

# ENVIRONMENTAL STUDIES (ENVS)

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## ENVS135 American Food

This course investigates topics in the history of food production from the colonial period to the present, with emphasis on the American contribution to the development of world food systems and cultures of consumption. Topics to be 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**

Identical With: **HIST135**

Prereq: **None**

## 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**

Identical With: **E&ES197, BIOL197**

Prereq: **None**

## ENVS201 Sophomore Seminar 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 the social and natural sciences as a primer for performing research in the ENVS major. We will explore environmental theory and management at various levels of organization from ecosystems to human communities and countries. This course will challenge the students to rethink the human-environment relationship by recasting policy and science in the context of social-ecological systems. Students will be responsible for weekly writing assignments and discussions on the critical environmental issues of our time. Through the process of reflection, writing, and discussion, students will engage in deep inquiry, exploration, and research of environmental issues and their potential solutions. In the process, students will learn and apply the four stages of scholarly research: (1) critique contemporary theory, (2) identify critical questions and research needs; (3) analysis; and (4) synthesis.

Offering: **Host**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **SBS-ENVS**

Prereq: **[E&ES197 or BIOL197 or ENVS 197] OR E&ES199**

## ENVS204 Extreme Landscapes of the Anthropocene

The "Anthropocene," a term coined to categorize the current geological epoch, has become a way in which social scientists can critically and creatively engage with the impact of humanity on the ecological well-being of the Earth. The

interdisciplinary and uncertain nature of this subject matter provides space for experimental writing styles, innovative approaches to documentary film, and critical discussion and debate. In this course, we will consider texts that investigate extreme worlds, from the far north and Antarctic to the forests of the Amazon, and discuss the ways these texts incorporate ethnography, social ecology, political economy, history, biology, and technology. In addition to extreme landscapes, we will dive into social, political, economic, and scientific "scapes," from race and migration to late liberal ideology to corporate/industrial influence on science. This course is designed to explore and challenge the term "Anthropocene" as well as tackle the question of probable futures versus fictional ones, questioning how narrative and drama are entangled in the dissemination of complex truths.

Offering: **Crosslisting**

Grading: **OPT**

Credits: **1.00**

Gen Ed Area: **SBS-SISP**

Identical With: **SISP204, WRCT204, ANTH204**

Prereq: **None**

## 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 has 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**

Identical With: **SISP205, PHIL288**

Prereq: **None**

## ENVS206 Public Policy

This course will provide a survey of several key public policies. It will begin with an exploration of the policy-making process and policy design. The remainder of the course will be devoted to the examination of several key public policy areas including criminal justice, education, social welfare, economic policy, and environmental protection 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-GOVT**

Identical With: **GOVT206**

Prereq: **None**

## 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 18th-century natural history tradition to the development of population, ecosystem, and evolutionary

ecology in the 20th 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, the 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**

Identical With: **HIST221, SISP221**

Prereq: **None**

#### **ENVS212 Introduction to Ethics**

This course 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 allege moral norms and judgments serve hidden ideological purposes. Some have sought to repair universal ethics by giving an account of progress or the overcoming of bias, while others have argued 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**

Identical With: **PHIL212**

Prereq: **None**

#### **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 students to think critically, to read carefully, to argue well, and to defend their 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**

Identical With: **PHIL215**

Prereq: **None**

#### **ENVS216 Ecology**

Ecology is the scientific study of interactions between organisms and their environment, both biotic and abiotic. 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**

Identical With: **BIOL216**

Prereq: **[BIOL182 or MB&B182]**

#### **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 habitat loss and alteration, overharvesting, 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-BIOL**

Identical With: **BIOL220**

Prereq: **[BIOL182 or MB&B182]**

#### **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- and standards-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**

Identical With: **GOVT221**

Prereq: **None**

#### **ENVS222 Metabolism and Technoscience**

This course will investigate the scientific idea of metabolism through the lens of technoscience. Metabolism is a flexible and mobile scientific idea, one that has been applied at the micro-level of analysis within biological organisms, at the meso-level of social collectivities, and at the macro-level of global ecologies. Metabolism encompasses all of the biological and technosocial processes through which bodies (both human and not human) and societies (again, human and not) create and use nutrients, medicines, toxins, and fuels. The lens of technoscience enables us to investigate the technological and scientific practices that define and drive metabolic processes within sciences, cultures, and political economies. These processes implicate forces of production, consumption, labor,

absorption, medicalization, appropriation, expansion, growth, surveillance, regulation, and enumeration. Accordingly, as we will learn, metabolism is also a profoundly political process that is inextricably linked to systems that create structural and symbolic violence as well as modes of resistance and struggle. In these contexts, we will interpret some of the most pressing metabolic crises facing human societies, including ecological disaster, industrial food regimes, metabolic health problems, and industrial-scale pollution.

