic, and environmental constraints as well as opportunities in a time of rapid change. Project-based course. Students learn techniques to gather and synthesize data that support solution development.
Equivalent - Duplicate Degree Credit Not Granted: ENVM 6302
Requisites: Restricted to graduate students only.
Grading Basis: Letter Grade

ENVS 6303 (3) Transportation and Sustainable Cities
Examines the problem of organizing transportation systems from a variety of perspectives and explores how transportation decisions get made at a variety of scales, from local to national. Covers some of the dramatic changes coming from technological innovation in arenas like vehicle electrification, autonomous vehicles and the potential shift from individual vehicle ownership to shared mobility.
Requisites: Restricted to graduate students only.
Grading Basis: Letter Grade

ENVS 6304 (3) Introduction to Food Systems Internationally
Introduces students to contemporary food system challenges a the global scale, the course will first identify key historic and projected trends, to set the scene for the remainder of this specialization. Second it will draw on international case studies to explore some of the institutional, technological and market responses to food system challenges across the globe.
Requisites: Restricted to graduate students only.
Grading Basis: Letter Grade

ENVS 6305 (3) Reducing the Environmental Impact of Food Systems: Evidence-Based Solutions
Explores the evidence and ideas underlying some of the most important contemporary food system debates. We will ask: in enhancing the environmental sustainability of food systems, what do the data tell us about the roles that can be played by genetically engineered food, organic agriculture, local food systems, changes to animal agriculture, and reductions in food waste? Students will draw on peer-reviewed research to address the science, policy, and ethical dimensions of these topics.
Requisites: Restricted to graduate students only.
Grading Basis: Letter Grade

ENVS 6940 (1) Master's Candidate for Degree
Registration intended for students preparing for a thesis defense, final examination, culminating activity, or completion of degree.

ENVS 6950 (1-6) Master's Thesis

ENVS 7118 (3) Foundations of Environmental Justice
Examines environmental justice movements, policies, institutions, objectives, and scholarship. Identifies factors that contribute to environmental inequality, and efforts to reduce it. Formerly offered as a special topics course.
Equivalent - Duplicate Degree Credit Not Granted: COMM 7118, GEOG 7118 and PSCI 7118
Requisites: Restricted to graduate students only.

ENVS 8990 (1-10) Doctoral Dissertation
All doctoral students must register for not fewer than 30 hours of dissertation credit as part of the requirements for the degree. For a detailed discussion of doctoral dissertation credit, refer to the Graduate School section.