The linked-major program in environmental studies (ENVS) is the secondary major to a primary major. Students cannot obtain the BA degree with ENVS as their only major. Students must complete all the requirements for graduation from their primary major in addition to those of ENVS as their linked major. Each student will work closely with an ENVS advisor to develop an individual course of study. ENVS requires an introductory course, the sophomore seminar, six elective courses, senior colloquium, and a senior capstone project (thesis, essay, performance, etc.) on an environmental topic that is researched, mentored, and credited in the primary major program. In addition, students must take one course in any subject that fulfills the writing essential capability.

FACULTY

Barry Chernoff
BS, SUNY at Stony Brook; MS, Adelphi University; PHD, University of Michigan
Robert Schumann Professor of Environmental Studies; Professor of Earth and Environmental Sciences; Professor of Biology; Chair, Environmental Studies Program; Director, College of the Environment; Professor, Environmental Studies

Frederick M. Cohan
BS, Stanford University; PHD, Harvard University
Professor of Biology; Professor, Environmental Studies; Professor, Integrative Sciences

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Dean of the Social Sciences; Henry Merritt Wriston Chair in Public Policy; Professor of Government; Professor, Environmental Studies

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Associate Professor of History; Associate Professor, Science in Society; Associate Professor, Environmental Studies

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BA, Amherst College; MA, University of Washington; PHD, University of Washington
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Associate Professor of Art; Section Head; Associate Professor, Environmental Studies

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Katja P. Kolcio
MA, University of Georgia Athens; MA, Ohio State University; PHD, Ohio State University
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BS, University of Toronto; PHD, Harvard University
Professor of Computer Science; Vice-Chair, Mathematics and Computer Science; Professor, Integrative Sciences; Professor, Environmental Studies

J. Donald Moon
BA, University Minnesota Mpls; MA, University of California, Berkeley; PHD, University Minnesota Mpls
Ezra and Cecile Zilkha Professor in the College of Social Studies; Professor of Government; Professor, Environmental Studies; Tutor, College of Social Studies

William R. Pinch
BA, University of Virginia; MA, University of Virginia; PHD, University of Virginia
Professor of History; Associate Editor, History and Theory; Professor, Environmental Studies

Joseph T. Rouse
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Sonia Sultan
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Jane A. Seney Professor of Greek; Professor of Classical Studies; Professor, Environmental Studies

Erika A. Taylor
the welfare of individual, wild animals has not been a focus of our conservation of wilderness and the extinction of species through exploitation. As a result, endangered species get special treatment (and if the animals of these species are better off), as well as the issue of keeping animals in zoos in the name of conservation.

This course introduces students to the concepts of animal welfare and compassionate conservation. We will explore the shared and conflicting concerns of animal welfare and conservation from historical and current perspectives. In doing so, we will examine these issues in popular media (film and press) and academic (including scientific) literature.

We will explore why some wild animals are considered pest species, why endangered species get special treatment (and if the animals of these species are better off), as well as the issue of keeping animals in zoos in the name of conservation.

Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-ENVS, SBS-ENVS

ENVS135 American Food
This course investigates topics in the history of food production from the colonial period to the present, with a special emphasis on the American contribution to the development of world food systems and cultures of consumption. Topics addressed include the production of agricultural commodities, development of national markets, mass production of food, industrialization of agriculture, and the recent emergence of organics, slow food, and local movements.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-HIST, SBS-HIST, SBS-HIST, SBS-HIST, SBS-HIST

ENVS197 Introduction to Environmental Studies
This interdisciplinary study of human interactions with the environment and the implications for the quality of life examines the technical and social causes of environmental degradation at local and global scales, along with the potential for developing policies and philosophies that are the basis of a sustainable society. This will include an introduction to ecosystems, climatic and geochemical cycles, and the use of biotic and abiotic resources over time. It includes the relationship of societies and the environment from prehistoric times to the present. Interrelationships, feedback loops, cycles, and linkages within and among social, economic, governmental, cultural, and scientific components of environmental issues will be emphasized.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-EES, NSM-EES

ENVS201 Research Methods in Environmental Studies
This course is designed to introduce students to critical methods for conducting research on environmental issues. Students will gain in-depth experience with methods and paradigms of inquiry from multiple lenses including arts, humanities, and social and natural sciences. In each offering the course will center on one critical environmental issue, such as global warming,
invasive species, or food insecurity. Using the central topic as a teaching tool, students will learn and apply the four stages of scholarly research: (1) question formulation, (2) research design, (3) analysis, and (4) synthesis. Work in the course will include discussions, lectures, problem sets, essays, and group and individual projects. Students will leave the course prepared to undertake independent environmental research.

Offering: Host  
Grading: A-F  
Credits: 1.00  
Gen Ed Area: SBS-ENVS, SBS-ENVS, SBS-ENVS, SBS-ENVS, SBS-ENVS  
Identical With: DANC201, DANC201, DANC201, DANC201, DANC201, DANC201, DANC201, DANC201, DANC201, DANC201, DANC201, DANC201, DANC201, DANC201  
Prereq: [E&ES197 or BIOL197 or ENVS 197] OR E&ES199

ENVS205 Sciences as Social and Cultural Practices
Philosophers long construed scientific knowledge as achieved and assessed by individual knowers, but recent work has recognized a greater epistemic role for scientific communities, disciplines, or practices and taken seriously the social and cultural context of scientific research. This course surveys some of the social, cultural, and political aspects of the sciences that have been most important for scholars in science studies, including differences between experimental, field, and theoretical science; the role of disciplines and other institutions in the sciences; interactions between science and its various publics; the politics of scientific expertise and science policy; the globalization of science; the social dimensions of scientific normativity, from metrology to conceptions of objectivity; race and gender in science; and conceptual exchanges between sciences and other discursive practices. The concept of the social will also receive critical attention in its purported contrasts to what is individual, natural, rational, or cultural.

Offering: Crosslisting  
Grading: OPT  
Credits: 1.00  
Gen Ed Area: SBS-SISP, SBS-SISP  
Identical With: SISP205, PHIL288, SISP205, PHIL288, SISP205, PHIL288, SISP205, PHIL288, SISP205, PHIL288  
Prereq: None

ENVS206 Public Policy
This course will provide a survey of several public policies. It will begin with a discussion of the logic of public choice within the context of political institutions, competing interests, and the implications for institutional design and policy design. The remainder of the course will be devoted to the examination of several public policy areas including criminal justice, education, welfare, and regulation. By integrating theoretical literature with case studies of different policies written from a variety of perspectives, the course aims to develop analytical skills as well as an appreciation for the technical and political complexities of policy making.

Offering: Crosslisting  
Grading: A-F  
Credits: 1.00  
Gen Ed Area: SBS-GOVTO, SBS-GOVTO, SBS-GOVTO  
Identical With: GOVT206, GOVT206, GOVT206, GOVT206, GOVT206, GOVT206, GOVT206, GOVT206  
Prereq: GOVT151

ENVS211 History of Ecology
The word “ecology” has come to have many meanings and connotations: a scientific field dealing with the relation of organisms and the environment, a way of thinking about the world emphasizing holism and interconnection, a handmaiden of the environmental movement, to name a few. This course covers the history of ecology as a scientific discipline from the eighteenth-century natural history tradition to the development of population, ecosystem, and evolutionary ecology in the twentieth century, situating the science in its cultural, political, and social contexts. Along the way, it traces the connections between ecology and economic development, political theory, ideas about society, the management of natural resources, the preservation of wilderness, and environmental politics. How have scientists, citizens, and activists made use of ecological ideas, and to what ends? How have they understood and envisioned the human place in nature? How have the landscapes and places in which ecologists have done their work shaped their ideas? Other major themes include the relationship between theories of nature and theories of society, ecology and empire, the relationship between place and knowledge about nature, the development of ecology as a professional discipline, the role of ecologists as environmental experts, relationship between the state and the development of ecological knowledge, and the relationships among ecology, conservation, agriculture, and environmentalism.

Offering: Crosslisting  
Grading: A-F  
Credits: 1.00  
Gen Ed Area: SBS-HIST, SBS-HIST  
Identical With: HIST221, SISP221, HIST221, SISP221, HIST221, SISP221, HIST221, SISP221  
Prereq: None

ENVS212 Introduction to Ethics
We will begin with some ancient questions about values. We find that two ancient approaches to right living (Platonic-Stoic and Aristotelian) differ radically over how much experience or society can teach us about what is good. Yet both insist that moral life is essentially connected to individual happiness.