Offering: **Crosslisting**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **SBS-SISP**

Identical With: **SISP215**

Prereq: **None**

#### **ENVS223 Traditional China: Eco-civilization and Its Discontents**

This course introduces students to the history of China from ancient times to the middle of the Ming Dynasty circa 1450. This is a period when China invented and reshaped its cultural identity by moving into new frontiers and creatively incorporating foreign ideas with indigenous practices. It is also a period when the natural environment was drastically transformed by agrarian civilizations and nomadic neighbors.

The course places concepts of sustainability in the center of the history of traditional China. We will explore the relationship between power and social inequities as we explore the everyday politics of agrarian civilizations through China's transformation from feudal ages to the imperial period. Did competing regimes/dynasties create a sustainable political and economic system? Did bureaucrats improve the well-being of the population and maintain the balance of the ecosystem? Or did they deplete natural resources to meet their short-term needs? How did Confucian, Legalist, Buddhist, and Daoist teachings alter the dynamics of production and consumption? To what extent did traditional Chinese philosophies promote the ethos of ecojustice?

Offering: **Crosslisting**

Grading: **OPT**

Credits: **1.00**

Gen Ed Area: **SBS-HIST**

Identical With: **HIST223, CEAS223**

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**

Identical With: **BIOL226, E&ES240**

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 past two centuries that have both expressed and shaped salient attitudes and emotional responses. The goals of the course are to provide 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**

Identical With: **GRST228, GELT228**

Prereq: **None**

#### **ENVS229 Ancient Monuments: Landscape, History, and 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 such as 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**

Identical With: **CCIV229**

Prereq: **None**

#### **ENVS230F The Simple Life (FYS)**

As the human population grows toward nine billion and our planet's carrying capacity comes under increasing pressure, many observers 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, future generations, 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 threats to the environment in the present moment.

Offering: **Crosslisting**

Grading: **OPT**

Credits: **1.00**

Gen Ed Area: **HA-GRST**

Identical With: **GRST230F, GELT230F**

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-EES**

Identical With: **E&ES234, BIOL233**

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 have 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 frequent writing assignments in various formats.

Offering: **Crosslisting**

Grading: **OPT**

Credits: **0.50**

Gen Ed Area: **NSM-PHYS**

Identical With: **PHYS105**

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 times on evidence from across the world for comparison with the Latin America region.

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 economic policy. Students are expected to actively present and discuss research results and work on individual or group projects. Basic quantitative methods will be taught throughout the course, relating to economic research papers, and the course will also draw on the resources provided by the Quantitative Analysis Center (QAC).

Offering: **Host**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **SBS-ECON**

Identical With: **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**

#### **ENVS248 Environmental Investigation and Remediation**

This course will cover environmental investigation and remediation methods in varying geologic settings and how they have changed over time due to regulatory changes and advances in technology. An introduction to various aspects of environmental consulting will be incorporated throughout the term using case studies, guest lecturers, and emerging trends and research from online sources.

Offering: **Crosslisting**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **NSM-EES**

Identical With: **E&ES248**

Prereq: **E&ES101 OR E&ES115 OR E&ES199 OR E&ES197**

#### **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**

Identical With: **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**

Identical With: **ARHA254**

Prereq: **None**

**ENVS255 Seeing 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 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**

