

# ENVIRONMENTAL STUDIES (EVST)

**\* EVST 020a, Sustainable Development in Haiti** Gordon Geballe

The principles and practice of sustainable development explored in the context of Haiti's rich history and culture, as well as its current environmental and economic impoverishment. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR

**\* EVST 040a, Collections of the Peabody Museum** David Skelly

Exploration of scientific questions through the study and analysis of objects within the Peabody Museum's collections. Formulating a research question and carrying out a project that addresses it are the core activities of the course. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. SC

**\* EVST 060b, Topics in Environmental Justice** Michael Fotos

This seminar introduces students to key concepts in environmental justice and to a selection of cases representing a wide range of environmental dilemmas. Course readings and discussions impart awareness of the diverse contexts in which problems of environmental justice might be studied, whether historical, geographic, racial, social, economic, political, biological, geophysical, or epistemic. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. WR, SO

**\* EVST 100b / APHY 100b / ENAS 100b / EPS 105b / PHYS 100b, Energy, Environment, and Public Policy** Daniel Prober

The technology and use of energy. Impacts on the environment, climate, security, and economy. Application of scientific reasoning and quantitative analysis. Intended for non-science majors with strong backgrounds in math and science. QR, SC

**EVST 109a / HIST 109a, Climate & Environment in American History: From Columbian Exchange to Closing of the Frontier** Staff

This lecture course explores the crucial role that climate and environmental conditions have played in American history from the period of European colonization to the end of the 19th century. Its focus is on the dramatic changes brought about by the encounters among Indigenous, European, and African peoples in this period, the influence of climate and climate change on these encounters, and the environmental transformations brought about by European colonization and conquest and the creation of new economies and polities (including chattel slavery). The lectures offer a new framework for organizing and periodizing North American history, based on geographical and environmental conditions rather than traditional national and political frameworks. The course provides a historical foundation for understanding contemporary American (and global) climate and environmental issues. HU

o Course cr

**EVST 127a / ER&M 127a / SOCY 127a / WGSS 127a, Health and Illness in Social Context** Staff

Present-day medicine and health care provide solutions to an ever-increasing array of human problems. Yet the achievement of health can be elusive. This course provides a broad introduction to the domains of health and illness in the U.S., with some coverage of international trends and topics. Students analyze how our personal health and

public health are shaped by social structures, political struggles, expert knowledge, and medical markets. Topics include the cultural and social meanings associated with health and illness; inequalities in health and health care access and provision; controversies surrounding healthcare, medical knowledge production, and medical decision-making; and the social institutions of the health care industry. None SO o Course cr

**EVST 144a / EDST 144a / ER&M 211a / SOCY 144a, Race, Ethnicity, and Immigration** Staff

Exploration of sociological studies and theoretical and empirical analyses of race, ethnicity, and immigration, with focus on race relations and racial and ethnic differences in outcomes in contemporary U.S. society (post-1960s). Study of the patterns of educational and labor market outcomes, incarceration, and family formation of whites, blacks (African Americans), Hispanics, and Asian Americans in the United States, as well as immigration patterns and how they affect race and ethnic relations.

SO o Course cr

**EVST 189b / HIST 246b, The History of Food** Paul Freedman

The history of food and culinary styles from prehistory to the present, with a particular focus on Europe and the United States. How societies gathered and prepared food. Changing taste preferences over time. The influence of consumers on trade, colonization, and cultural exchange. The impact of colonialism, technology, and globalization. The current food scene and its implications for health, the environment, and cultural shifts. HU o Course cr

**\* EVST 210a / GLBL 210a / SOCY 210a, The State and its Environment** Jonathan Wyrzten and Benjamin Kaplow

This course engages two core entwined questions: How does the state impact its surroundings and environment? And, how do these impact the state? The goal of this course is to give students a grounding in an interdisciplinary range of relevant social science literatures that help them think through those questions and how they relate to each other. The course addresses how states interact with and impact their ecological environment, but centers broader questions of how states relate to space, resources, populations, and to the socially constructed patterns of their physical, cultural, and economic environments. In doing so, the course aims to bridge discussions of state politics with political questions of the environment. In broadening the topic from only ecology, the class aims to help students develop a portable lens with which to examine state formation and its past and present impact in a variety of contexts: economic planning, systems of land management, military rule, taxation, and population control.