Turning next to modern ideas of moral action (Kantian and utilitarian), we find that they both emphasize a potential gulf between individual happiness and moral rightness. Yet like the ancients, they disagree over whether morality’s basic insights derive from experience.

The last third of the course explores more recent preoccupations with ideas about moral difference, moral change, and the relation between morality and power. Especially since Marx and Nietzsche, moral theory faces a sustained challenge from social theorists who argue for plural or relative ethics. Ecological critics have challenged moral theorists to overcome their preoccupation with exclusively human interests and ideals. What kinds of moral reflection might be adequate to problems of global interdependence?

Students will come to understand the distinctive insights and arguments behind all of the positions considered, to recognize more and less cogent lines of response to them, and to shape their own patterns of moral reasoning through careful reflection.

Offering: Crosslisting  
Grading: A-F  
Credits: 1.00  
Gen Ed Area: HA-PHIL, HA-PHIL  
Identical With: PHIL212, PHIL212, PHIL212, PHIL212, PHIL212  
Prereq: None

ENVS214 Women, Animals, Nature
This course will focus on the gendered aspects of human relations with the rest of the natural world. Popular views about women’s special relation to nature will be challenged while nonetheless exploring the ways that women, animals, and nature are thought to be “other.” This course will also provide the analytical tools necessary to understand and analyze the roles that actual women (modified by race, class, and sexuality) play in reconceptualizing and reshaping relationships to the more than human world.

Offering: Crosslisting  
Grading: A-F  
Credits: 1.00
ENVS215 Humans, Animals, and Nature
A variety of important issues are central to understanding the complexity of relationships between humans, nonhumans, and the rest of nature. The goals of the course are to help you to think critically, to read carefully, to argue well, and to defend your own reasoned views about the moral relations between humans, animals, and nature.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-PHIL, SBS-PHIL, SBS-PHIL, SBS-PHIL
Prereq: None

ENVS216 Ecology
Ecology is the study of interactions between organisms and their environment, both physical and biotic. We will look at how these interactions shape fundamental characteristics of populations, communities, and ecosystems. Topics will include predation, competition, symbioses, and effects of stress and resource limitation in diverse environments. We will cover important consequences of interactions such as coevolution, population outbreaks, ecological coexistence, patterns of biodiversity, ecological succession, species invasions, food web dynamics, nutrient and energy cycling, variation in ecosystem goods and services, and global change.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-BIOL, NSM-BIOL, NSM-BIOL
Identical With: BIOL216, BIOL216, BIOL216, BIOL216, BIOL216, BIOL216, BIOL216, BIOL216
Prereq: [BIOL182 or MB&B182] OR [BIOL182 or MB&B182] OR [BIOL196 or MBB196]

ENVS220 Conservation Biology
This course will focus on the biology of conservation rather than cultural aspects of conservation. However, conservation issues will be placed in the context of ethics, economics, and politics. We will cover the fundamental processes that threaten wild populations, structure ecological communities, and determine the functioning of ecosystems. From this basis, we will explore important conservation issues such as population viability, habitat loss and alteration, food web alteration, invasive species, and climate change. We will use readings from the primary literature and field projects to learn about current research methods used in conservation biology.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-ENVS, NSM-ENVS
Identical With: BIOL220, BIOL220, BIOL220, BIOL220, BIOL220, BIOL220, BIOL220
Prereq: None

ENVS221 Environmental Policy
This course explores the history of U.S. environmental regulation. We will examine the key features of policy and administration in each major area of environmental policy. Moreover, we will examine several alternatives to public regulation, including free-market environmentalism and association-based self-regulation. Although the course focuses primarily on U.S. environmental policy, at various points in the course, we will draw both on comparative examples and the challenges associated with coordinating national policies and practices on an international level.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-GOVT, SBS-GOVT
Identical With: GOVT221, GOVT221, GOVT221, GOVT221
Prereq: None

ENVS222 Regulation and Governance
Regulation describes an array of public policies explicitly designed to govern economic activity and its consequences at the level of the industry or firm. This course will begin with an examination of the history of economic regulation and deregulation. It will turn to explore the rise of the new social regulation in environmental policy and occupational safety and health policy. The course will conclude with an examination of regulation as governance. Understanding the limits of traditional regulation and the need to address a host of emerging problems, analysts have focused on various means of integrating regulatory and nonregulatory policies, corporate practices, and the activities of nongovernmental organizations (e.g., trade associations, standard-setting organizations, and environmental groups). To what extent can changes in governance create a context for social learning and the generation of solutions to problems that fall outside of standard political jurisdictions (e.g., global climate change, occupational safety, and health in international markets)?
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-GOVT, SBS-GOVT
Identical With: GOVT222, GOVT222
Prereq: None

ENVS226 Invasive Species: Biology, Policy, and Management
Invasive species account for 39 percent of the known species extinctions on Earth, and they are responsible for environmental damages totaling greater than $138 billion per year. However, the general population has little knowledge of
what invasive species are or what threats they pose to society. In this course, we will explore the biological, economic, political, and social impacts of invasive species. We will begin by exploring a definition of an invasive species and looking at the life history characteristics that make them likely to become pests. Then, we will consider the effects of invasive species expansion on the conservation of biodiversity and ecosystem function, as well as their global environmental and political impacts. Finally, we will explore the potential future changes in invasive species distributions under a changing climate.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-BIOL, NSM-BIOL
Prereq: [E&ES197 or BIOL197 or ENVS197] OR [BIOL182 or MB&B182] OR E&ES199

ENVS228 Going Green, German-Style: The Relationship to Nature, 1800-Today
Few countries display as active a commitment to protect natural resources and the environment as Germany. Its focus on renewable energies, recycling, and conservation in general is unique even by European standards, and in the U.S., Germany's policies on sustainability and environmental preservation are often held up as models. It is important to recognize, however, that Germans did not achieve this degree of environmental awareness overnight. Rather, it represents the result of centuries of contemplating, controlling, and conserving nature and cannot simply be transferred to other cultures. In this course, we will examine the German (and European) cultural tradition by analyzing artworks and texts from the last two centuries that have both expressed and shaped salient attitudes and emotional responses. The goal of the course is to give you insight into Germany's long and complicated history of defining and relating to nature, and to allow you to reflect critically on your own attitudes toward nature and the environment.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-GRST, HA-GRST, HA-GRST
Prereq: None

ENVS229 Ancient Monuments: Landscape, History, Memory
In this course, we will examine some of the most renowned sites from Greek and Roman antiquity, such as the Parthenon and the other monuments on and near the Athenian Acropolis, the Colosseum and Forum in Rome, and Pompeii. The aim is to get a broad understanding of their significance, and so the sources will include ancient texts, modern scholarship and travel narrative, and visual representations like drawings and photographs. Because the course is connected to a theme of "shifting landscapes," we will pay particular attention to the ways in which the ancient sites interact with their surroundings.

Offering: Host
Grading: OPT
Credits: 1.00
Gen Ed Area: HA-ENVS, HA-ENVS
Identical With: CCIV229, CCIV229, CCIV229, CCIV229
Prereq: None

ENVS230 The Simple Life
As the human population grows toward nine billion and our planet's carrying capacity comes under increasing pressure, many people believe the human project itself is at risk. What human beings have accomplished is probably unique in the history of the universe; once lost to war, famine, and ecological collapse, the understandings and physical creations of our cultures will be irrecoverable. We must ask ourselves, with considerable urgency, the following questions: How do our values, our economic systems, and our behaviors--as individuals, groups, societies, and cultures--affect the conditions under which we, our descendants, and the plants and animals with which we share the earth might live in the future? To what extent and at what cost can technology enable us to adapt to changes already under way? Should we take an "après moi le déluge" attitude or try to prolong the life of our species, and if so, in what form? Does the so-called simple life, as conceptualized in different times and places, offer any useful models? Does living "green" make sense? What about environmental (in)justice?

This course will draw on texts from a variety of periods and disciplines, written in a range of styles and from many perspectives, to examine how these questions and others can be approached. Creative thinking will be strongly encouraged. We will pay particular attention to contemporary sustainability initiatives and environmental consciousness in Germany.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-GRST, HA-GRST, HA-GRST
Prereq: None

ENVS231 Introduction to Animal Welfare Science
Animal Welfare Science (AWS) developed as a multidisciplinary field of research to address animal well-being. It draws upon information and methodology from a host of disciplines to address individual-level concerns of non-human animals. It incorporates components of veterinary medicine, neuroscience, animal behavior, and physiology. This course introduces students to the scientific assessment of animal welfare. Students should gain a basic understanding of the ethical and biological foundations of animal welfare research and knowledge of a variety of current animal-related issues pertinent to domesticated, research, zoo, and free-ranging animals.

Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-ENVS, NSM-ENVS
Prereq: None

ENVS233 Geobiology
Fossils provide a glimpse into the form and structure of ancient ecosystems. Geobiology is the study of the two-way interactions between life (biology) and rocks (geology); typically, this involves studying fossils within the context of their sedimentary setting. In this course we will explore the geologic record of these interactions, including the fundamentals of evolutionary patterns, the origins and evolution of early life, mass extinctions, and the history of the impact of life on climate.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-ENVS, NSM-ENVS
Prereq: E&ES101 OR E&ES115 OR E&ES199 OR [E&ES197 or BIOL197 or ENVS197]

ENVS235 Science of Sustainability
What is sustainability? It most certainly is not switching light bulbs or "buying organic," although perhaps those activities contribute to sustainability. The task for our course will be to undertake a scientific inquiry into the conditions for an enduring human presence on Earth. To do so, we must begin with physical principles, examining both what humans require and demand from the world and what the world is capable of providing. Our inquiry will broaden to include
chemical and ecological principles, ultimately asking what the social sciences can do to illuminate the problem without violating the physical constraints nature imposes.

Students should bring a familiarity with quantitative and algebraic concepts and above all a desire to incorporate quantitative thinking into verbal discourse. Writing is also a core element of the course with weekly writing assignments in various formats.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-PHYS, NSM-PHYS, NSM-PHYS, NSM-PHYS, NSM-PHYS
Identical With: PHYS105, PHYS105, PHYS105, PHYS105, PHYS105, PHYS105, PHYS105, PHYS105, PHYS105, PHYS105, PHYS105, PHYS105, PHYS105, PHYS105, PHYS105, PHYS105
Prereq: None

ENVS240 Making the Science Documentary
This course is designed to introduce students to topics in environmental science and the basics of documentary filmmaking to teach the art of communicating science-related issues through visual media. No prior filmmaking experience is required.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-FILM, HA-FILM, NSM-FILM, HA-FILM, NSM-FILM, HA-FILM
Identical With: FILM140, E&ES140, FILM140, E&ES140, FILM140, E&ES140, FILM140, E&ES140, FILM140, E&ES140
Prereq: None

ENVS241 Labor and Development Economics in Latin America
This course will look specifically at the literature of labor markets and related human capital accumulation in Latin America, which has emerged as an entirely separate area of research in recent years. A large part of this literature in Latin American economic development focuses on urban labor markets, health, and education. The focus of this literature is often on various subsets of the population such as gender and different ethnic groups or rural/urban population. Economic and social policies and external shocks to the local environment will be of particular interest to understand their impact on local economic outcomes. The focus will be foremost on Latin America and cities in Latin America and drawing at time on evidence from across the world to compare the Latin America region with.

In this course, students will read recent economic research papers, drawing on journal articles and policy papers in this area, and discuss the theoretical and empirical results from research and its implication for policy. Students are expected to actively present and discuss them and work an individual or group projects. Basic quantitative methods will be taught throughout the course, relating to the economic research papers, and the course will also draw on the resources provided by the QAC.

Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-ECON, SBS-ECON, SBS-ECON
Identical With: ECON218, LAST341, ECON218, LAST341, ECON218, LAST341, ECON218, LAST341, ECON218, LAST341, ECON218, LAST341, ECON218, LAST341, ECON218, LAST341
Prereq: ECON101 OR ECON110

ENVS245 Climate, Change, and the Ancient World
Climate change has recently become shorthand for Global Warming, the clearcutting of rainforests, and the burning of fossil fuels. Yet while anthropogenic climate change on the global scale is indeed a modern phenomenon, climate change itself is nothing new, and human societies have been negotiating their natural world for millennia: adapting to changing conditions by inventing new technologies, adopting new social structures, and even modifying the landscapes around them.

Examples from around the world, including Africa, the Mediterranean, Australia, the Americas, Asia, and the British Isles, will be used to examine how past societies perceived and interacted with their environments. Aspects of collecting, analyzing and interpreting various climate proxies, and the theoretical foundations for interpreting their relevance to archaeological questions, will constitute major components of this course.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-ARCP
Identical With: ARCP245
Prereq: None

ENVS252 Industrializations: Commodities in World History
This course defines "industrialization" broadly to encompass the development and application of systematic knowledge to agriculture and manufacturing in 18th- to 21st-century societies. Although special attention will be devoted to the British and American examples, the course will be organized by commodity rather than nationality, focusing on traffic in materials used in production of food, clothing, and medicines, for example, cotton, rubber, guano, wheat, bananas, and quinine.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-HIST, SBS-HIST
Identical With: HIST252, HIST252, HIST252, HIST252
Prereq: None

ENVS254 Architecture of the 20th Century
The course considers influential works in architecture, its theory and criticism, and ideas for urbanism mostly in Europe and the United States from about 1900 to the present. Early parts of the semester focus on the origin and development of the modern movement in Europe to 1940, with attention given to selected American developments before World War II. Later parts of the course deal with Western architecture from 1945 to the present, including later modernist, postmodernist, and deconstructivist work, urbanism and housing, computer-aided design, green buildings, and postwar architecture in Latin America and Japan, and in postcolonial India and Africa.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-ART, HA-ART, HA-ART
Identical With: ARHA254, ARHA254, ARHA254, ARHA254, ARHA254, ARHA254, ARHA254, ARHA254
Prereq: None

ENVS255 Getting a Bigger Picture: Integrating Environmental History and Visual Studies
This interdisciplinary course approaches the history of environmental policy and opinion-making through a frame that takes seriously the rise in power accorded to visual imagery and visual practices (including photography, digital image production, film and new media) in modern society. The course introduces students to key landmarks in the visual history of environmentalism spanning a time period from colonial America to the recent past, focusing both on images of nature and on the nature of images.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-HIST, SBS-HIST, SBS-HIST, SBS-ENVS, SBS-HIST
Identical With: HIST262, SISP255, ARHA262, HIST262, SISP255, HIST262, SISP255, HIST262, SISP255, HIST262, SISP255, ARHA273, SISP255, HIST262, ARHA273, HIST262,
First, through the lens of justice, exploring the intersectional injustices posed by groups. In this course, we will first examine competing conceptions of justice and discuss how social values influence research within the environmental sciences and how the sciences in return influence social values regarding the environment.

Finally, we will consider whether current efforts to protect the environment adequately could be amended to better respond to those needs. Finally, we will think about whether nature has value, the sort or sorts of value nature may have, and about whether we ought to protect the environment. Particular attention will be given to the role of the sea in the nature of empire. Particular attention will be given to the role of the sea in the nature of empire. Particular attention will be given to the role of the sea in the nature of empire. Particular attention will be given to the role of the sea in the nature of empire.

What does it mean to see ourselves as primates, as close evolutionary relatives to other great apes and distant kin to old-world and new-world monkeys? In this course we will explore the wide-ranging philosophical implications of answers to this question by examining the evolution and behaviors of other primates, the ideas and assumptions (often gendered) of primatologists watching primates, and the thoughts of observers of the primatologists watching primates. We will pursue topics in the philosophy of science, philosophy of mind, and ethics.

We will adopt a largely comparative perspective and examine philosophical, scientific, psychological, and popular writing (as well as films). We will end the course exploring how seeing ourselves as primates might have implications for the survival of our primate kin, and, ultimately, our own survival.

