ENVIRONMENTAL STUDIES

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Environmental Studies offers the opportunity to examine human relations with their environments from diverse perspectives. The major encourages interdisciplinary study in (1) social sciences, including anthropology, political science, law, economics, and ethics; (2) humanities, to include history, literature, religion, and the arts; and (3) natural sciences, such as biology, ecology, human health, geology, and chemistry. Students work with faculty advisers and the director of undergraduate studies (DUS) to concentrate on some of the most pressing environmental and sustainability issues of our time: climate change, food and agriculture, urbanism, conservation, energy, sustainable natural resource management, justice, markets, and governance.

Students may pursue either a B.A. or a B.S. degree within Environmental Studies. The B.A. program is intended for students who wish to concentrate in the social sciences and humanities. The B.S. program encourages students to focus in the natural sciences, especially fields such as environmental health and medicine, ecology, and climate science. Both degree programs culminate in a senior essay project that is commonly preceded by independent summer research.

The major for the Class of 2020 With DUS approval, the following changes to the prerequisite and core major requirements of the B.A. degree program may be fulfilled by students who declared their major under previous requirements. There are no changes to the B.S. degree program.

The major for the Class of 2021 and subsequent classes The B.A. degree program does not require any specific prerequisites; there are two new core course major requirements as outlined below. There are no changes to the B.S. degree program.

PREREQUISITES

The B.A. degree program has no prerequisites.

The B.S. degree program requires a natural science laboratory or field course focusing on research and analytic methods chosen from EVST 202L, 221, 234L, 244, 290, 362, or G&G 126L; and a term course in mathematics, physics, or statistics selected from MATH 112 and above (excluding MATH 190), or PHYS 170 and above, or S&DS 101 and above; two-term lecture series in chemistry (or CHEM 170 or CHEM 167), and two terms of biology from BIOL 101 and 102 or 103 and 104, or G&G 125, or MCDB 123.

Students are advised to take chemistry and biology during the first year before enrolling in the EVST core courses in natural sciences. It is recommended that students complete the prerequisites by the end of their sophomore year, although this is not required.

REQUIREMENTS OF THE MAJOR

B.A. degree program The B.A. degree requires at least thirteen course credits, consisting of the core requirements, the concentration, and the senior requirement.

B.S. degree program In addition to the prerequisites, the B.S. degree requires at least twelve course credits, consisting of the core requirements, the concentration, and the two-term senior requirement.

B.A. core courses One course in statistics or mathematics, selected from S&DS 101 or above, or MATH 112 or above; two core courses in the social sciences or humanities selected from EVST 120, 226, 235, 340, or 345; and three natural science core courses. Students may choose natural science courses, all of which have the science (Sc) designation, from EVST 191, 200, 223, 242, 273; E&EB 115 or 145; G&G 120 or 140; G&G 125 or MCDB 123; CHEM 161 or 165; EVST 202L, 221, 234L, 244, 290, 362, or G&G 126L; or CDE 508. Completing one course in each area is recommended before the end of the sophomore year.

B.S. core courses Two core courses in the humanities and social sciences selected from EVST 120, 226, 235, 340, or 345; and two natural science core courses from EVST 200, 223, 242, 273 or G&G 140. Completing one course in each area is recommended before the end of the sophomore year.

Areas of concentration Students plan their concentration in consultation with the (DUS) and the student’s adviser. A concentration is defined as six courses that provide analytical depth in a particular environmental problem or issue of interest, as well as disciplinary expertise. One of these six courses must be an advanced seminar (200 level or higher) that exposes students to primary literature, extensive writing requirements, and experience with research methods. For the B.S. degree, three of the six courses must have the science (Sc) designation, and two must provide interdisciplinary context to the concentration. Concentrations include biodiversity and conservation, climate change and energy, environmental humanities, environmental justice, environmental policy, food and agriculture, human health and environment, sustainability and natural resources, and urban environments. Students also have the opportunity to design a unique concentration within the major, in consultation with the DUS.

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the major, including prerequisites.

Roadmap See visual roadmap of the requirements.
SENIOR REQUIREMENT
In the junior year, all students consult with their advisers on the design of their project and submit a preliminary plan to the DUS for approval.

B.A. degree program For the B.A. degree, students most often complete two terms of EVST 496, a colloquium in which they write their senior essay. One-term senior projects require the permission of the DUS, and are generally undertaken only in conjunction with two majors. Only those students who complete a two-semester essay are eligible for Distinction in the Major.

B.S. degree program For the B.S. degree, students complete two terms of EVST 496.

