ENVIRONMENTAL STUDIES (TRI-CO)
haverford.edu/environmental-studies

Haverford, Bryn Mawr, and Swarthmore offer an interdisciplinary Tri-College (Tri-Co) Environmental Studies (ES) Minor, involving departments and faculty on all three campuses from the natural sciences, engineering, math, the humanities, and the arts. The Tri-Co ES Minor brings together students and faculty to explore interactions among earth systems, human societies, and local and global environments.

The Tri-Co ES Minor aims to cultivate in students the capacity to identify and confront key environmental issues through a blend of multiple disciplines, encompassing historical, cultural, economic, political, scientific, and ethical modes of inquiry. Acknowledging the reciprocal dimensions of materiality and culture in the historical formations of environments, this program is broadly framed by a series of interlocking dialogues: between the “natural” and the “built,” the local and the global, and the human and the nonhuman.

To declare the minor, students should contact the Environmental Studies director at their home campus.

LEARNING GOALS
• Students will be able to identify and confront key environmental issues through a blend of multiple disciplines, including historical, cultural, economic, political, scientific and ethical modes of inquiry.
• Students will develop good communication skills with particular aptitude for dialogue across and between multiple disciplines.
• Students will collaborate on interdisciplinary group projects that relate to environmental issues and that reflect creativity and tangible research design and inquiry.

CURRICULUM
Students may complete an ES Minor in conjunction with any major at Haverford, Bryn Mawr or Swarthmore, pending approval of the student’s coursework plan by the home department and the home-campus ES director.

MINOR REQUIREMENTS
The Tri-Co ES Minor consists of six courses, including an introductory course and capstone course. Students may complete the courses at any of the three campuses (or any combination thereof). The six required courses are:
• A required introductory course to be taken prior to the senior year. This may be ENVS 101 at Haverford or Bryn Mawr or the parallel course at Swarthmore (ENVS 001). Any one of these courses satisfies the requirement, and students may take no more than one such course for credit toward the minor.
• Four elective course credits from approved lists of core and cognate courses, including two credits in each of the following two categories. Students may use no more than one cognate course credit for each category. (See the ES website for course lists and more about core and cognate courses.) For Haverford students, no more than one of these four course credits may be in the student’s major.
  ◦ Environmental Science, Engineering, and Math: courses that build understanding and knowledge of scientific methods and theories, and explore how these can be applied in identifying and addressing environmental challenges. At least one of the courses in this category must have a laboratory component.
  ◦ Environmental Social Sciences, Humanities, and Arts: courses that build understanding and knowledge of social and political structures as well as ethical considerations, and how these inform our individual and collective responses to environmental challenges.
• A senior seminar (case-based), with culminating work that reflects tangible research design and inquiry, but might materialize in any number of project forms. Haverford and Bryn Mawr’s ENVS 397 (Senior Seminar in Environmental Studies) and Swarthmore’s ENVS 091 (Environmental Studies Capstone Seminar) satisfy the requirement.

Haverford students interested in the ES Minor should plan their course schedule with the Haverford Director of Environmental Studies in consultation with their major adviser. In choosing electives, we encourage students to reach beyond
their major, and to include mostly intermediate or advanced courses.

AFFILIATED PROGRAMS
For information about faculty and courses in Environmental Studies at Bryn Mawr and Swarthmore, visit the websites of those programs.

STUDY ABROAD
Students are encouraged to study abroad and receive ES credit by participation in programs in Australia, Denmark, Ecuador, Germany, Ireland, Scotland and South Africa. Other study abroad programs can receive ES credit by arrangement with the ES Director.

FACULTY
Affiliated Faculty at Haverford:
Helen White
Chemistry

Kimberly Benston
President of the College and Francis B. Gummere Professor of English

Craig Borowiak
Political Science

Kaye Edwards
Interdisciplinary Programs

Steve Finley
English

Andrew Friedman
History

Darin Hayton
History

Benjamin Le
Psychology

Joshua Moses
Anthropology

Rob Scarrow
Chemistry

Steven Smith
Economics

Jonathan Wilson
Biology, Environmental Studies Director

Affiliated Faculty at Bryn Mawr:
Victor Donnay
Mathematics, Environmental Studies Director

Don Barber
Geology, Alderfer Chair in Environmental Studies

Peter Briggs
English

Jonas Goldsmith
Chemistry

Karen Greif
Biology

Carol Hager
Political Science

Thomas Mozdzer
Biology

Michael Rock
Economics

David Ross
Economics

Bethany Schneider
English

Nathan Wright
Sociology

Affiliated Faculty at Swarthmore:
Elizabeth Bolton
English Literature, Environmental Studies Director