SO

**\* EVST 212a / EP&E 390a / PLSC 212a, Democracy and Sustainability** Michael Fotos  
Democracy, liberty, and the sustainable use of natural resources. Concepts include institutional analysis, democratic consent, property rights, market failure, and common pool resources. Topics of policy substance are related to human use of the environment and to U.S. and global political institutions. WR, SO

**EVST 219a / PHIL 290a, Philosophical Environmental Ethics** Staff

This is a philosophical introduction to environmental ethics. The course introduces students to the basic contours of the field and to a small number of special philosophical problems within the field. No philosophical background is required or

expected. Readings are posted on Canvas and consist almost entirely of contemporary essays by philosophers and environmentalists. SO o Course cr

**EVST 223a / E&EB 220a, General Ecology** Staff

The theory and practice of ecology, including the ecology of individuals, population dynamics and regulation, community structure, ecosystem function, and ecological interactions at broad spatial and temporal scales. Topics such as climate change, fisheries management, and infectious diseases are placed in an ecological context.

Prerequisite: MATH 112 or equivalent. SC o Course cr

\* **EVST 224a / ENGL 418a, Writing About The Environment** Alan Burdick

Exploration of ways in which the environment and the natural world can be channeled for literary expression. Reading and discussion of essays, reportage, and book-length works, by scientists and non-scientists alike. Students learn how to create narrative tension while also conveying complex – sometimes highly technical – information; the role of the first person in this type of writing; and where the human environment ends and the non-human one begins. Formerly ENGL 241. Admission by permission of the instructor only. Students interested in the course should email the instructor at alan.burdick@gmail.com with the following information: 1.) A few paragraphs describing your interest in taking the class. 2.) A non-academic writing sample that best represents you. WR

\* **EVST 228a / HIST 459a / HUMS 228a / LITR 345a, Climate Change and the Humanities** Katja Lindskog

What can the Humanities tell us about climate change? The Humanities help us to better understand the relationship between everyday individual experience, and our rapidly changing natural world. To that end, students read literary, political, historical, and religious texts to better understand how individuals both depend on, and struggle against, the natural environment in order to survive. HU

**EVST 229a / ER&M 287a / LAST 226a / SPAN 230a, Reading Environments: Nature, Culture, and Agency** Luna Najera

Extreme weather, proliferation of species extinctions, climate migration, and the outbreak of pandemics can all be understood as instances of *koyaanisqatsi*, the Hopi word for life out of balance. They may also be viewed as indications that we are living in the age of the Anthropocene, a term in the natural and social sciences that acknowledges that human activities have had a radical geological impact on the planet since the onset of the Industrial revolution. In this course we study relations between humans and other-than-humans to understand how we arrived at a life out of balance. We inquire into how binary distinctions between nature and culture are made, sustained, or questioned through a diversity of meaning-making practices in Spanish, Latin American, and indigenous literature, visual culture, and material culture. The indigenous artifacts studied include Popol Vuh, poetry, petroglyphs, and documentaries by indigenous people of the Amazon, which provide opportunities for asking pressing questions: To what extent does the nature and culture binary foreclose alternative possibilities for imagining ourselves and our relation to the world? Are there ways of perceiving our world and ourselves that bypass such binaries and if so, what are they? In the final weeks of the course, we draw from our insights to investigate where the nature/culture binary figures in present discussions of environmental catastrophes and

rights of nature movements in Latin America. Taught in Spanish. Prerequisite: SPAN 140 or 145, or in accordance with placement results. L5

\* **EVST 234La, Field Science: Environment and Sustainability** Kealoha Freidenburg  
A field course that explores the effects of human influences on the environment. Analysis of pattern and process in forested ecosystems; introduction to the principles of agroecology, including visits to local farms; evaluation of sustainability within an urban environment. Weekly field trips and one weekend field trip. SC