ADVISING AND APPLICATION TO THE MAJOR
Students typically apply to enter the major during their sophomore year. Applications are accepted throughout the year; details can be found on the program website. Juniors who have already completed considerable course work toward the major may also apply.

Summer Environmental Fellowship During the summer, many students gain experience in the field through research or internships in an area pertinent to their academic development or their senior essay project. Internships may be arranged with nonprofit organizations, government agencies, or corporations. Although the summer program is optional, many students take advantage of this opportunity with some financial support from the program.

REQUIREMENTS OF THE MAJOR
Prerequisites B.A.—no prerequisites; B.S.—one course from EVST 202L, 221, 234L, 244, 290, 362, or G&G 126L; MATH 112 and above (excluding MATH 190), or PHYS 170 and above, or S&DS 101 or above; two-semester lecture sequence in chem, or CHEM 170 or 167; two terms from BIOL 101 and 102, or 103 and 104, or G&G 125, or MCD 123
Number of courses B.A.—at least 15 course credits, incl senior project; B.S.—at least 12 course credits, beyond prereq and incl senior project
Specific courses required B.A.—6 core courses, as specified; B.S.—2 core courses in humanities and social sciences and 2 core courses in natural sciences, as specified
Distribution of courses B.A.—6 courses in area of concentration, including 1 advanced sem as specified; B.S.—6 courses in area of concentration, 3 of which must have Sc designation, and 2 must provide interdisciplinary context as specified
Senior requirement B.A.—one- or two-term research project and colloq (EVST 496); one term research project requires DUS permission; B.S.—two-term research project and colloq (EVST 496)

FACULTY ASSOCIATED WITH THE PROGRAM OF ENVIRONMENTAL STUDIES
Professors Gaboury Benoit (Forestry & Environmental Studies), Graeme Berlyn (Forestry & Environmental Studies), Ruth Blake (Geology & Geophysics), Mark Bradford (Forestry & Environmental Studies), Derek Briggs (Geology & Geophysics), Gary Brudvig (Chemistry, Molecular Biophysics & Biochemistry), Benjamin Cashore (Forestry & Environmental Studies), Susan Clark (Adjunct) (Forestry & Environmental Studies), Deborah Coen (History), Michael Donoghue (Ecology & Evolutionary Biology, Forestry & Environmental Studies), Michael Dove (Forestry & Environmental Studies, Anthropology), Menachem Elimelech (Chemical & Environmental Engineering), Daniel Esty (Forestry & Environmental Studies), Robert Mendelsohn (Forestry & Environmental Studies, Economics), Alan Mikhail (History), Jeffrey Park (Geology & Geophysics), Peter Perdue (History), David Post (Ecology & Evolutionary Biology), Jeffrey Powell (Ecology & Evolutionary Biology, Forestry & Environmental Studies), Peter Raymond (Forestry & Environmental Studies), Paul Sabin (History), James Sapers (Forestry & Environmental Studies), Oswald Schmitz (Forestry & Environmental Studies, Ecology & Evolutionary Biology), James Scott (Political Science, Anthropology), Karen Seto (Forestry & Environmental Studies), Kalyanakrishnan Sivaramakrishnan (Anthropology, Forestry & Environmental Studies), David Skelly (Forestry & Environmental Studies, Ecology & Evolutionary Biology), Brian Skinner (Geology & Geophysics), Ronald Smith (Geology & Geophysics, Forestry & Environmental Studies), Stephen Stearns (Ecology & Evolutionary Biology), Charles Tomlin (Forestry & Environmental Studies (Visiting), John Wargo (Forestry & Environmental Studies, Political Science), Harvey Weiss (Near Eastern Languages & Civilizations, Anthropology), Robert Wyman (Molecular, Cellular, & Developmental Biology)
Associate Professors Laura Barracough (American Studies), Craig Brodersen (Forestry & Environmental Studies), David Vasseur (Ecology & Evolutionary Biology), Julie Zimmerman (Chemical & Environmental Engineering)
Assistant Professors Anjelica Gonzalez (Biomedical Engineering), William Rankin (History, History of Science)
Senior Lecturers Shimon Anisfeld, Carol Carpenter, Amity Doolittle, John Grim, Fred Strebeigh
Lecturers Alan Burdick, Ian Cheney, Mary Beth Decker, Marlyse Duguid, Michael Fotos, Kealoha Freidenburg, Gordon Geballe, Linda Puth, Catherine Skinner, Charles Tomlin