Timothy Burke
History

Peter Collings
Physics and Astronomy

Giovanna DiChiro
Political Science

Erich Carr Everbach
Engineering

Haverford College Catalog 2016-2017
ENVIRONMENTAL STUDIES

Eric Jensen
Physics and Astronomy

Jose-Luis Machado
Biology

Arthur McGarity
Engineering

Rachel Merz
Biology

Carol Nackenoff
Political Science

Jennifer Peck
Economics

Christine Schuetze
Sociology and Anthropology

Mark Wallace
Religion and Environmental Studies

COURSES

ENVSH101 CASE STUDIES IN ENVIRONMENTAL ISSUES: CONCEPTS, CONTEXTS, & CONUNDRUMS
Jonathan Wilson, Steven Smith
The course offers a cross-disciplinary introduction to environmental studies. Tracing an arc from historical analysis to practical engagement, distinctive approaches to key categories of environmental inquiry are presented: political ecology, earth science, energy, economics, public health, ecological design, sustainability, policy, and environmental ethics. Basic concepts, such as thermodynamics, biodiversity, cost-benefit analysis, scale, modernization, enclosure, the commons, and situational ethics, are variously defined and employed within specific explorations of environmental challenges in the modern world. No divisional credit will be awarded for this course.

ENVSH132 PERSPECTIVES IN BIOLOGY: GENETIC ENGINEERING, FARMING, AND FOOD
Staff
An examination of the science behind genetically engineered (GE) foods. The technology will be examined and compared to other plant breeding practices and the potential role of GE crops will be considered in the context of global food security.

ENVSH150 INTRODUCTION TO OCEANOGRAPHY
Staff
The oceans are one of the principal agents controlling global change, and are linked to nearly all of the biological, chemical, geological, and ecological systems on our planet's surface. In this course we will examine these systems and the impact of humans upon them. Enrollment limit: 50; Preference given to ENVS minors, 10 seats reserved for freshmen; Crosslisted: CHEM; Natural Science (NA)

ENVSH172 ECOLOGICAL IMAGINARIES: IDENTITY, VIOLENCE, AND THE ENVIRONMENT
John Hyland
This course interrogates how representations and imaginings of the environment are inseparable from issues of social justice. Considering how literature and art engage the environment, this course explores and investigates a range of topics and issues that arise from the intersection of racism, sexism, imperialism, globalization, and the environment. Open only to first-year students as assigned by the Director of College Writing. First Year Writing.

ENVSH201 INTRO TO GEOGRAPHIC INFORMATION SYSTEMS FOR SOCIAL & ENVIRONMENTAL ANALYSIS
Staff
This course is designed to introduce the foundations of Geographic Information Systems (GIS) with emphasis on applications for social and environmental analysis. It deals with basic principles of GIS and its use in spatial analysis and information management. Ultimately, students will design and carry out research projects on topics of their own choosing. Social Science (SO)

ENVSH203 IMAGINING THE ARCTIC: READING CONTEMPORARY ETHNOGRAPHIES OF THE NORTH
Joshua Moses
Circumpolar regions have been imagined as vast, remote, wild and pristine regions of the planet. More recently, with images of polar bears sinking on sea ice, the Arctic has been depicted as vulnerable, imperiled by climate change and environmental destruction. Focusing on
ethnography, this course examines how scholars have engaged critical issues facing the contemporary Arctic. Themes include local/global interactions, indigenous politics, resource extraction, human/animal relations, self-governance and cultural politics. Readings include, Franz Boas, Jean Briggs, Eleanor Leacock, George Wenzel, Hugh Brody, Julie Cruikshank, Kirk Dombrowski and Lisa Stevenson. Prerequisite(s): Intro to Anthropology or Case Studies in Environmental Issues (or the equivalent); Crosslisted: ANTH; Social Science (SO)

ENVSH206 INTRODUCTION TO PERMACULTURE
Rafter Ferguson
An introduction to permaculture, a design system aimed at meeting human needs while increasing ecosystem health, with attention to ethics, principles, design process, and techniques for application across a wide range of contexts. Prerequisite(s): sophomore standing (at time taking course); Crosslisted: ICPR; Social Science (SO)

ENVSH224 MICROBES—ANIMALS—HUMANS: ETHNOGRAPHIC ADVENTURES IN MULTISPECIES WORLDS
Christopher Roebuck
The course invites an anthropological engagement with what has been termed critical animal studies and the “turn to the animal.” This is a budding multidisciplinary field that investigates relations among human and non-human actants, and the shape of interspecies living. The course contends with relationships between “the human” and “the animal,” their ethical implications, and their social, political, and ecological effects in contemporary lifeworlds. We grapple with the complex, often contradictory, and always fragile interdependences of earthly life. Prerequisite(s): 100-level course in anthropology, health studies, environmental studies or related social sciences; Crosslisted: ANTH and HLTH; Social Science (SO)