So many of our environmental problems disproportionately burden certain groups. In this course, we will first examine competing conceptions of justice and then, through the lens of justice, exploring the intersectional injustices posed by...
environmental issues, we will discuss environmental justice, gender justice, food
justice, and climate justice.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-ENVS, SBS-ENVS, SBS-ENVS
Identical With: PHIL273, PHIL273, PHIL273, PHIL273, PHIL273
Prereq: None

ENVS274 Water's Past--Water's Future: A History and Archaeology of Water
Use and Management
Our world uses water as if this life-giving resource had no limits and does so in
the face of mounting scientific evidence that our planet is facing a long period of
water shortage. This course will look critically at the ways in which people have
used and managed water in the past, from the ancient world up to the Industrial
Revolution, with the aim of assessing the relationship of past uses of water to
present and future ones. Beginning with irrigation agriculture, we will consider
ways in which water has been used for food production, for generating power,
for hygiene, for recreation, and for symbolic purposes. We will also consider
water use technologically by looking at hydraulic infrastructures (aqueducts,
canals, cisterns, dams, fountains, and sewers) in relation to water use and
control and its impact on the environment. Finally, we will consider streams,
rivers, and lakes as natural components incorporated into man-made water
systems as well as matters of drainage and flood control.
Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-ENVS, SBS-ENVS, SBS-ENVS
Identical With: ARCP274, ARHA274, ARCP274, ARHA274, ENVS387, ARCP387,
ARCP274, ARHA274, ARCP274, ARHA274, ENVS387, ARCP387, ARCP274,
ARHA274, ARCP274, ARHA274, ENVS387, ARCP387
Prereq: None

ENVS275 The American Landscaping in Painting, Literature, Science and the
Popular Imagination
In a time of global warming, the issue of man's relationship with the natural
landscape has never been more pressing. The course will focus on how the
field of 19th century American landscape painting helped stimulate new ideas
about man's place in the environment -- for example spurring the creation of
America's National Parks as well as of city parks and greenspaces designed to
look natural, such as Central Park in New York. This course will also explore
the notion of landscape more largely. What is our personal landscape and how
does it help define our personal identity? How can you detect traces of history
in the landscape? In what ways is the American landscape unique and how did
scientists, writers and painters discover and respond to these qualities? How
should we respond to the crisis of global warming which is rapidly transforming
and upending our familiar landscape and even placing human existence at risk?
Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-ENVS, HA-ENVS
Identical With: ARHA275, AMST275, ARHA275, AMST275, ARHA275, AMST275,
ARHA275, AMST275
Prereq: None

ENVS280 Environmental Geochemistry
A qualitative and quantitative treatment of chemical processes in natural
systems such as lakes, rivers, groundwater, the oceans, and ambient air
is studied. General topics include equilibrium thermodynamics, acid-base
equilibria, oxidation-reduction reactions, and isotope geochemistry. The
magnitude of anthropogenic perturbations of natural equilibria will be assessed,
and specific topics like heavy-metal pollution in water, acid rain, asbestos
pollution, and nuclear contamination will be discussed. This course (together
with E&ES281) is usually taught as a service-learning course in which students
work with a community organization to solve an environmental problem.
Previous classes have evaluated the energy potential of a local landfill and
investigated the cause and possible remediation of a local eutrophic lake.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-EES, NSM-EES
Identical With: E&ES250, E&ES280, E&ES250, E&ES280
Prereq: None

ENVS281 Environmental Geochemistry Laboratory
This course will supplement E&ES280 by providing students with hands-on
experience of the concepts taught in E&ES280. The course will emphasize
the field collection, chemical analysis, and data analysis of environmental water,
air, and rock samples. Field areas will include terrestrial soils and groundwater,
estuarine environments, and marine water and sediments. Students will learn a
variety of geochemical analytical techniques.
Offering: Crosslisting
Grading: A-F
Credits: 0.50
Gen Ed Area: NSM-EES, NSM-EES
Identical With: E&ES251, E&ES281, E&ES251, E&ES281
Prereq: None

ENVS285 Performing the Posthuman: Music and Auditory Culture in the Age of
Animanities
Animanities’ takes seriously the aural and performance worlds of the nonhuman.
"Posthuman," according to the Oxford English Dictionary (OED), refers to the
idea that "humanity can be transformed, transcended, or eliminated either
by technological advances or the evolutionary process; artistic, scientific, or
philosophical practice which reflects this belief." This seminar engages questions
of musical difference by addressing posthuman performance, the musicality
of animals, music that imitates nonhuman sound worlds, and cross-species
and multi-species performance. Throughout the course, we will think across
varied types of sounds to explore and contextualize familiar questions about
how we sing, play, perform, stage, and sound musical identity, examining
the intersections among the humanities, science and technology studies, and
the sonic arts. Our explorations will cross through the fields of musicology,
ethnomusicology, and sound studies. By listening across different kinds of
sound cultures, we will interrogate how traditions of listening shape our habits
of perceiving others, how we hear nonhuman animals, how we incorporate
nonhuman sounding into music composed by humans, how technology has
played a role in the study and development of nonhuman and human musicality,
and what it means to listen to and value sonic difference more broadly. Through
discussions of musical and cultural difference that enrich ongoing discussions
of race, gender, and sexuality, we will come to a stronger understanding of
music's role in imagined and experienced natural worlds. Topics and case
studies will include audio bird guides, new age nature recordings, multi-species "collaborative" performances, sampled and electronically rendered animal and nature performance in digital video games, wildlife field recordings and documentary sound design, forms of animal and environmental mimesis used by composers, the way nonhuman animal behavior influenced experimental music communities, and descriptions of the musicking of nonhuman animals by the National Audubon Society and other wildlife guides and field recording initiatives. This seminar draws on the classroom community's interdisciplinary backgrounds and interests as well as readings and case studies that cross and challenge disciplinary boundaries. Students can succeed in this course without previous musical knowledge.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-MUSC
Identical With: MUSC287, AMST278
Prereq: None

ENVS288 Music, Sound, and the Environment in the Anthropocene
In this course we will explore how environmental works have proliferated throughout the academy and how scholars across the humanities are re-evaluating the reciprocal relationships among society, culture, and the environment. Over the course of the semester we will explore the diverse and interconnected ways in which contemporary composers, popular musicians, sound artists, world music practices, and collaborative arts practitioners draw on natural and urban environments in order to comment on current environmental and energy issues, trauma, the relationships among the arts, humanities and science and technology studies, representations of the environment and the environmental past, and participate in social activism. Employing socially and environmentally engaged musical analysis, this course will focus on five distinct areas: We will analyze how environmental sites and situations are represented in music; examine why environmentalist ideologies are integrated into the musical narratives and/or sonic choices made by the artist; address how artists conceptualize the environment and express their relationship to it; grapple with what motivates these artists to incorporate environmental commentary into their compositions, illustrating how sociocultural and environmental factors influence creative expression; and question how personal and societal values concerning relationships between society and the environment are disseminated and constructed through music. We will also explore the various ways in which nature, urbanity, and environment are constructed in the production, performance, consumption, and reception of music. Through our reading discussions, writing, and applied projects some of the questions we will address include: How do the intersections of landscapes and citiescapes produce multifarious artistic responses? How are communities whose economy depend on, or historically depended on, energy and/or natural resource industries signified or evoked through music? How are past and present histories of place expressed, recorded, and remembered through detailed and affective sensory experience? How do we determine the health of our soundscapes? How is music and sound mobilized in social activism? How are notions of identity, as shaped by a physical environment and the ideologies connected to place, constructed and communicated? As we engage with the critical geography of sound, we will address the global networks, musical mobilities, circulation of sounds, traditions and musicians, and the ways in which landscape, mapping, urban planning, and landscapes are expressed in music.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-MUSC, HA-MUSC
Identical With: MUSC288, MUSC288, MUSC288, MUSC288
Prereq: None

ENVS290 Oceans and Climate
Earth’s climate is not static. Even without human intervention, the climate has changed. In this course we will study the major properties of the ocean and its circulation and changes in climate. We will look at the effects of variations in greenhouse gas concentrations, the locations of continents, and the circulation patterns of oceans and atmosphere. We will look at these variations on several time scales. For billions of years, the sun’s energy, the composition of the atmosphere, and the biosphere have experienced changes. During this time, Earth’s climate has varied from much hotter to much colder than today, but the variations were relatively small when compared to the climate on our neighbors Venus and Mars. Compared with them, Earth’s climate has been stable; the oceans neither evaporated nor froze solid. On shorter time scales, different processes are important. We will look at these past variations in Earth’s climate and oceans and try to understand the implications for possible climates of the future.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-EES, NSM-EES
Prereq: E&ES101 OR E&ES199 OR E&ES115 OR [E&ES197 or BIOL197 or ENVS197]

ENVS291 Environmental Advocacy Strategies That Work
This seminar will study a wide variety of advocacy strategies that are working around the world. The first few weeks of the semester will lay the groundwork for the common constraints and opportunities that advocates face in different countries, and the remainder of the semester will be spent exploring a variety of strategies that have been found to work. In class, discussion will focus on what the strategies are, where they are most often used, and the contexts in which they are most popular and effective. Students will also be required to do a participant/observation exercise in which they observe/participate in an organization that utilizes one of the strategies discussed in class.

Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-ENVS, SBS-ENVS, SBS-ENVS
Prereq: None

ENVS292 Techniques in Ocean and Climate Investigations
Weekly and biweekly field trips, computer and/or laboratory exercises will allow us to see how climate and oceans function today and in the past. In addition to our data, we will most likely use the Goddard Institute for Space Studies climate model to test climate questions and data from major core (ocean, lake, and ice) repositories to investigate how oceans and climate function and have changed.

Offering: Crosslisting
Grading: A-F
Credits: 0.50
Gen Ed Area: NSM-EES, NSM-EES
Prereq: E&ES101 OR E&ES115 OR [E&ES197 or BIOL197 or ENVS197] OR E&ES199

ENVS295 Unlocking the Real Worth of Water
Water is simultaneously priceless and worthless. Water conservation is vital yet unsustainable. We purify it only to blend it with our feces. We destroy it to produce useless items; meanwhile 5,000 kids die each day without it. This course reframes our modern decisions–trade, aid, food, work, freedom, democracy--through the timeless lens of scarce water. It tackles the political and economic
paradoxes of water that so confounded even Galileo, Adam Smith, Alexander
Hamilton, and Ben Franklin and drive our modern world to require 40 percent
more water by 2030 than the earth can physically provide. Some say water
stress triggered the Arab Spring and believe that uprising to be the dawn of
increasingly fatal, thirst-driven conflicts. Are we bound for a global water-
constrained Armageddon, as otherwise optimistic leaders predict? Or is there
a new virtual key that may reverse scarcity and reveal water’s true value for all
species, especially our own?

This course will deepen students’ grasp and estimation of fresh water in
daily decisions as they discover water’s complex socioeconomic linkages,
take ownership of its inherent risks, appreciate its corresponding rights and
responsibilities, and engage in negotiating and bartering of dominion shares of
this precious liquid asset in a way that reveals water’s value in exchange.

Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-ENVS, SBS-ENVS
Prereq: [E&ES197 or BIOL197] OR E&ES199

ENVS296 Mountains in European and African Art and History
This course is a comparative study of mountains as artistic inspiration, focusing
on the Atlas of northwest Africa and the Alps in Europe. We begin with Berber
holy mountains and associated religious traditions in Morocco. Across the High
Atlas, Moroccan influence provided the cultural link from southern Europe
and the Maghreb to West Africa. We then turn to medieval Europe. There,
passes through the Alps and the Black Forest were conduits for the transit of
men, goods, and cultural forms. Mountains were not barriers but passageways
that linked cultures. In 16th- and 17th-century Europe, Netherlandish artists—
Breughel, Seghers, Ruisdael, Jos de Mompers—first gave full expression to the
grandeur, far beyond a human scale, of Alpine scenery. Gradually, mountains
came to be viewed as places of aesthetic beauty and as manifestation of the
sublime.

Romanticism, in the visual arts, poetry, and music, captures the experience
of the Alps as both symbol and physical manifestation of the transcendent.
Constable and Turner depict mountains in England’s Lake District and the Alps
as their primary subject matter. A deeper understanding of landscape painting
may be had through the poetry of Wordsworth and Coleridge. This transition
coincided with the birth of mountaineering as a sport. We will read selections
from narratives of climbing expeditions—Leslie Stephen, Mark Twain. The late
19th-century colonization of West Africa led to exploration of the interior. For
the first explorers of the Futa Jalon of Guinea (Hecquard, 1850; Noirot, 1881),
寅eshing these mountains was a form of documentation. After World War One,
mountaineering took on a heightened spiritual dimension for men who had
survived the horrors of trench warfare. In Austria and Germany, climbing
was identified with the cult of physical prowess and, sadly, with National Socialism
and antisemitism. In fact, however, the development of climbing and skiing
in the Alps owes much to Austrian and German Jews. In art, too, during the first
decades of the 20th century, mountains were an important source of spiritual
inspiration for painters whose work is central to the evolution of modern art.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-ART, HA-ART, HA-ART, HA-ART, HA-ART,
Identical With: ARHA296, ARHA296, ARHA296, ARHA296, ARHA296,
ARHA296, ARHA296, ARHA296, ARHA296, ARHA296, ARHA296,
ARHA296, ARHA296, ARHA296, ARHA296, ARHA296, ARHA296,
ARHA296, ARHA296, ARHA296, ARHA296, ARHA296, ARHA296
Prereq: None

ENVS300 Sustainable Behavior Change
Very frequently, the default mode of influencing environmental behaviors is
through increased information-sharing and awareness-raising. While these
efforts are well-intentioned, psychological research indicates that in most cases,
increased knowledge and awareness do little or nothing to alter behaviors
because of the complexity and difficulty of changing ingrained habits.

Through this course, which is a required component of the Eco Facilitators
Program, we will draw on extensive behavior change, communication, and social
marketing research to introduce you to theory and practice that will increase
your understanding of effective methods to influence behavior. You will develop
theoretical knowledge, practical skills, and an opportunity to apply your learning
within a dorm-based setting.

Offering: Host
Grading: A-F
Credits: 0.50
Gen Ed Area: SBS-ENVS, SBS-ENVS, SBS-ENVS, SBS-ENVS
Prereq: [E&ES197 or BIOL197] OR E&ES199

ENVS303 Ukraine and its Environment
International perspectives on environmental issues are critical in order to
address the challenges facing the world. The development of international
perspectives require more than learning from printed literature -- it requires
in-country experience and the desire to be able to view issues through different
cultural lenses. This course will provide such experience by learning about
the diversity of Ukrainian environments, people and cultures both in the
classroom at Wesleyan and by travelling to Ukraine during Spring Break. During
our time in Ukraine we will receive lectures in English from noted scholars,
politicians, professors and scientists on topics such as Environmental Law, Global
Environmental Security, Urban Environment, Environmental Policy in Developing
States, Sustainable Development for the Developing World, etc. We will also
travel and learn from scientists at Chernobyl about the regeneration of forest
ecosystems, we will learn from agronomists about agriculture on the steppes, we
will learn from politicians and scholars about Ukrainian environmental policy and
their views of US policies. We will also enter into round table discussions with
university students to exchange ideas about potential international solutions and
approaches to environmental problems. These are just some of the experiences
that are planned for our visit. Ukraine, as a pivotal democracy of the former
Soviet Bloc, is an amazing place to witness how a nation wrestles with dramatic
changes in policy. At the same time Ukraine is culturally diverse, which presents
interesting challenges to formulating fair and cohesive policies.

Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-ENVS, NSM-ENVS, NSM-ENVS
Identical With: CGST303, CGST303, CGST303, CGST303, CGST303
Prereq: ENVS 197, EES 199

ENVS304 Environmental Politics and Democratization
This course explores the role that environmental movements and organizations
play in the development and transformation of democratic politics. It examines
the political role of environmental movements in nondemocracies, transitioning
democracies, and advanced democracies.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-GOVT, SBS-GOVT
Identical With: GOVT304, CEAS304, GOVT304, EAST304, GOVT304,
GOVT304, EAST304

ENVS305 Moral Ecologies and the Anthropology of Vitality
What is vitality? How is vitality nurtured? What hinders vitality? How might we
participate in the flourishing of all life? This course will explore the “anthropology
of vitality” to designate a body of emerging literatures in anthropology,
science studies, religious studies, human geography, and ecological humanities
centered on questions of the health, wealth, and vitality of communities
understood to include both the human and the non-human worlds. Much of this literature is emerging in response to the intertwined global crises of social and environmental justice and a corresponding and urgent call for a new ethics. We will approach these concerns as an issue "moral ecology" in response to Michel Foucault's point in THE ORDER OF THINGS (1970) that "modern thought has never been able to propose a morality." The authors we will read work across the nature-culture ontological divide by expanding modes of reasoning to bring together, for example, medicine and ecology, ritual and environment, nature and morality, politics and religion, cosmology and pragmatism, gift-exchange and the production of wealth, regeneration and death, knowledge and ethics.

Topics include: the meanings of prosperity and vitality, moral idioms of nature, animism, epistemologies of embodiment, ecological and cosmological reasoning and systems of classification, relational ontologies, death, waste and pollution, ecology and healing, ritual and world-making.

Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-ENVS, SBS-ENVS, SBS-ENVS
Identical With: SISP305, ANTH303, SISP305, ANTH303, SISP305, ANTH303, SISP305, ANTH303, SISP305, ANTH303, SISP305, ANTH303, SISP305, ANTH303, SISP305, ANTH303, SISP305, ANTH303
Prereq: None

ENVS307 The Economy of Nature and Nations
On many of the key environmental problems of the 21st century, from climate change to biodiversity conservation, the perspectives of ecology and economics often seem poles apart. Ecology is typically associated with a skeptical stance toward economic growth and human intervention in the environment, while economics focuses on understanding (and often, celebrating) human activities of production, consumption, and growth. At the same time, ecology and economics share a common etymology: both words spring from the Greek oikos, or household. They also share much common history. This course thus explores the parallel histories of economics and ecology from the 18th century to the present, focusing on changing conceptions of the oikos over this period, from cameralism's vision of the household as a princely estate or kingdom, continuing through the emergence of ideas about national or imperial economic development, and culminating in the dominant 20th-century recasting of economics as being centrally concerned with problems of resource allocation. Simultaneously, it explores connections between changes in economics and the emergence of ecological science over this period, from Enlightenment natural history and early musings on the "economy of nature," to the design of markets for carbon credits today.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-HIST, SBS-HIST, SBS-HIST, SBS-HIST
Prereq: None

ENVS313 The Economics of Sustainable Development, Vulnerability, and Resilience
This course will build on the first principles of economics as applied to sustainable development and decision making under uncertainty. One of its major objectives will be to explore how efficiency-based risk analysis can inform assessments of vulnerability and resilience from uncertain sources of external stress in ways that accommodate not only attitudes toward risk but also perspectives about discounting and attitudes toward inequality aversion. Early sessions will present these principles, but two-thirds of the class meetings will be devoted to reviewing the applicability of insights drawn from first principles to published material that focuses on resilience, vulnerability, and development (in circumstances where risk can be quantified and other circumstances where it is impossible to specify likelihood, consequence, or both). Students will complete a small battery of early problem sets that will be designed to illustrate how these principles work in well-specified contexts. Students will be increasingly responsible, as the course progresses, for presenting and evaluating published work on vulnerability and resilience—offering critiques and proposing next steps. Initial readings will be provided by the instructor and collaborators in the College of the Environment, but students will be expected to contribute by bringing relevant readings to the class from sources germane to their individual research projects. Collaboration across these projects will thereby be fostered and encouraged by joint presentations and/or presenter-discussant interchanges.

Offering: Host
Grading: OPT
Credits: 1.00
Gen Ed Area: SBS-ENVS, SBS-ENVS
Identical With: ECON212, ECON212, ECON212, ECON212
Prereq: ECON110

ENVS314 Reconceptualizing the Animal Pest
This class will explore what it means—for society, for science, and for the animal— to designate and target a species as "pest animal" in the 21st century. As a case study, we will examine "the coyote as pest" in North America from a variety of perspectives—including the ecological, historical, geographical, legal, and cultural. In addition to examining the coyote in these contexts, we will challenge the status of pest in two key ways: (1) by scrutinizing the conservation science that influences the policy and practice of coyote management, (2) by using concepts of animal welfare science to develop a more compassionate and individual animal-based approach to mitigate wildlife-human conflicts. A major component of this class will be the generation of a joint report that integrates the information gleaned from an examination of the relevant literature and includes specific recommendations on how to reconceptualize "the coyote as pest."

Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-ENVS, SBS-ENVS
Identical With: HIST314
Prereq: None
ENVS315 Sustainable Agriculture in the Amazon & Beyond: A Performative Approach to Biocultural Regeneration
This course is motivated by recent archaeological finds in the Amazon basin and the discovery of a millenially fertile anthropogenic soil, known as Amazonian Dark Earth (ADE). It is motivated as well by the project to recreate this soil in collaboration with contemporary Kichwa indigenous people in the Peruvian High Amazon. The Kichwa reciprocate with the spirits of their land who are kin to them. This leads to an investigation of how and when in the West nature became mechanical and sentient. Historiography on the scientific revolution will help us to understand how and why the modernist separation between the material and the metaphysical/spiritual came about. The course focuses also on a contemporary reading of Niels Bohr's quantum physics and its way of re-opening the possibility of re-entangling matter and spirit. The course concludes with a practical look at the possibility of re-creating ADE with its potential to solve the global warming crisis.

Offering: Host
Grading: OPT
Credits: 1.00
Gen Ed Area: SBS-ENVS, SBS-ENVS

ENVS316 Community Research Seminar
Small teams of students will carry out research projects submitted by local community groups and agencies. These may involve social science, natural science, or arts and humanities themes. The first two weeks of the course will be spent studying the theory and practice of community research. Working with the community groups themselves, the teams will then move to design and implementation of the research projects.

Offering: Crosslisting
Grading: A-F
Credits: 1.50
Gen Ed Area: SBS-SOC, SBS-SOC, SBS-SOC, SBS-SOC, SBS-SOC
Identical With: SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316, SOC316
Prereq: None

ENVS320 Quantitative Methods for the Biological and Environmental Sciences
This course offers an applied approach to statistics used in the biological, environmental, and earth sciences. Statistics will be taught from a geometric perspective so that students can more easily understand the derivations of formulae. We will learn about deduction and hypothesis testing. We will also learn about the assumptions that methods make and how violations affect applied outcomes. There will be an emphasis on analysis of data, and there will be many problem sets to solve to help students become fluent with the methods. The course will focus upon data and methods for continuous variables. In addition to basic statistics, we will cover regression, ANOVA, and contingency tables.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-BIOL, NSM-BIOL, NSM-BIOL
Prereq: None

ENVS325 Healthy Places: Practice, Policy and Population Health
The built environment influences many aspects of health and well-being: psychological stressors (crime, noise, and violence), what people eat, the water they drink, the air they breathe, where (or if) they work, the housing that shelters them, where they go for health care, what social networks are available for support, how political power is distributed and public resources allocated. How cities, suburbs, and rural areas are managed; local policy; and planning and design decisions can all help determine whether the places we live will be threats to public health, and perhaps more importantly, to an aging society.

The focus of this course connects the fields of planning, psychology, and public health to explore contemporary challenges (and innovations) in the 21st-century built environment. Students will explore the multiple forces that impact population health, how to analyze these determinants, and what roles planning and public health agencies, as well as other institutions such as local governments, civil society, the private sector, and communities themselves, can play in research and action aimed at improving physical and mental health.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-ENVS, SBS-ENVS
Identical With: PSYC325, PSYC325, PSYC325, PSYC325, PSYC325, PSYC325

ENVS326 Stem Cells: Basic Biology to Clinical Application
This course will cover recent advances in stem cell biology, including adult and embryonic stem cells. We will examine the ethics as well as the science of this emerging field.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-BIOL, NSM-BIOL
Identical With: BIOL325, BIOL325, NSM-BIOL, BIOL325, NSM-BIOL, BIOL325, NSM-BIOL, BIOL325, NSM-BIOL, BIOL325, NSM-BIOL, BIOL325, NSM-BIOL, BIOL325, NSM-BIOL, BIOL325, NSM-BIOL, BIOL325, NSM-BIOL

ENVS331 Perspectives on Mountaintop Removal: Origins, Techniques, and Impacts
This multidisciplinary seminar will examine mountaintop removal mining using several approaches. These include the historical, to examine its development from its origins to the present; geographic, to determine how it changes not just the topology but also networks of traffic and demography; technological, to understand the various technologies this mining practice utilizes; ecological, to explore the broader environmental impact it has locally, regionally, and even more broadly; public health, to determine the impact this practice has on the health of people both near and far from the mining sites themselves; economic, to establish both the benefits and the long-term costs; and literary and artistic, to utilize the creative works that focus on mountaintop removal mining and its consequences. As a final project, students will produce an essay or multimedia project that will become the core of a website that will also include photographs by the instructor. During the first six weeks of the semester, an integral part of the course will be movement workshops led by Eiko Otake, who, with Johnston, has previously co-instructed a course on the history of the atomic bomb. One goal of the movement workshop is to demonstrate how much of our learning process is as much physical as it is mental; another is to integrate course themes through nonverbal learning.
ENVS337 The Origins of Bacterial Diversity
Wherever there is life, there are bacteria. Free-living bacteria are found in every environment that supports eukaryotes, and no animal or plant is known to be free of bacteria. There are most likely a billion or more species of bacteria, each living in its unique ecological niche. This course will explore the origins of bacterial biodiversity: how bacteria evolve to form new species that inhabit new ecological niches. We will focus on how the peculiarities of bacterial sex and genetics facilitate bacterial speciation. Topics will include the characteristics of bacterial sex, why barriers to genetic exchange are not necessary for speciation in bacteria, the great potential for formation of new bacterial species, the evolutionary role of genetic gifts from other species, and the use of genomics to identify ecologically distinct populations of bacteria.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-BIOL, NSM-BIOL, NSM-BIOL, NSM-BIOL
Identical With: BIOL337, BIOL537, BIOL337, BIOL537, BIOL337, BIOL537, BIOL337, BIOL537
Prereq: [BIOL182 or MB&B182]