Introductory Courses
* EVST 007a, The New England Forest  Marlyse Duguid
Exploration of the natural history of southern New England, with specific focus on areas in and around New Haven. Pertinent environmental issues, such as climate change, endangered species, and the role of glacial and human history in shaping vegetative patterns and processes, are approached from a multi-disciplinary framework and within the context of the surrounding landscape. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program.
* EVST 020a / F&ES 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 030b / ARG 031b / CLCV 030b / HIST 030b / NELC 026b, Rivers and Civilization  Harvey Weiss
The appearance of the earliest cities along the Nile and Euphrates in the fourth millennium B.C. Settlements along the rivers, the origins of agriculture, the production and extraction of agricultural surpluses, and the generation of class structures and political hierarchies. How and why these processes occurred along the banks of these rivers; consequent societal collapses and their relation to abrupt climate changes. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program.  HU, SC

* 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 100b / APHY 100b / ENAS 100b / G&G 105b / PHYS 100b, Energy Technology and Society  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

Core Courses

HUMANITIES AND SOCIAL SCIENCES

EVST 144a / EDST 144a / ER&M 211a / SOCY 144a, Race, Ethnicity, and Immigration  Grace Kao
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

EVST 180b / 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

EVST 265b / F&ES 265b / GLBL 282b / PLSC 215b, Global Food Challenges: Environmental Politics and Law  John Wargo
We explore relations among food, environment, health, and law. We consider global-scale avoidable challenges such as: starvation and malnutrition, obesity, other food related human diseases, climate instability, soil loss, water depletion and contamination, microbial hazards, chemical contamination, food waste, dietary convergence, air pollution, energy, packaging, culinary globalization, and biodiversity loss. We focus on laws that influence the world’s food system, including those intended to reduce or prevent environmental and health damages. Other laws protect rights of secrecy, property, speech, confidential business information, free trade, worker protection, equal opportunity, and freedom from discrimination. Ethical concerns of justice, equity, and transparency are prominent themes. Examples of effective law, consumer movements and corporate innovations provide optimism for the future of responsible food.  SO

EVST 340a / ECON 330a, Economics of Natural Resources  Robert Mendelsohn
Microeconomic theory brought to bear on current issues in natural resource policy. Topics include regulation of pollution, hazardous waste management, depletion of the world’s forests and fisheries, wilderness and wildlife preservation, and energy planning. After introductory microeconomics.  QR, SO

ENVIRONMENTAL SCIENCE

EVST 223a / E&EB 220a, General Ecology  David Vasseur and Ann Staver
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

Intermediate and Advanced Courses

The following courses have been approved for developing areas of concentration. Other courses may be suitable for designing an area of concentration with permission of the director of undergraduate studies.

EVST 182a / ANTH 300a / E&EB 300a, Primate Behavior and Ecology  Eduardo Fernandez-Duque
Socioecology of primates compared with that of other mammals, emphasizing both general principles and unique primate characteristics. Topics include life-history strategies, feeding ecology, mating systems, and ecological influences on social organization.  SC, SO
The world adds a billion people every twelve years. The increasing human environmental footprint overwhelms efforts at conservation and remediation. Whether one is concerned about the environment or human poverty, health and well-being, the continuing population explosion looms as a dominant factor. The nexus of deep poverty and increasing population derails many efforts at human economic development. The introduction of family planning around the world and the fall in global fertility that it has allowed is one of the great revolutions in human history. This survey course introduces the biological, historical, economic, and cultural factors that determine human population growth. Starting with an evolutionary background, we trace the historical stages of population growth and how cultures have maintained reproduction at a sustainable rate and how the modern decline of mortality led to the population explosion. We probe the effects of large and high-consumption populations and efforts to re-stabilize population. Topics include the political, religious, and ethical issues surrounding fertility: infanticide, abortion, contraception, son preference, government coercion, migration, and the status of women. Many topics are highly controversial and students are encouraged to present a diverse set of views. Course is suitable for students intending to major in any subject.

EVST 211b / G&G 211b / HIST 416b / HSHM 211b, Global Catastrophe since 1750  
William Rankin
A history of the geological, atmospheric, and environmental sciences, with a focus on predictions of global catastrophe. Topics range from headline catastrophes such as global warming, ozone depletion, and nuclear winter to historical debates about the age of the Earth, the nature of fossils, and the management of natural resources. Tensions between science and religion; the role of science in government; environmental economics; the politics of prediction, modeling, and incomplete evidence.  

* 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.  