ENVSH229 NEW INSTITUTIONAL ECONOMICS AND NATURAL RESOURCES
Steven Smith
Using the North American story of resource use, this course applies New Institutional Economics. When allocating scarce resources, institutions (property rights, laws, and norms) serve as constraints, but can evolve as circumstances change. This course addresses the how and why. Prerequisite(s): ECON 105 or ENVS 101; Crosslisted: ECON; Social Science (SO)

ENVSH281 NATURE/CULTURE: AN INTRODUCTION TO ENVIRONMENTAL ANTHROPOLOGY
Joshua Moses
This course will introduce students to the emerging field of environmental anthropology that focuses on the interrelationship between human cultures and natural environments. Environmental anthropology studies the various ways in which our biological survival and our social structures are influenced by environmental factors around us, while at the same time analyzing how our actions shape these environmental factors in turn. The course will engage with some of the key themes of the major sub-disciplines of environmental anthropology, viz. ecological anthropology, ethnoecology, political ecology, environmental justice, and sustainability studies. Topics covered will include human adaptation, traditional environmental knowledge, food justice, race/class and access to safe environment, etc. Prerequisite(s): ANTH 103 or ENVS 101; Social Science (SO)

ENVSH304 ENVIRONMENTAL PSYCHOLOGY & CONSERVATION
Benjamin Le
An examination of the links between the natural environment and psychological mechanisms using lenses of cognitive, social, and personality psychology, with a focus on conservation behavior and environmentalism. Prerequisite(s): at least one of the following classes: PSYC 213, 215, 220, 224, 280, 303, 325, 335; OR PSYC 100 and at least one ENVS course; OR instructor's consent. In short, there are two pathways to this course: (a) prior coursework in cognitive, social, or personality psychology or (b) Intro Psych and prior coursework in ENVS; Crosslisted: PSYC; Social Science (SO)

ANTHH309 ANTHROPOLOGY AND URBAN ECOLOGY
Joshua Moses
This course focuses on anthropology’s contributions (and potential contributions) to urban ecology. Urban ecology is inherently interdisciplinary, drawing on anthropology, urban planning, geography and forestry. Through a study of Philadelphia’s current struggles to redefine itself as a “green city,” students will gain grounding in anthropological theory and practice and urban ecology. Themes will include the intersections of
race, class, and ecology; urban farming/gardening; brownfields; disaster and resilience; grassroots organizing; and ideas of place, home and nature. Students will take several field trips to Philadelphia in collaboration with the United States Department of Agriculture Philadelphia Field station. Readings will include: Joan Iverson Nassauer, Lewis Mumford, Peter Berg, Anne Rademenger, Aldo Leopold, Rowan Rowntree, Gregory Bateson, Lindsay K. Campbell, Carl Zimmer, Baltimore Ecosystem Study, Swyngedouw Heynen, Kim Fortun, Leila Darwish. Prerequisite(s): students will be selected based on instructor evaluation of written applications; Crosslisted: ANTH; Social Science (SO)

ENVSH314 PHOTOSYNTHESIS
Jonathan Wilson
A study of the function, origins, and history of photosynthesis on Earth, from bacteria to plants. This course will begin with a survey of photosynthetic metabolisms, explore photosynthetic microbial diversity, and investigate the evolution of terrestrial plants through the fossil record. Prerequisite(s): Biology 200 or consent of instructor; Crosslisted: BIOL; Natural Science (NA)

ENVSH334 NATURAL RESOURCE ECONOMICS
Steven Smith
This course explores natural resources as an economic concept. Through mathematical and graphical analyses, we will study the value and allocation of renewable and non-renewable resources as well as concepts of sustainability and conservation. Prerequisite(s): ECON 300; Crosslisted: ECON; Social Science (SO)

ENVSH358 TOPICS IN ENVIRONMENTAL CHEMISTRY
Helen White
Three lectures for one-half semester (one-half course credit). This course will examine chemical processes that occur in natural waters, soils and the atmosphere. Specific topics will be chosen with input from enrolled students, who will be expected to share in discussion leadership. CHEM 358 may be repeated once for credit as long as the topical themes differ. Prerequisite(s): CHEM 304 or equivalent or permission; Crosslisted: CHEM; Natural Science (NA)

ENVSH397 SENIOR SEMINAR IN ENVIRONMENTAL STUDIES
Staff
This capstone Environmental Studies course is designed to allow Environmental Studies seniors to actively engage in environmental problem solving by bringing the perspectives and skills gained from their majors and applying them to collaborative interdisciplinary projects. Natural Science (NA)