ENVS340 The Forest Ecosystem
This course examines basic ecological principles through the lens of forest ecosystems, exploring the theory and practice of forest ecology at various levels of organization from individuals to populations, communities, and ecosystems. Lectures, lab exercises, and writing-intensive assignments will emphasize the quantification of spatial and temporal patterns of forest change at stand, landscape, and global scales.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-BIOL, NSM-BIOL, NSM-BIOL
Prereq: [BIOL182 or MB&B182] OR [E&ES199 or BIOL197 or ENVS197] OR E&ES199 OR [BIOL182 or MB&B182] OR [BIOL196 or MB&B196] OR [E&ES197 or BIOL197] OR E&ES199

ENVS347 Ethics and Fluency: Metaphors in Moral Cognition
In responding to global climate crises, moral philosophers, policymakers, and activists may find ourselves relying on concepts that are poorly suited to the problems we now face. In thinking about water-related challenges, this course asks participants not only to conceive our situation in familiar moral terms—managing disputes about water rights or water pollution control, for example—but also to see how our understanding of water, and our relation to it, transforms how we conceive of morality.

The shared moral reference points to which contemporary public discourse can most readily appeal include rights, reciprocal agreements, and alleviation of suffering. The first two principle-based concepts have been of some use in addressing clear cases of conflict among actual human beings’ claims. Yet such conflicts represent only a fraction of the challenges related to environmental interdependence. Meanwhile, public alarm over suffering can draw attention to other symptoms of environmental crisis—namely, to the desperation of sentient beings in circumstances of scarcity, toxicity, inundation, or niche loss. Yet such concern over suffering also remains insufficient to orient us to our responsibility with respect to Earth’s interdependent patterns of life.

This seminar will explore several marginalized and emerging ways of conceptualizing problems of value and agency, inquiring into how they help us recognize and rise to the challenges of environmental interdependence and volatility. We will attend especially to the challenge of making sense of an ethics animated by “water” metaphors such as fluency, dynamics, and circulation, rather than by the more “solid” conceptual touchstones of principles on one hand and results or outcomes on the other.
Offering: Crosslisting
Grading: OPT
Credits: 1.00
Gen Ed Area: SBS-ENVS, SBS-ENVS
Identical With: PHIL347, PHIL347, PHIL347, PHIL347, PHIL347, PHIL347, PHIL347, PHIL347, PHIL347, PHIL347, PHIL347, PHIL347, PHIL347, PHIL347, PHIL347
Prereq: None

ENVS350 Contextualizing Inequity: An Interdisciplinary Approach
The aim of this course is to use an interdisciplinary approach to deconstruct the concept of inequity. We begin with the premise that explications of politico-economic and sociocultural conditions are central to questions of global inequity and injustice, which are paramount in contextualizing environmental concerns. We place great emphasis on history to equally consider the broader material and symbolic field within which both theories and narratives of inequity stem. We question how inequity has been conceptualized and represented in the social sciences, the humanities, as well as the arts. To that end, we will explore works in political science, sociology, anthropology, ethnic and gender studies, literature, performance, and other disciplines with pre- and postquake Haiti as a site of investigation. In so doing, our ultimate aim is to make a case for the significance of both material and symbolic analyses in environmental studies.
Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-ENVS, SBS-ENVS
Identical With: AFAM350, ANTH351, AFAM350, AFAM350, ANTH351
Prereq: None

ENVS352 Energy and Modern Architecture, 1850–2015
This seminar seeks to study the evolution of mechanical systems for heating, ventilating, and cooling in modern architecture from the mid-19th century to the present. The aim is to show how architects, engineers, fabricators, and urban governments worked to develop modern systems of environmental controls, including lighting, both as means of improving the habitability of buildings and health of their occupants. The course will trace the adaptation of technical innovations in these fields to the built environment and how those responsible for it sought to manage energy and other resources, such as funds and labor, to create optimal solutions for different building types, such as factories, theaters, assembly halls, office buildings, laboratories, art museums, libraries, and houses of different kinds, including apartment buildings for higher and lower income residents. An important theme will be the relationship of energy systems for individual buildings and urban infrastructure, including water systems, electrical and other utilities. The last part of the course focuses on contemporary green or sustainable architecture, including passive and active solar heating, photovoltaics, energy-efficient cooling, LEED certification, wind and geo-exchange energy, green skyscrapers, vertical farming, and zero carbon cities in the United States, Europe, and Asia.
Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-ART, HA-ART, HA-ART
Identical With: ARHA352, ARHA352, ARHA352, ARHA352, ARHA352, ARHA352,
ARHASC32, ARHASC32, ARHASC32
Prereq: None

ENVS353 Agricultural Food Webs

Ecological communities are structured by feeding interactions, and agricultural systems are no exception to this rule. This class will focus on attributes of food webs that impact agriculture, including topics such as natural biological control of insect pests, to soil microbes and nutrient cycling, to causes of honeybee colony collapse disorder. This course includes a rigorous survey of both ecological theory as well as applied environmental problems. Students will read primary literature from the fields of food web ecology and agroecology and discuss the implications through group work.

Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-ENVS, NSM-ENVS
Identical With: BIOL354, BIOL354, BIOL354, BIOL354
Prereq: BIOL182 or BIOL197

ENVS361 Living in a Polluted World

The modern natural world has become polluted with uncountable numbers of organic and inorganic compounds, some with unspeakable names, others simple toxic elements. This worldwide contamination is the result of our extensive use of natural resources, large-scale fossil fuel burning, and the creation of many synthetic compounds. Many of the polluting substances endanger human health and may impact ecosystems as well. Most pollutants will travel along aqueous pathways, be they rivers, groundwater, or oceans. In this course we will track the sources and pathways of pollutants such as As, Hg, Pb, Cu, Cr; nutrient pollution such as nitrate and phosphate; and a suite of organic pollutants. We will discuss both the main industrial and natural sources of these pollutants, their chemical pathways in the environment, and how they ultimately may become bioavailable and then enter the food chain. We will look at full global pollutant cycles and highlight recent shifts in industrial emitters, e.g., from the United States to China over the last few years. We will discuss the toxic nature of each pollutant for humans, ways of monitoring environmental exposure to these toxins, and possible ways of protection and remediation.

Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-ENVS, NSM-ENVS, NSM-ENVS, NSM-ENVS, NSM-ENVS
Identical With: E&ES361, E&ES361, E&ES361, E&ES361, E&ES361, E&ES361,
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E&ES361
Prereq: None

ENVS369 Ecological Resilience: The Good, The Bad, and The Mindful

This course will examine the concepts of resilience, fragility and adaptive cycles in the context of ecosystem and social-ecological-system (SES) structures. These concepts have been developed to explain abrupt and often surprising changes in complex ecosystems and SES that are prone to disturbances. We will also include non-hierarchical interactions among components of systems (termed panarchy) to compare the interactions and dependencies of ecological and human community systems. A systems approach will be applied to thinking about restoration ecology, community reconstruction, and adaptive management theory.

The objective is to provide students with a more comprehensive framework with which to gain deeper understanding and integration of the science with the social issues.

Offering: Host
Grading: A-F
Credits: 1.25
Gen Ed Area: NSM-ENVS, NSM-ENVS, NSM-ENVS
Identical With: BIOL369, E&ES242, BIOL369, E&ES369, BIOL369, E&ES369,
BIOL369, E&ES242, BIOL369, E&ES369, BIOL369, E&ES369, BIOL369, E&ES369,
BIOL369, E&ES369, BIOL369, E&ES369
Prereq: [E&ES197 or BIOL197] OR [BIOL182 or MB&B182]

ENVS376 The Artist in the City--Civic Engagement and Community Based Art-Making in the Urban Landscape

Through both theoretical analysis and practical application, students will explore how, in a collaborative community setting, art making can be used to address environmental issues and spark community dialogue. Lectures, readings, and research will provide an overview of the work of contemporary artists who engage directly in the life of the city, incorporate public employees and public land, and explore new means of civic participation. Students will study various models of community engagement and apply theoretical work to their field-based research. For final projects, students will direct short creative-based projects in collaboration with Middletown community members to be presented as part of the Riverfront Encounter.