* EVST 215a / ENGL 459a / MBR&B 459a, Writing about Science, Medicine, and the Environment  
Carl Zimmer
Advanced non-fiction workshop in which students write about science, medicine, and the environment for a broad public audience. Students read exemplary work, ranging from newspaper articles to book excerpts, to learn how to translate complex subjects into compelling prose. Admission by permission of the instructor only. Applicants should email the instructor at carl@carlzimmer.com with the following information: 1. One or two samples of nonacademic, nonfiction writing. (No fiction or scientific papers, please.) Indicate the course or publication, if any, for which you wrote each sample. 2. A note in which you briefly describe your background (including writing experience and courses) and explain why you’d like to take the course.  

* 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.  

* EVST 231a, Temperate Woody Plant Taxonomy and Dendrology  
Marlyse Duguid
Identification of the major temperate plant families, with a focus on North American forest species; integration of morphology, phenology, ecology, biogeography, and the natural history of tree species. Course work includes field identification of woody plants, and phylogenetic systematics as the structure for understanding the evolutionary history and relationships between species.  

* EVST 234La, Field Science: Environment and Sustainability  
L. 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.  

* EVST 247b / EP&E 497b / PLSC 219b, 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. Focus on politics in the U.S., including the role of public opinion; attention to international regulatory efforts, especially with regard to climate change.  

EVST 255b / F&ES 255b / GLBL 282b / PLSC 215b, Global Food Challenges: Environmental Politics and Law  
John Wargo
We explore relations among food, environment, health, and law. We consider global-scale avoidable challenges such as: starvation and malnutrition, obesity, other food related human diseases, climate instability, soil loss, water depletion and contamination, microbial hazards, chemical contamination, food waste, dietary convergence, air pollution, energy, packaging, culinary globalization, and biodiversity loss. We focus on laws that influence the world’s food system, including those intended to reduce or prevent environmental and health damages. Other laws protect rights of secrecy, property, speech, confidential business information, free trade, worker protection, equal opportunity, and freedom from discrimination. Ethical concerns of justice, equity, and transparency are prominent themes. Examples of effective law, consumer movements and corporate innovations provide optimism for the future of responsible food.  

Robert Wyman
Evolutionary and ecological studies of the relationship between society and the environment focusing on tropical forest conservation. Global processes of environmental conservation, development, and conflicts over natural resource use and control; approaches to conserving trees and forest cover using strategies that support biodiversity and rural agricultural livelihoods; specific focus on tropical forest landscapes dominated by agriculture and cattle ranching practices using Panama and Colombia as a case studies. The course includes an optional field trip during Spring Break: March 6–March 15 in Colombia. Admission is by application only. Applications open in late November and close December 9; class list is determined by December 17.

EVST 265b / G&G 255b, Environmental Geomicrobiology  Ruth Blake
Microbial diversity in natural geologic habitats and the role of microorganisms in major biogeochemical cycles. Introduction to prokaryote physiology and metabolic diversity; enrichment culture; and molecular methods in geomicrobiology. Prerequisite: college-level chemistry. SC

* EVST 285b / F&ES 285b, Political Ecology of Tropical Forest Conservation  Amy Doolittle
Study of the relationship between society and the environment focusing on tropical forest conservation. Global processes of environmental conservation, development, and conflicts over natural resource use and control; approaches to conserving trees and forest cover using strategies that support biodiversity and rural agricultural livelihoods; specific focus on tropical forest landscapes dominated by agriculture and cattle ranching practices using Panama and Colombia as a case studies. The course includes an optional field trip during Spring Break: March 6–March 15 in Colombia. Admission is by application only. Applications open in late November and close December 9; class list is determined by December 17. SO

* EVST 285b / F&ES 285b, Environmental Geomicrobiology  Ruth Blake
Microbial diversity in natural geologic habitats and the role of microorganisms in major biogeochemical cycles. Introduction to prokaryote physiology and metabolic diversity; enrichment culture; and molecular methods in geomicrobiology. Prerequisite: college-level chemistry. SC

* EVST 285b / F&ES 285b, Political Ecology of Tropical Forest Conservation  Amy Doolittle
Study of the relationship between society and the environment focusing on tropical forest conservation. Global processes of environmental conservation, development, and conflicts over natural resource use and control; approaches to conserving trees and forest cover using strategies that support biodiversity and rural agricultural livelihoods; specific focus on tropical forest landscapes dominated by agriculture and cattle ranching practices using Panama and Colombia as a case studies. The course includes an optional field trip during Spring Break: March 6–March 15 in Colombia. Admission is by application only. Applications open in late November and close December 9; class list is determined by December 17. SO