\* **EVST 244a, Coastal Environments in a Changing World** Mary Beth Decker  
The effects of human action and natural phenomena on coastal marine ecosystems. Methods used by coastal scientists to address environmental issues; challenges associated with managing and conserving coastal environments. Priority to Environmental Studies majors; open to nonmajors as space permits. SC

\* **EVST 247a / EP&E 497a / PLSC 219a, Politics of the Environment** Peter Swenson  
**Historical and contemporary politics aimed at regulating human behavior to limit damage to the environment. Goals, strategies, successes, and failures of movements, organizations, corporations, scientists, and politicians in conflicts over environmental policy. A major focus is on politics, public opinion, corporate interests, and litigation in the U.S. regarding climate change.** SO

\* **EVST 255b / F&ES 255b / GBLB 282b / PLSC 215b, Environmental Law and Politics**  
John Wargo  
We explore relations among environmental quality, health, and law. We consider global-scale *avoidable* challenges such as: environmentally related human illness, climate instability, water depletion and contamination, food and agriculture, air pollution, energy, packaging, culinary globalization, and biodiversity loss. We evaluate the effectiveness of laws and regulations intended to reduce or prevent environmental and health damages. Additional laws considered include rights of secrecy, property, speech, worker protection, and freedom from discrimination. Comparisons among the US and EU legal standards and precautionary policies will also be examined. Ethical concerns of justice, equity, and transparency are prominent themes. SO

\* **EVST 258a / AMST 258a / ER&M 258a, Wilderness in the North American Imagination: Landscapes of the US Nuclear-Industrial Complex** Charlotte Hecht  
Since the mid-twentieth century, the drive for nuclear power – in the form of weapons and energy – has irreversibly shaped the landscapes of the North American continent, and the world. The activities of the nuclear fuel cycle (uranium mining and milling, weapons testing and production, and radioactive waste dumping) have reached every state in the country, often in devastating and uneven ways. Today, debates about nuclear weapons and the benefits of nuclear power are at the forefront of contemporary discourse. This course contextualizes these impacts and debates in the long history of post-war industrialization and militarization, a history that begins with 19th century settler-colonial conceptions of “wilderness.” Throughout the course, we investigate how cultural imaginaries of wilderness (and ideas about nature, landscape, space, and environment) are deeply related to the uneven geographies of the nuclear industrial complex, and the intersections of US imperialism, militarism, extractive capitalism, and environmental racism. Alongside this, we consider how artists, activists, and scholars are working to theorize, reframe, and reimagine the legacies of the nuclear industry.

\* **EVST 290b / URBN 319b, Geographic Information Systems** Charles Tomlin

A practical introduction to the nature and use of geographic information systems (GIS) in environmental science and management. Applied techniques for the acquisition, creation, storage, management, visualization, animation, transformation, analysis, and synthesis of cartographic data in digital form.

\* **EVST 294a / HUMS 294a / RSEE 355a / RUSS 355a, Ecology and Russian Culture**

Molly Brunson

Interdisciplinary study of Russian literature, film, and art from the nineteenth to the twenty-first centuries, organized into four units – forest, farm, labor, and disaster. Topics include: perception and representation of nature; deforestation and human habitation; politics and culture of land-ownership; leisure, labor, and forced labor; modernity and industrialization; and nuclear technologies and disasters. Analysis of short stories, novels, and supplementary readings on ecocriticism and environmental humanities, as well as films, paintings, and visual materials. Several course meetings take place at the Yale Farm. Readings and discussions in English. HU

\* **EVST 299b, Sustainable Development Goals and Implementation** Staff

Students develop an understanding of the United Nation's Sustainable Development Goals (SDGs), and focus on how to manage projects that implement the SDGs. Students develop an understanding of the global sustainability agenda, studying each SDG in detail. Students explore and acquire practical project management skills. The course also taps into the expertise and experience of professors and staff from various disciplines and schools, as well as practitioners directly from the field.