Offering: Host
Grading: A-F
Credits: 1.25
Gen Ed Area: HA-ENVS, HA-ENVS, HA-ENVS
Identical With: DANC376, DANC376, DANC376, DANC376, DANC376, DANC376,
DANC376, DANC376
Prereq: None

ENVS377 Perspectives in Dance as Culture: Dance as Research/Research as Choreography

This course considers theories and methods of dance scholarship and takes a comparative approach to dance as research, research as choreography. This is a research methods course in which we will consider ways that knowledge is constructed and legitimated, focusing on the role of physical/somatic engagement, creativity, and performance in research. Problems and issues central to research pertaining to representation, authority, validity, rigor, reliability, and ethics will be addressed in the context of dance studies and critical qualitative research studies. A final research project will be required.

This course is supported by the Creative Campus Initiative (www.wesleyan.edu/creativecampus)

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-DANC, HA-DANC, HA-DANC, HA-DANC, HA-DANC, HA-DANC
Identical With: DANC377, ANTH325, DANC377, ANTH325, DANC377, ANTH325,
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ENVS381 Japan and the Atomic Bomb
The atomic bombings of Hiroshima and Nagasaki in 1945 are central to the history of the 20th century. This course examines the scientific, cultural, and political origins of the bombs; their use in the context of aerial bombings and related issues in military history; the decisions to use them; the human cost to those on whom they were dropped; and their place in history, culture, and identity politics to the present. Sources will include works on the history of science; military, political, and cultural history; literary and other artistic interpretations; and a large number of primary source documents, mostly regarding U.S. policy questions. This is an extremely demanding course.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-HIST, SBS-HIST, SBS-HIST, SBS-HIST, SBS-HIST
Identical With: HIST381, SISP381, CEAS384, DANC381, HIST381, SISP381
Prereq: None

ENVS387 Water’s Past—Water’s Future: A History and Archaeology of Water Use and Management
Our world uses water as if this life-giving resource had no limits and does so in the face of mounting scientific evidence that our planet is facing a long period of water shortage. This course will look critically at the ways in which people have used and managed water in the past, from the ancient world up to the Industrial Revolution, with the aim of assessing the relationship of past uses of water to present and future ones. Beginning with irrigation agriculture, we will consider ways in which water has been used for food production, for generating power, for hygiene, for recreation, and for symbolic purposes. We will also consider water use technologically by looking at hydraulic infrastructures (aqueducts, canals, cisterns, dams, fountains, and sewers) in relation to water use and control and its impact on the environment. Finally, we will consider streams, rivers, and lakes as natural components incorporated into man-made water systems as well as matters of drainage and flood control.
Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-ENVS, SBS-ENVS, SBS-ENVS
Prereq: None

ENVS391 Senior Colloquium: Environmental Studies
The colloquium will provide students and faculty the opportunity to discuss the senior projects. Students will speak for up to 10 minutes about the topic and strategies for their senior project. Faculty and the seniors can provide insights, references, or research resources or some advice. The mentors from the primary department or programs will also be invited.
Offering: Host
Grading: Cr/U
Credits: 0.25
Gen Ed Area: None
Prereq: None

ENVS392 Senior Colloquium: Environmental Studies
The colloquium will provide students and faculty the opportunity to discuss the senior projects. Students will make a half-hour presentation on their projects followed by 30 minutes of discussion. Two students will present per colloquium session. Any interested faculty may attend, but the project mentors and ENVS advisors will be especially invited, as well as all ENVS majors. Two weeks prior to their presentation, students will distribute several critical published works (articles, essays, etc.) to enhance the level of discussion for their topic. The colloquium may also invite several presentations by faculty or outside speakers.
Offering: Host
Grading: Cr/U
Credits: 0.25
Gen Ed Area: None
Prereq: None

ENVS397 The Politics of Nature: Modernity and Its Others
This seminar explores the ways in which imaginations of nature-culture anchor particular regimes of living and power. Our larger query is regarding the role of science studies to probe the politics, meanings, and materialities of “nature” and the “natural” in a variety of contexts, from natural history in the 18th and 19th centuries to current struggles over the management of natural resources and bioprospecting initiatives.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-ANTH, SBS-ANTH, SBS-ANTH
Identical With: ANTH397, SISP397, ANTH397, SISP397, ANTH397, SISP397, ANTH397, SISP397
Prereq: None

ENVS399 History and Geography
Maps are part of a broader family of value-laden images. This is a research seminar about the global history of cartography from 1490s to the recent past. We will study maps from the early modern and modern world and examine how maps were used as instruments of political power, shaped the imagination of peoples around the world, and inspired new ways to imagine our self-identity.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-HIST
Identical With: HIST399, CEAS214, SISP399
Prereq: None
ENVS401 Individual Tutorial, Undergrad
To be arranged in consultation with the tutor.
Offering: Host
Grading: OPT

ENVS402 Individual Tutorial, Undergrad
To be arranged in consultation with the tutor.
Offering: Host
Grading: OPT

ENVS403 Senior Essay: Environmental Studies
All ENVS majors are required to complete a senior capstone project in a form that is approved by their primary major with a topic that is approved by the student’s ENVS advisor. In the event that the student cannot find a mentor for their capstone project, the student may complete a special written research project to meet the research requirement. The topic must be approved by the ENVS advisor and progress must be reported to both the ENVS advisor and the Program Director during the fall semester. The written project is a senior essay, using primary sources and must concern an environmental topic from the perspective of the student’s primary major. The senior project is due at the senior thesis deadline. It will be the responsibility of the ENVS Program Director to find a suitable reader to evaluate the written work.
Offering: Host
Grading: OPT

ENVS404 Senior Essay: Environmental Studies
All ENVS majors are required to complete a senior capstone project in a form that is approved by their primary major with a topic that is approved by the student’s ENVS advisor. In the event that the student cannot find a mentor for their capstone project, the student may complete a special written research project to meet the research requirement. The topic must be approved by the ENVS advisor and progress must be reported to both the ENVS advisor and the Program Director during the fall semester. The written project is a senior essay, using primary sources and must concern an environmental topic from the perspective of the student’s primary major. The senior project is due at the senior thesis deadline. It will be the responsibility of the ENVS Program Director to find a suitable reader or to evaluate the written work.
Offering: Host
Grading: OPT

ENVS409 Senior Thesis Tutorial
Topic to be arranged in consultation with the tutor.
Offering: Host
Grading: A-F

ENVS410 Senior Thesis Tutorial
Topic to be arranged in consultation with the tutor.
Offering: Host
Grading: A-F

ENVS411 Group Tutorial, Undergraduate
Offering: Host
Grading: OPT

ENVS412 Group Tutorial, Undergraduate
Offering: Host
Grading: OPT

ENVS419 Student Forum
Offering: Host
Grading: Cr/U

ENVS420 Student Forum
Offering: Host
Grading: Cr/U

ENVS440 Painting II
The skills and knowledge gained in ARST439 will serve as the foundation upon which students will be challenged to become technically proficient while developing a personal direction with the medium. The conceptual problems addressed allow painters of any formal, conceptual, or stylistic focus to solve them successfully without compromising either their personal visions or methods. This class requires students to become fluent with the medium and make aesthetic choices that can best convey their ideas. Lectures and class discussions provide an exploration of historical and contemporary issues. Individual and group critiques as well as museum and gallery trips will complement class work.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-ART, HA-ART
Prereq: (ARST131 AND ARST239)

ENVS441 Considering the Campus: Landscape Architecture, Tradition, and the Ecological Mandate
As a medium, landscape architecture has the ability to express ideas about the relationship between humans and the natural world. Campuses with their traditional landscapes and landscape maintenance regimes face new mandates for ecological performance and expression. This course seeks to use a combination of readings and design exercises to test ideas of nature and community and to explore how the basic components of the landscape--topography, hydrology, and vegetation--impact campus design.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-ART, HA-ART
Identical With: ARST441, ARST441
Prereq: None

ENVS467 Independent Study, Undergraduate
Independent Study, Undergraduate
Offering: Host
Grading: A-F
Credits: 1.00
Gen Ed Area: None
Prereq: None

ENVS469 Education in the Field, Undergraduate
Offering: Host
Grading: OPT
Credits: 1.00
Gen Ed Area: None
Prereq: None

ENVS491 Teaching Apprentice Tutorial
Offering: Host
Grading: OPT

ENVS492 Teaching Apprentice Tutorial
Offering: Host
Grading: OPT