Identical With: **HIST262, SISP255, ARHA262**

Prereq: **None**

**ENVS260 Global Change and Infectious Disease**

Among the most insidious effects of global change are the expanded geographical ranges and increased transmission of infectious diseases. Global warming is bringing tropical diseases, such as malaria, poleward from the tropics; the extreme weather events of a changed world are leading to outbreaks of zoonotic diseases, such as those caused by Hantaviruses; and nonclimatic anthropogenic factors, such as forest fragmentation, are taking their toll on human health, for example, by increasing the incidence of Lyme disease. This course will cover the evidence that global change has increased the geographical ranges and rates of incidence of infectious diseases in humans, in agricultural animals and plants, and in endangered species. We will explore how interactions between different anthropogenic effects (for example, habitat loss and pollution) exacerbate the effects of global warming on infectious diseases. We will analyze and critique projections for future changes in geographic ranges in infectious diseases. Finally, we will cover how revolutions in bioinformatics will increase the resolution of tracking and predicting responses of disease organisms to global change. The course has no formal prerequisites and will introduce material from ecology and microbiology, as needed, to allow students to read and interpret the recent literature on global change and infectious disease.

Offering: **Crosslisting**

Grading: **OPT**

Credits: **1.00**

Gen Ed Area: **NSM-BIOL**

Identical With: **BIOL173**

Prereq: **None**

**ENVS264 Waterways: Maritime World History**

Human history has been shaped by the sea. Whether as a source of food, a frontier, a boundary, or a bridge, the sea has represented a site of both opportunity and danger. This course will examine the way humans have responded to their marine and maritime environments, both in terms of the technologies they have developed to navigate and exploit them but also insofar as the sea has shaped the way humans think about themselves. While our inquiry will extend into the deep past and the early development of human culture and civilization, we will focus on maritime history over the past millennium, the development of oceanic worlds, the rise of the "age of sail" between the 16th and 19th centuries, and the transformation of global navigation and politics with the rise of steam, diesel, and nuclear power.

Offering: **Crosslisting**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **SBS-GOVT**

Identical With: **HIST264**

Prereq: **None**

**ENVS267 Development in Question: Conservation in Africa**

"Why not plant trees?" In 1977 Wangari Maathai started the Green Belt Movement, a popular environmental revolution, in Kenya. Then in the 1990s

Nigeria Ken Saro-Wiwa fought for the rights of local communities against the multi-national oil industry. Like many African activists, scientists, and farmers, they placed African experiences at the center of environmental policy and conservation. Yet, popular images of the continent's environment in perpetual crisis blame African practices or disregard African efforts. Such depictions of "desertification" or "over grazing" have impacted international and governmental policy. Recent scholarship suggests that such common perceptions of the environment in Africa and conservation policy are misleading. This course will allow students to critically study the history of environmental management on the continent and the development of the idea of conservation. We will examine game park politics, the history of resource extraction, climate change, and other pressing environmental concerns. We will also study diverse African environmental perspectives from the guardians of sacred forests to activists such as Wangari Maathai and Ken Saro-Wiwa.

Offering: **Crosslisting**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **SBS-HIST**

Identical With: **HIST267**

Prereq: **None**

**ENVS268 North America Before Columbus**

Sometime before the end of the Pleistocene, people living in Siberia or along the Pacific Coast of Asia traveled east and found a hemisphere of arctic, temperate, and tropical climates uninhabited by other humans. Over the next 12,000 years or more, populations diversified into, and thrived in, a range of environments--the last great experiment in human adaptation. This course will follow that process as it unfolded across the continent of North America, from the earliest Paleoindians through 1491. Particular emphasis will be on the nature and timing of the colonization(s) of North America from Asia, the impact of environmental diversity across the continent, and the rise of complex societies.

Offering: **Crosslisting**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **SBS-ANTH**

Identical With: **ANTH268, ARCP268**

Prereq: **None**

**ENVS270 Environmental Philosophy**

How should we understand our relation to the more-than-human world? What does it mean to act responsibly within our ecological situation? This course will cover conceptual questions about nature, ecology, and value, and practical questions about how to respond to climate change, habitat loss, resource depletion, and other ecological problems. In particular, we will challenge the temptation to idealize "pure" nature as distinct from the site of human practices. As a result, we must consider the complex interrelationships between ecological concerns and concerns about social justice.