**EVST 318b / AMST 236b / HIST 199b / HSHM 207b, American Energy History** Paul Sabin

The history of energy in the United States from early hydropower and coal to present-day hydraulic fracturing, deepwater oil, wind, and solar. Topics include energy transitions and technological change; energy and democracy; environmental justice and public health; corporate power and monopoly control; electricity and popular culture; labor struggles; the global quest for oil; changing national energy policies; the climate crisis. WR, HU o Course cr

\* **EVST 323a, Wetlands Ecology Conservation & Management** Kealoha Freidenburg

Wetlands are ubiquitous. Collectively they cover 370,000 square miles in the United States and globally encompass more than 5 million square miles. Most points on a map are less than 1 km from the nearest wetland. Yet wetlands are nearly invisible to most people. In this course we explore wetlands in all of their dimensions, including the critical services they provide to other systems, the rich biodiversity they harbor, their impact on global climate, and the links by which they connect to other systems. Additionally, wetlands are lynchpin environments for scientific policy and regulation. The overarching aim of the course is to connect what we know about wetlands from a scientific perspective to the ways in which wetlands matter for people. SC

\* **EVST 324b / ANTH 322b / SAST 306b, Environmental Justice in South Asia**

Kalyanakrishnan Sivaramakrishnan

Study of South Asia's nation building and economic development in the aftermath of war and decolonization in the 20th century. How it generated unprecedented stress on natural environments; increased social disparity; and exposure of the poor and

minorities to environmental risks and loss of homes, livelihoods, and cultural resources. Discussion of the rise of environmental justice movements and policies in the region as the world comes to grips with living in the Anthropocene. . SO o Course cr

\* **EVST 335a, Global Human-Wildlife Interactions** Nyeema Harris

Wildlife and humans have increasingly complex interactions, balancing a myriad of potentially positive and negative outcomes. In a highly interactive format, students evaluate the importance of human-wildlife interactions across diverse ecosystems, exacerbators influencing outcomes, and management interventions that promote coexistence. Prerequisites: EVST 223 and a quantitative course (e.g., math, statistics, modeling) SC o Course cr

\* **EVST 350a, Writing the World** Verlyn Klinkenborg

This is a practical writing course meant to develop the student's skills as a writer. But its real subject is perception and the writer's authority – the relationship between what you notice in the world around you and what, culturally speaking, you are allowed to notice. What you write during the term is driven entirely by your own interest and attention. How you write is the question at hand. We explore the overlapping habitats of language – present and past – and the natural environment. And, to a lesser extent, we explore the character of persuasion in environmental themes. Every member of the class writes every week, and we all read what everyone writes every week. It makes no difference whether you are a would-be journalist, scientist, environmental advocate, or policy maker. The goal is to rework your writing and sharpen your perceptions, both sensory and intellectual. Enrollment limited to fifteen. WR

\* **EVST 354a / ARCG 000 / ARCG 354a / NELC 324a, The Ancient State: Genesis and Crisis from Mesopotamia to Mexico** Harvey Weiss

Ancient states were societies with surplus agricultural production, classes, specialization of labor, political hierarchies, monumental public architecture and, frequently, irrigation, cities, and writing. Pristine state societies, the earliest civilizations, arose independently from simple egalitarian hunting and gathering societies in six areas of the world. How and why these earliest states arose are among the great questions of post-Enlightenment social science. This course explains (1) why this is a problem, to this day, (2) the dynamic environmental forces that drove early state formation, and (3) the unresolved fundamental questions of ancient state genesis and crisis, –law-like regularities or a chance coincidence of heterogenous forces? Previously HIST 204J. HU, SO

**EVST 366b / AMST 364b / FILM 423b, Documentary and the Environment** Charles Musser

Survey of documentaries about environmental issues, with a focus on *Darwin's Nightmare* (2004), *An Inconvenient Truth* (2006), *Food, Inc.* (2009), *GasLand* (2010), and related films. Brief historical overview, from early films such as *The River* (1937) to the proliferation of environmental film festivals. HU RP

