

Northeastern University Sustainability Curriculum

ANTH 2339 Environmental Anthropology. Introduces the study of human-environmental interactions over time and across cultures. It examines transitions in subsistence systems and cultural factors from early hunter-gathers to current global industrial giants.

ANTH 3415 Anthropology of Travel and Tourism. Examines the rationale and functions of tourism around the world. Explores the relationship between tourist and hosts from different perspectives, and most important, covers the nature of what constitutes satisfaction and sustainability of tourism.

ARCH 3170 1960s Urbanism. Addresses the architectural and urbanistic consequences of the utopian planning associated with urban renewal, the architecture of Brutalism, and other difficult-to-transform architecture of the 1950s, 1960s, and 1970s.

ARCH 5120 Comprehensive Design Studio. Focuses on the materials and making of architecture. Considers architectural connections at all scales, from the nut and bolt to the scale of a door or window to the scale of the whole building and the city.

ARCH 5210 Environmental Systems. Explores the ways in which architectural form can create particular conditions of light and shadow; provide shelter from heat, cold, and rain; and incorporate systems that provide for water, electricity, and sanitation.

ARCH 5220 Integrated Building Systems. Studies how to integrate into students' building designs all the environmental and tectonic systems that they have covered in previous architecture courses.

ARCH 6340 Sustainability Techniques. The professor presents his or her research related to sustainability and exposes the students to methods of research and topics in current and ongoing research in the field. The students have an opportunity to engage in parallel research projects.

BIOL 1113 General Biology 2. Examines the evolution of structural and functional diversity of organisms; the integrative biology of multicellular organisms; and ecological relationships at the population, community, and ecosystem levels.

BIOL 1141 Microbes and Society. Students analyze how the growth and behavior of this diverse group of organisms affect many aspects of human society including agriculture and food preparation, drug development and manufacture, genetic engineering, geochemical cycles, and health and disease.

BIOL 1143 Biology and Society. An overview of how biology weaves its way across a spectrum of complex societal issues. Introduces the biological mechanisms and processes responsible for genetic inheritance, energy transfer, evolution, and population dynamics, providing a framework for students to critically interpret and discuss biological information provided in public forums.

BIOL 5499 Plant Biotechnology. Using examples from current research, offers students an opportunity to review the technology used to modify and improve economically important plants for sustainable agriculture as well as for the production of pharmaceutical and medicinal products.

BIOL 5571 Microbial Ecology. Focuses on role of microbial communities in the function of the biosphere. Surveys the diversity of microorganisms, their ecological strategies, and interactions in aquatic and soil communities, deep sea vent and subsurface rock environments, extreme conditions of Antarctic ice, and boiling springs.

BIOL 6399 Dynamics of Microbial Ecology. Explores state-of-the-art research on microbial biology of the environment and human body. Focuses on molecular diversity of microbial species and microbial discovery, microbial dynamics across time and space, microbiology of extreme environments, microbial ecology in the genomics age, and translation of basic microbiology into practice.

BUSN 6203 Understanding Sustainability Strategies. Introduces students to the skills necessary to operate in the emerging environment of sustainability-focused management. Includes the fundamental elements of sustainability and the frameworks to analyze sustainability challenges.

BUSN 6248 Greening the Global Economy with Sustainable Business. Ecologically responsive and responsible management is emerging as one of the most significant business challenges of the 21st century. Exposes students to the responsibilities of business to the natural environment in a global economy.

BUSN 6273 Sustainability in Innovation. Focuses on different types of strategies firms have taken for sustainable innovation. Students have an opportunity to design product ideas and formalize corporate strategy for sustainable innovations.

CHEM 5651 Materials Chemistry of Renewable Energy. Studies renewable energy in terms of photovoltaics, photoelectrochemistry, fuel cells, batteries, and capacitors. Focused on the aspects of each component and their relationships to one another.

CHEM 5669 Environmental Analytical Chemistry. Describes the application of instrumental methods for analyzing environmental samples for major, minor and trace components of toxicological concern.

CHEM 7250 Chemical Bioenergetics: Applications in Biomaterial Design. Covers principles of energy transduction in biological systems and biomolecules with an emphasis on the application of such processes in the design of a novel class of biologically functionalized energetic materials.

CHM 2105 Chemistry and the Environment. Introduces the fundamentals of chemistry through an issues-based format. Topics include the chemistry of the environment, nuclear chemistry, and polymer chemistry.

CHME 7232 Process Pollution Prevention and Control. Explores modeling of the transport/transformation of environmental contaminants, analysis of pollution prevention/reduction approaches for process facilities, techniques for environmental auditing, and more.

CIVE 2334 Environmental Engineering 1. Focuses on protection and management of the environment. Topics include assessment of environmental quality; introduction to water and wastewater treatment technologies; air pollution control; and solid waste management.