Offering: **Crosslisting**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **SBS-PHIL**

Identical With: **PHIL270**

Prereq: **None**

**ENVS275 The American Landscaping in Painting, Literature, Science and the Popular Imagination**

In a time of global warming, the issue of mankind'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 our 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**

Prereq: **None**

#### **ENVS279 Eating Others: Histories and Cultures of Animal Edibility**

For many people, animals form a significant and cherished part of their diet. Indeed, humans have used other animals as sources of nutrients for hundreds of thousands of years. What can these animal-based dietary practices tell us about humans and their relationships with other animals? Of course, these inter-species relationships have varied as radically across time and cultures as the dietary practices that have shaped them. To better understand some of these practices and the relationships they generate, this course will explore the following questions: How did animal-based food practices develop from pre-domestication to the contemporary era of industrialized animal agriculture? How have cultural categories of "edibility" developed in different cultural contexts? What is meat, and how does it differ from inedible flesh? How has gender, class, race, sexuality, and other categories of difference intersected with and shaped animal consumption practices in different times and contexts? How has animal consumption shaped and been shaped by animal ethics, philosophy, and scientific knowledge production? How has large-scale animal consumption contributed to the ecological crises of the Anthropocene, and how have these in turn affected animal consumption practices? What is the future of animal-based food?

This course will use ethnographies, historical and legal analyses, and philosophical inquiries to examine the histories and cultures of animal edibility. Specifically, it will focus on topics including human evolution, animal domestication, slaughter practices, industrialized animal agriculture, indigenous ecological ontologies, hunting, dairy and egg consumption, cannibalism, cultural conflicts over the edibility of specific species, and recent technological innovations that can produce animal products without animals.

Offering: **Host**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **SBS-ENVS**

Identical With: **ANTH279**

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. This course (together with the associated lab course, E&ES 251) 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 local eutrophic lakes.

Offering: **Crosslisting**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **NSM-EES**

Identical With: **E&ES250**

Prereq: **None**

#### **ENVS281 Environmental Geochemistry Laboratory**

This course will supplement E&ES 250 by providing students with hands-on experience of the concepts taught in E&ES 250. The course will emphasize the

field collection, chemical analysis, and data analysis of environmental water, air, and rock samples. This course is often taught as service-learning course where the class works with a community organization to solve an environmental problem. The course usually concludes with a public presentation of the work. Past service-learning projects have examined landfills, damned rivers, and polluted lakes.

Offering: **Crosslisting**

Grading: **A-F**

Credits: **0.50**

Gen Ed Area: **NSM-EES**

Identical With: **E&ES251**

Prereq: **None**

#### **ENVS282 Sustainable Agriculture and Food Systems**

This course explores strategies to create a sustainable agriculture and food system. The course will begin with an overview of the environmental issues associated with our agriculture and food system along with current production and consumption trends. Other topics covered in the course will include: environmental certification, starting and managing a farm, organic versus conventional farming, and the impact of diet choice on the environment.

Offering: **Host**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **None**

Prereq: **None**

#### **ENVS285 Environmental Law and Policy**

If you listen to, watch, or read environmental news and would like some history or perspective...if you would like some sense of where environmental law and policy may be going...and if you are prepared for a class which is as much about the open issues as the answers, then Environmental Law and Policy is for you. This course is taught using the Socratic (highly interactive) method and culminates in student run hearings in which you will prepare, present, and argue about issues from what is a "water" of the U.S. to recycling and reclamation to what is solid and hazardous waste?

Offering: **Host**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **SBS-ENVS**

Prereq: **[E&ES197 or BIOL197 or ENVS197] OR E&ES199**

#### **ENVS287 Performing the Posthuman: Music and Auditory Culture in the Age of Animantities**

"Animantities" 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**

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 musicological 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 cityscapes 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**

Identical With: **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**

Identical With: **E&ES260, E&ES560**

Prereq: **E&ES101 OR E&ES199 OR E&ES115 OR [E&ES197 or BIOL197 or ENVS197]**

### **ENVS292 Techniques in Ocean and Climate Investigations**

Weekly and biweekly field trips, and 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**

Identical With: **E&ES261, ARHA292, ARCP292**

Prereq: **E&ES101 OR E&ES115 OR [E&ES197 or BIOL197 or ENVS197] OR E&ES199**

### **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 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 residence hall setting.