**EVST 372b / MB&B 365b, Biochemistry and Our Changing Climate** Karla Neugebauer

Climate change is impacting how cells and organisms grow and reproduce. Imagine the ocean spiking a fever: cold-blooded organisms of all shapes, sizes and complexities struggle to survive when water temperatures go up 2-4 degrees. Some organisms adapt to extremes, while others cannot. Predicted and observed changes in temperature, pH

and salt concentration do and will affect many parameters of the living world, from the kinetics of chemical reactions and cellular signaling pathways to the accumulation of unforeseen chemicals in the environment, the appearance and dispersal of new diseases, and the development of new foods. In this course, we approach climate change from the molecular point of view, identifying how cells and organisms#from microbes to plants and animals#respond to changing environmental conditions. To embrace the concept of “one health” for all life on the planet, this course leverages biochemistry, cell biology, molecular biophysics, and genetics to develop an understanding of the impact of climate change on the living world. We consider the foundational knowledge that biochemistry can bring to the table as we meet the challenge of climate change. Prerequisites: MB&B 300/301 or MB&B 200/MCDB 300 or permission of the instructor. Can be taken concurrently with MB&B 301. SC

\* **EVST 377b / ANTH 376b, Observing and Measuring Behavior, Part I: Study Design**

Eduardo Fernandez-Duque

This is the first course in a spring-fall sequence. The course surveys theoretical issues and practical methods relevant to studying the behavior of animals and humans, primarily in the “wild.” Topics covered include formulation of research questions, hypotheses and predictions, study design, sampling methods for studying behavior, genetics, endocrinology, ecology, climate. Students learn and practice various forms of behavioral and ecological sampling, as well as gain familiarity with some widely-used technologies that facilitate the study of behavior (e.g. radiotelemetry). Then, working around a specific research question, students design their own study. Those who choose can develop a study to be implemented during an NSF-funded Summer Program in Argentina (<https://www.owlmonkeyproject.com/open-calls>). Students who enrolled in ANTH 376 during spring 2021 when the summer program was cancelled due to the pandemic can apply to take part in the 2022 summer program in Argentina and may enroll in ANTH 377 during the fall 2022 term. Prerequisite: Some background (including high school) on evolutionary biology, animal behavior, biology recommended. Contact the Instructor if in doubt. SC, SO

\* **EVST 396a or b, Independent Study: Environmental Studies** Michael Fotos

Independent research under the direction of a Yale faculty member on a special topic in Environmental Studies not covered in other courses and not the focus of the senior essay. Permission of the director of undergraduate studies and of the instructor directing the research is required. A proposal approved by the instructor must be submitted to the director of undergraduate studies by the end of the second week of classes. The instructor meets with the student regularly, in person or remotely, typically for an hour a week, and the student writes a final paper or a series of short essays.

\* **EVST 399b / ARCG 399b, Agriculture: Origins, Evolution, Crises** Harvey Weiss

Analysis of the societal and environmental drivers and effects of plant and animal domestication, the intensification of agroproduction, and the crises of agroproduction: land degradation, societal collapses, sociopolitical transformation, sustainability, and biodiversity. SO

\* **EVST 404a / ANTH 404a, Advanced Topics in Behavioral Ecology** Eduardo Fernandez-Duque

This seminar explores advanced topics in behavioral ecology while examining the mechanisms, function, reproductive consequences, and evolution of behavior. The main goals of the course are to: (1) discuss the primary literature in behavioral ecology,

(2) become familiar with current theory and approaches in behavioral ecology, (3) understand how to formulate hypotheses and evaluate predictions about animal behavior, (4) explore the links between behavior and related fields in ecology and evolution (e.g. ecology, conservation biology, genetics, physiology), (5) identify possible universities, research groups, and advisors for summer research or graduate studies. Students watch a mix of live and recorded talks by leading behavioral ecologists who present at the Frontiers in Social Evolution Seminar series, and they attend and participate in the hour-long discussions that follow the talk. The class meets to discuss the primary literature recommended by the presenter and to engage in small-group conversations with those who visit the course. Prerequisite: A Yale course on evolutionary biology (e.g. BIOL 104, ANTH 116, ANTH 376) or E&EB 242. Otherwise permission of instructor required. SC