CIVE 4534 Environmental Engineering 2. Concentrates on unit operations, unit processes, and related fundamental design of physical, chemical, and biological water and wastewater treatment systems, using both lectures and laboratory instruction.

CIVE 4536 Hydrologic Engineering. Covers the hydrologic cycle; rainfall-runoff relationships; hydrologic flood routing; and groundwater hydraulics. Applies these concepts to issues such as water supply and storm water management.

CIVE 4538 Urban Water Quality and Public Health. Focuses on the historical evolution of the complex and dynamic relationship between urban waters and humans, with emphasis on water quality and public health. Topics include principles of water quality and field sampling and laboratory analysis.

CIVE 4566 Sustainable Design of Buildings and Urban Transportation Systems: US/European Perspectives. Covers principles, practice, and policy for sustainable design of buildings and urban transportation systems from US and European perspectives.

CIVE 5270 Environmental Protection and Management. Examines public and private environmental quality management and resource protection systems. Considers regulatory issues, risk management approaches, local vs. regional impacts, long-term sustainability, and economic/financial issues.

CIVE 5271 Solid and Hazardous Waste Management. Introduces various aspects of integrated solid waste management systems and hazardous waste management practices. Includes both engineering principles as well as socioeconomic and regulatory issues.

CIVE 5321 Geoenvironmental Engineering. Covers definitions and regulations, soil formation and mineralogy, hydraulic conductivity measurements, reactive contaminant transport through fine-grained soils, landfill and liners design, and seepage barriers and cutoff walls

CIVE 5373 Transportation Planning and Engineering. Discusses urban transportation planning and engineering for modes other than highway. Considers the environmental impact, economic evaluation, and financial impact of different modes of transportation.

CIVE 5376 Traffic Engineering. Explores traffic flow theory and measurement, capacity and level of service analysis for intersections and urban arterials, intersection layout design, and more.

CIVE 7100 Applied Time Series and Spatial Statistics. Interdisciplinary course covers the fundamentals of time series and spatial statistics with applications in engineering, science, and business. Final projects can be tailored to interests in environmental engineering or sustainability sciences.

CIVE 7250 Environmental Chemistry. Examines applications of chemistry to environmental engineering, covering properties of water and pollutants, acid-base reactions, pH, alkalinity, equilibrium chemistry, chemical kinetics, etc.

CIVE 7252 Water Engineering, Resources, and Energy Recovery. Covers theory and design principles of major water and wastewater treatment processes. Focuses on the emerging issues in water sustainability and advances in science and technology to address society's growing water needs.

COMM 3500 Environmental Issues, Communication and the Media. Analyzes major debates over the environment, climate change, and related technologies such as nuclear energy, wind power, natural gas fracking, and food biotechnology.

ECON 3404 International Food Economics and Policy. Covers concepts in economic and political dimensions of food production, consumption, and trade, with emphasis on the global food system.

ECON 3423 Environmental Economics. Applies tools of economics to environmental issues. Explores taxonomy of environmental effects; measuring benefits of cleaner air and water, noise abatement, and recreational areas; and global issues including tropical deforestation and acid rain.

ECON 3425 Energy Economics. Covers theoretical and empirical perspectives on energy demand and energy supply. Particular attention is given to the role markets play in determining how to use energy and its sources, and the scope for public policy to address market imperfections.

EECE 5682 Power Systems Analysis 1. Covers phasors, single-phase and balanced three-phase circuits, complex power, and network equations; symmetrical components and sequence networks; power transformers; transmission line parameters and more.

EECE 5696 Energy Harvesting Systems. Covers energy harvesting systems and technologies, including solar energy, wind energy, vibration energy, thermoelectric energy, etc.

EECE 5688 Analysis of Unbalanced Power Grids. Examines common types of power system faults. Presents methods to calculate fault currents and postfault bus voltages. Reviews protective relaying and relay settings using typical distribution system examples.

EECE 7220 Power System Analysis 2. Continues EECE 5682. Reviews power flow studies, power system protection, power system controls, transient operation of transmission lines, transient stability, and HVDC transmission.

EECE 7221. Power System Operation and Control. Provides tools and techniques needed to analyze and quantify phenomena that arise in operation and control of modern power systems.

EECE 7226 Modeling and Simulation of Power System Transients. Presents computer modeling of linear and nonlinear power system components to be used in transient studies. Covers methods of digital simulation of power systems operating in the steady-state and transient conditions.

EECE 7239 Special Topics in Power Systems. Covers aspects of power systems not studied in other courses. Topics may vary from year to year.