Offering: **Host**

Grading: **A-F**

Credits: **0.50**

Gen Ed Area: **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. Developing an international perspective requires 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 traveling 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, and sustainable development for the developing world. We will travel and learn from scientists at Chernobyl about the regeneration of forest ecosystems, learn from agronomists about agriculture on the steppes, and learn from politicians and scholars about Ukrainian environmental policy and their views of U.S. 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**

Identical With: **CGST303**

Prereq: **ENVS197 OR E&ES199**

#### **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**

Identical With: **GOVT304, CEAS304**

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, the course 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**

Identical With: **HIST307, SISP307**

Prereq: **None**

#### **ENVS310 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 the

course's 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**

Identical With: **ECON212**

Prereq: **ECON110**

#### **ENVS314 Environmentalism in a Global Age**

Over the second half of the 20th century, popular movements in the United States and around the world achieved landmark protections for the environment. Yet in that same period, accelerating globalization and the emergence of transnational environmental issues like acid rain threatened to undercut the effectiveness of national laws and regulations. This seminar investigates how environmental activists have responded to a range of challenges in the global age, from economic development and species conservation to population growth and Malthusian family planning campaigns. As those two examples suggest, environmentalists have engaged with key developments in the modern world, in sometimes troubling ways. Although the subject matter is historical, this course will also focus on what the history of global environmentalism can contribute to contemporary advocacy, not least with regards to climate change.

Offering: **Crosslisting**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **SBS-HIST**

Identical With: **HIST314**

Prereq: **None**

#### **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 design and implement the research projects.

Offering: **Crosslisting**

Grading: **A-F**

Credits: **1.50**

Gen Ed Area: **SBS-SOC**

Identical With: **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 as well as the assumptions that methods make and how violations affect applied outcomes. Emphasis will be 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 on 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**

Identical With: **BIOL242, BIOL542, E&ES270, E&ES570**

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, and 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 important, 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-PSYC**

Identical With: **PSYC325**

Prereq: **None**

### **ENVS330 Special Topics: Ecopoetics - Experimental Poetry in the Anthropocene**

How do poets speak for and from a world in flux and crisis? How do poets register and attempt to restore the degradation of the planet through language? How might altering the boundaries of conventional language use--through poetry--alter the bounds of conventional thinking and behaving, thus leading to more engaged and sustainable modes of living? This course, in part, will serve as a tour of contemporary ecopoets invested in looking at and caring for the current state of our planet through poetry. We will read poems that reflect the most critical environmental concerns of our time and we will learn to see how these poems resist closure and are instead guided by experimentation, exploration, and interrogation in an attempt at reorienting our attention and intention as inheritors of this planet.

This is a workshop for students committed to developing an understanding of ecopoetry's place in the more-than-literary world, as well as developing a personal ecopoetics from which to write, read, and live. Students will choose an environmental topic to research and write in service of for the semester and, by the end of the semester, each student will have written a project-centered collection of ecopoems. There will be bi-weekly presentations on the poetry collections we read, in-class writing experiments, and intensive workshops of one another's work. The class will culminate in an ecobook arts project and reflective essay.

Offering: **Crosslisting**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **HA-ENGL**

Identical With: **ENGL340**

Prereq: **None**

### **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: **0.50**

Gen Ed Area: **NSM-BIOL**

Identical With: **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**

Identical With: **BIOL346, BIOL546, E&ES238, E&ES538**

Prereq: **[BIOL182 or MB&B182] OR [E&ES197 or BIOL197 or ENVS197] OR E&ES199**

### **ENVS344 Renewable Energy and Negative Emission Technologies**

This course explores renewable energy solutions society must transition to in order to mitigate global climate change. The course will focus on renewable energy technologies such as solar, wind (onshore and offshore), geothermal, biofuels, hydro, and wave power. It will also cover negative emission technologies including soil carbon sequestration, reforestation, and carbon capture and storage (CCS).

Offering: **Host**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **NSM-ENVS, SBS-ENVS**

Prereq: **None**

### **ENVS347 Ethics, Ecology, and Moral Change**

People commonly recognize that in facing global climate crises, we need to change our habits and practices. Yet our activities are bound up with our perceptions and with our embodied experience of value and possibility. This seminar dives into recent attempts to radically rework our ways of understanding and inhabiting the world. As the flip-side of environmental alienation is alienation from our embodiment, our sessions will incorporate movement and other challenges to sedentary classroom habits.