\* **EVST 422a / ANTH 409a / ER&M 394a / F&ES 422a / GBL 394a, Climate and Society: Perspectives from the Social Sciences and Humanities** Michael Dove  
Discussion of the major currents of thought regarding climate and climate change; focusing on equity, collapse, folk knowledge, historic and contemporary visions, western and non-western perspectives, drawing on the social sciences and humanities.  
WR, SO

**EVST 431b, The Physical Science of Climate Change** Peter Raymond and Xuhui Lee  
The course provides students with core knowledge on the processes controlling the earth's climate system. The first half of the class focuses on the four components of the earth climate system, providing a knowledge base on the atmospheric energy and water budgets and the roles of anthropogenic greenhouse gases, the oceans, land and cryosphere in altering these budgets. Students also learn how to run a climate GCM (general circulation model). The second half of the class focuses on impacts of climate change on a number of societal sectors including natural ecosystems, energy use, water resources, the food system and the built environment. SC

\* **EVST 450a, Carbon Containment** Michael Oristaglio, Dean Takahashi, and Anastasia O'Rourke  
There is growing recognition that reducing greenhouse gas (GHG) emissions alone is not sufficient to mitigate catastrophic effects of global climate change. As GHGs accumulate in the atmosphere, it is increasingly important to draw down these emissions cost-effectively in large quantities via carbon dioxide removal (CDR) and carbon capture and storage (CCS) techniques—which can be broadly described as “carbon containment.” Recognizing the urgency of the problem at hand and the need for private and philanthropic action, many large companies, investors, and donors have stepped up commitments to stabilize the climate and to achieve net zero emissions by 2050. In addition to decarbonization strategies that reduce emissions, climate leaders are investing in and purchasing credits from negative emission carbon containment projects that reduce atmospheric levels of GHGs. Currently, the options for entities to credibly meet ambitious climate goals using carbon containment approaches are very limited. This goal of this course is to: (1) teach and engage students from a range of disciplines about the existing technologies and markets for carbon containment, (2) investigate nascent or neglected carbon containment mechanisms, and (3) develop case studies highlighting strategies and risks for moving promising pre-commercial ideas from concept to practice. There are no prerequisites for this course, although familiarity

with basic climate science, policy, carbon markets, and GHG emissions inventories is helpful. SC, SO

\* **EVST 463a and EVST 464b / AMST 463a and AMST 464b / FILM 455a and FILM 456b / THST 457a and THST 458b, Documentary Film Workshop** Charles Musser

A yearlong workshop designed primarily for majors in Film and Media Studies or American Studies who are making documentaries as senior projects. Seniors in other majors admitted as space permits. RP

\* **EVST 473a / ARCG 473a / NELC 373a, Climate Change, Societal Collapse, and Resilience** Harvey Weiss

The coincidence of societal collapses throughout history with decadal and century-scale abrupt climate change events. Challenges to anthropological and historical paradigms of cultural adaptation and resilience. Examination of archaeological and historical records and high-resolution sets of paleoclimate proxies. HU, SO o Course cr

\* **EVST 496a or b, Senior Research Project and Colloquium** Michael Fotos, Jeffrey Park, and Kealoha Freidenburg

Independent research under the supervision of members of the faculty, resulting in a senior essay. Students meet with peers and faculty members regularly throughout the fall term to discuss the progress of their research. Projects should offer substantial opportunity for interdisciplinary work on environmental problems. Seniors in the BS track typically write a two semester senior essay by enrolling in EVST 496 and EVST 496. For the B.A. degree, students most often complete one term of EVST 496, in either the fall or spring semester of their senior year. Students writing the one-term essay in the BA track must also complete an additional advanced seminar in the environment. Two-term senior research projects in the BA track require the permission of the DUS. Single semester essays are permissible also for students completing a double major that involves writing a senior essay in another department or program with permission of the DUS and subject to Yale College academic regulations governing completion of two majors.