* EVST 290b / F&ES 290b, 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 292a / GLBL 217a / PLSC 149a, Sustainability in the Twenty-First Century: Environment, Energy, and the Economy  Daniel Esty
Sustainability as a guiding concept for addressing twenty-first century tensions between economic, environmental, and social progress. Using a cross-disciplinary set of materials from the "sustainability canon," students explore the interlocking challenges of providing abundant energy, reducing pollution, addressing climate change, conserving natural resources, and mitigating the other impacts of economic development. SO

EVST 318a / AMST 236a / HIST 199a / HSHM 207a, 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

* EVST 324a / ANTH 322a / SAST 306a, Environmental Justice in South Asia  Chandana Anusha
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

* EVST 344b / F&ES 344b, Aquatic Chemistry  Gaboury Benoit
A detailed examination of the principles governing chemical reactions in water. Emphasis on developing the ability to predict the aqueous chemistry of natural, engineered, and perturbed systems based on a knowledge of their biogeochemical setting. Calculation of quantitative solutions to chemical equilibria. Focus on inorganic chemistry. Topics include elementary thermodynamics, acid-base equilibria, alkalinity, speciation, solubility, mineral stability, redox chemistry, and surface complexation reactions. SC

* EVST 362b / ARCG 362b / G&G 362b, Observing Earth from Space  Ronald Smith
A practical introduction to satellite image analysis of Earth’s surface. Topics include the spectrum of electromagnetic radiation, satellite-borne radiometers, data transmission and storage, computer image analysis, the merging of satellite imagery with GIS and applications to weather and climate, oceanography, surficial geology, ecology and epidemiology, forestry, agriculture, archaeology, and watershed management. Prerequisites: college-level physics or chemistry, two courses in geology and natural science of the environment or equivalents, and computer literacy. QR, SC

* EVST 368b / HIST 491b / HSHM 479b / RLST 368b, The History of the Earth from Noah to Darwin  Ivano Dal Prete
Young earth creationism and flood geology have long been among the most divisive features of American culture and politics. Yet a basic postulate is shared across the spectrum: for better or worse, the old age of the Earth is regarded as the recent product of a secular science, consistently rejected by traditional Christianity. This seminar challenges this long-established narrative, by uncovering the surprising boldness, complexity, and societal diffusion of pre-modern debates on the history of the Earth, and of humankind itself. Students have opportunity to explore the nature, assumptions, and methods of Earth sciences before the advent of modern geology, to question ingrained assumptions about their relation to religion and society, and to place outstanding issues into historical perspective. How have the great monotheistic religions dealt with the possibility of an ancient Earth? Was a young creation always important in traditional Christianity? If not, what led to the emergence of young Earth creationism as a force to be reckoned with? What are the intellectual roots?
of American preadamism, which claims that the black and white races were created at different times and do not descend from the same ancestor? These and other questions are addressed not only through scholarly literature in the field, but also with the analysis of literary, visual, and material sources available on campus.  WR, HU

* EVST 400b / E&EB 275b, Biological Oceanography  Mary Beth Decker
Exploration of a range of coastal and pelagic ecosystems. Relationships between biological systems and the physical processes that control the movements of water and productivity of marine systems. Anthropogenic impacts on oceans, such as the effects of fishing and climate change. Includes three Friday field trips. Enrollment limited to 15.  SC

* EVST 415b / BENG 405b, Biotechnology and the Developing World  Anjelica Gonzalez
Study of technological advances that have global health applications. Ways in which biotechnology has enhanced quality of life in the developing world. The challenges of implementing relevant technologies in resource-limited environments, including technical, practical, social, and ethical aspects. Prerequisite: MCDB 120, or BIOL 101 and 102.

* EVST 422a / ANTH 409a / ER&M 394a / F&ES 422a, Climate and Society from Past to Present  Michael Dove
Discussion of the major currents of thought—both historic and contemporary—regarding climate, climate change, and society; focusing on the politics of knowledge and belief vs disbelief; and drawing on the social sciences and anthropology in particular.  WR, SO

* EVST 424a / ANTH 406a / PLSC 420a, Rivers: Nature and Politics  James Scott
The natural history of rivers and river systems and the politics surrounding the efforts of states to manage and engineer them.  SO

* EVST 463a and EVST 464b / AMST 463a and AMST 464b / FILM 455a and FILM 456b, 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 473b / ANTH 473b / ARCG 473b / NELC 473b, 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

Senior Project

* EVST 496a or b, Senior Research Project and Colloquium  Michael Fotos and Staff
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. Students typically complete a two-term senior essay, but students completing the requirements of two majors may consider a one-term senior project.