Given an account of thinking and action as always actively embodied and embedded in our surroundings, we will consider the hypothesis that shifts in action emerge together with shifts in perception. Radical accounts of metaphor and its uptake will help us develop accounts of perceptual change. Our readings will follow a variety of metaphorical directions, including animism and animacies, affordance and hyperobject, process, event and intra-action, native and other, inflammation and balance, dwelling and death, consumption and

sustainability. How -- and with what risks and unexpected outcomes -- can these patterns of recognition help in orienting us to the challenges of environmental interdependence and volatility?

This course benefits from collaborative visits with philosopher-dancer Jill Sigman, via Wesleyan's Creative Campus Initiative. Sigman will co-shape discussion and activities during at least two of our sessions.

Offering: **Crosslisting**

Grading: **OPT**

Credits: **1.00**

Gen Ed Area: **SBS-PHIL**

Identical With: **PHIL347**

Prereq: **None**

### **ENVS352 Energy and Modern Architecture, 1850--2015**

This seminar explores 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, as means of improving both 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 housing of various 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, net-zero energy buildings, 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**

Identical With: **ARHA352**

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 and 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**

Identical With: **BIOL354**

Prereq: **BIOL182 or BIOL197**

### **ENVS359 Space Design for Performance**

In this course, students will study, construct, and deconstruct the performative space, whether theatrical or site-based, by analyzing the space as a context to be activated by the body of the performer and witnessed by an audience. Through practical assignments, the class will learn the aesthetic history of the theatrical event (considering plays, rituals, street parades, and digital performances, among others), while developing and discovering the student's own creative process (visual, kinetic, textual, etc.). Students will be guided through each step of the

design process, including concept development, visual research, renderings or drawings, model making and drafting.

In this course, special emphasis is given to contemporary performance as a mode of understanding cultural processes as a relational system of engagement within our ecosystem, while looking at environmental and sustainable design, materials, and the environmental impacts of processing. Students will create and design performance spaces, while realizing scale models and drawings and integrating the notions of design and environmental principles and elements.

Students will have the opportunity to develop skills using 3D-drafting and 3D-modeling software, utilizing design-technology tools, such as laser cutters and 3D printing, to develop and enhance their work.

Offering: **Crosslisting**

Grading: **OPT**

Credits: **1.00**

Gen Ed Area: **HA-THEA**

Identical With: **THEA359, DANC359**

Prereq: **THEA105 OR THEA150 OR THEA185 OR ARST131 OR ARST190**

### **ENVS361 Living in a Polluted World**

This course treats the occurrences and origins, natural pathways, toxicologies, and histories of the major environmental contaminants. We all know about lead and its effects on humans, but how about cadmium and hexachromium, or the many unpronounceable organic contaminants, usually referred to by some acronym (e.g., DDT, POPs)? To be effective in this course, students will need basic college-level proficiency in chemistry and math as we will delve into aspects of geochemistry, geology, toxicology, environmental law, and some math. The class consists of lectures, one major problem set, the Hg-in-hair class study, and a class project on pollution records from a 125-year-old tree slab that has year rings. We will drill all rings and analyze the wood for Hg, Pb, nuclear contaminants, and several stable isotopes. Some will do a paleoclimate record on the rings as well. Students will jointly write various sections of a report on this original research. This is also a service learning course, providing environmental outreach to the larger Middletown community on local pollution over the last 125 years (the tree slab with its records will go on display at Wesleyan).

Offering: **Host**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **NSM-ENVS**

Identical With: **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 nonhierarchical 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.

All of the terms--resilience, fragility, adaptation, restoration, reconstruction--are fraught with subjectivity and valuation. We will use mindfulness and meditation techniques (including breathing and yoga) to more objectively and dynamically engage in the subject matter, leaving behind prejudice or bias. Students will be expected to approach these techniques with an open mind and practice them throughout the semester. 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**

Identical With: **E&ES342**

Prereq: **[E&ES197 or BIOL197] OR [BIOL182 or MB&B182]**

#### **ENVS381 Japan's Nuclear Disasters**

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. In addition, we will be examining the development of the civilian nuclear industry in Japan with a focus on the nuclear meltdowns in Fukushima and other accidents. This is an extremely demanding course.

This interdisciplinary, experiential, and experimental course combines studio learning (movement studies and interdisciplinary, creative exploration) and seminars (presentations and discussions). No previous dance or movement study is required, and the course is not particularly geared toward dancers or performers. However, your willingness to experiment on and share movement is important. We encourage you to think about movement as a method of accessing human experiences and making distance malleable, a way to explore your own sensations, thoughts, and reactions in learning history.

Offering: **Crosslisting**

Grading: **A-F**

Credits: **1.50**

Gen Ed Area: **SBS-HIST**

Identical With: **HIST381, SISP381, CEAS384, DANC381**

Prereq: **None**

#### **ENVS387 History of the End**

How will it end? Scientific hubris, a nuclear event, an asteroid, environmental disaster, overpollution, resource scarcity, commodity price spikes, riots, social chaos, social control? This seminar investigates how people have imagined apocalypse and post-apocalypse over time, on the premise that fantasies of the end provide a window into the anxieties of the societies that produce them.

Offering: **Crosslisting**

Grading: **A-F**

Credits: **1.00**

Gen Ed Area: **SBS-HIST**

Identical With: **HIST387, SISP387**

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, research resources, or advice. 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**

This colloquium will provide students and faculty the opportunity to discuss senior projects. Students will speak for up to 10 minutes about the topic and strategies for their senior projects. Faculty and the seniors can provide insights, references, research resources, or advice. 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**

#### **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, Undergraduate**

Topic to be arranged in consultation with the tutor.

Offering: **Host**

Grading: **OPT**

#### **ENVS402 Individual Tutorial, Undergrad**

Topic 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**

Topic to be arranged in consultation with the tutor.

Offering: **Host**Grading: **OPT****ENVS412 Group Tutorial, Undergraduate**

Topic to be arranged in consultation with the tutor.

Offering: **Host**Grading: **OPT****ENVS419 Student Forum**

Student-run group tutorial, sponsored by a faculty member and approved by the chair of a department or program.

Offering: **Host**Grading: **Cr/U****ENVS420 Student Forum**

Student-run group tutorial, sponsored by a faculty member and approved by the chair of a department or program.

Offering: **Host**Grading: **Cr/U****ENVS440 Painting II: The Shifting Landscapes of the Mind, Nature, and History**

Since the beginning of time, people have created art to document events in nature and society and to convey ideas and emotions as they responded to shifting conditions in the world--be they man-made or natural. Before written language, visual expressions of morality, concepts of the future, and abstract thought in the sciences and religion were represented in painting. Whenever dramatic shifts were experienced in society, painting documented them and commented on them. In this class, the skills and knowledge gained in ARST239 will serve as the foundation upon which students will be challenged to become technically proficient while they explore the topic of shifting landscapes or the shifting viewpoints of the mind, history, and nature. The themes, prompts, and concerns addressed in this course will allow for any formal, conceptual, or stylistic form of expression to resolve them--each student will be working differently. The goal of this class is for students to become fluent with the medium and make aesthetic choices that can best convey their ideas about and responses to each prompt. Lectures and meaningful class discussions will provide information and feedback about historical and contemporary issues and the plans for work. 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**Identical With: **ARST340**Prereq: **(ARST131 AND ARST239)****ENVS467 Independent Study, Undergraduate**

Credit may be earned for an independent study during a summer or authorized leave of absence provided that (1) plans have been approved in advance, and (2) all specified requirements have been satisfied.

Offering: **Host**Grading: **A-F**Credits: **1.00**Gen Ed Area: **None**Prereq: **None****ENVS469 Education in the Field, Undergraduate**

Students must consult with the department and class dean in advance of undertaking education in the field for approval of the nature of the responsibilities and method of evaluation.

Offering: **Host**Grading: **OPT**Credits: **1.00**Gen Ed Area: **None**Prereq: **None****ENVS491 Teaching Apprentice Tutorial**

The teaching apprentice program offers undergraduate students the opportunity to assist in teaching a faculty member's course for academic credit.

Offering: **Host**Grading: **OPT****ENVS492 Teaching Apprentice Tutorial**

The teaching apprentice program offers undergraduate students the opportunity to assist in teaching a faculty member's course for academic credit.

Offering: **Host**Grading: **OPT**