EEMB 1123 Biological Oceanography. Examines processes important to coastal ocean ecosystems by presenting biological, chemical, and physical oceanographic concepts. Examines the productivity of coastal oceans, biogeochemical cycling, and atmosphere-ocean interactions.

EEMB 2302 Ecology. Considers physical and chemical factors of the environment as they affect the distribution of organisms and as they may in turn be affected by the organisms. Includes population dynamics, population genetics, development of communities, and structure and function of ecosystems.

EEMB 2700 Marine Biology. Examines biological aspects of ocean ecosystems and the physical processes that regulate them in this interdisciplinary course.

EEMB 3460 Conservation Biology. Emphasizes the causes and consequences of biodiversity loss and demonstrates how ecological and evolutionary principles are applied to conservation problems. Covers sustainability; climate change; conservation of threatened and endangered species; and pollution, disease, and habitat restoration.

EEMB 5506 Biology and Ecology of Fishes. Presents an examination of the systematics, functional morphology, and behavioral, larval, and community ecology of reef fishes through lectures. Field and laboratory experiments focus on morphology, behavior, and community ecology of reef fishes.

EEMB 5512 Tropical Terrestrial Ecology. Studies the animals, plants, and ecosystems of the new world tropics, with the community structure and diversity of terrestrial Jamaican habitats as an example. Includes field trips. The issue of land use and development vs. conservation is a consistent theme.

EEMB 5514 Marine Ecology. Examines processes and interactions in ocean ecosystems, including the biotic and abiotic factors influencing the distributions, abundances, and interactions of marine organisms and transformation and flux of energy and matter in marine systems.

EEMB 5518 Ocean and Coastal Processes. Examines the coupling between physical and biological processes on coral reefs and adjacent habitats. Focuses on biophysical, oceanographic, and benthic-pelagic processes acting in coral reef and associated nearshore ecosystems.

EEMB 5520 Coral Reef Ecology. Examines ecology and paleoecology, and highlights the ecological importance of coral reefs and associated nearshore communities, ecosystem function, changes in reef biotas through geologic time, and the causes and consequences of reef degradation worldwide.

EEMB 5526 Marine Microbial Ecology. Examines the diversity of marine microorganisms and recent advances in the area of microbial ecology. Emphasizes the structure and function of microbial food webs in marine communities.

EEMB 5528 Marine Conservation Biology. Examines critical issues facing marine ecosystems, such as invasive species, marine pollution and eutrophication, fisheries impact, physical alteration of habitats, and global climate change. Field time is spent surveying intertidal and subtidal habitats.

EEMB 5532 Physiological and Molecular Marine Ecology. Explores the physiological responses of marine organisms to variations in environmental factors. Uses complementary techniques, including molecular and physiological approaches to determine genetic relationships at the species and population level.

EEMB 5536 Ocean and Coastal Sustainability. Seeks to train future leaders capable of creating innovative solutions to sustainability issues at local and global levels. Interdisciplinary themes include social and political aspects of ocean and coastal sustainability and impacts of climate change on ocean and coastal resilience.

EEMB 5568 Wildlife Biology. Presents concepts and techniques utilized in the conservation and study of wild animals including the sociological aspects of management. Topics include habitat management, nonnative species, endangered species, legislation, and financing. Includes extended field trips.

ENGR 5670 Sustainable Energy: Materials, Conversion, Storage, and Usage. Examines, in this interdisciplinary course, modern energy usage, consequences, and options to support sustainable energy development from a variety of fundamental and applied perspectives.

ENSY 5000 Fundamentals of Energy System Integration. Presents issues of successfully integrating and implementing energy systems. Covers combined heat and power strategies, strategies of incorporating renewable with nonrenewable energy sources, thermoeconomics, and carbon sequestration techniques.

ENTR 2206 Social Entrepreneurship. Uses the case method to expose students to leading entrepreneurs who have developed and implemented business models to solve social problems such as extreme poverty, disease, illiteracy, and economic and social dislocation.

ENTR 2219 Business, Global Poverty, and the Microfinance Revolution. Investigates, analyzes and addresses one of the core questions surrounding microfinance: Can business, through microlending programs, truly address the needs of the desperately poor in a meaningful, scalable, and sustainable way?

ENTR 3325 Sustainable Innovation. Explores the societal, regulatory, financial, engineering, and marketing dimensions of sustainable innovation.

ENTR 3326 Sustainability in the Latin American Business Environment. Provides a theoretical foundation of the study of business activities in the Latin American business context to ensure that externalities are valued in the economic context of the enterprises and also considered in the decision making process.

ENTR 3328 Field Research in Sustainable Business. In teams with other university students in the country of study, students have an opportunity to explore sustainable business practices in companies ranging from agricultural enterprises to high-technology start-ups.

ENTR 3336 Resource Management and Renewable Energy in Iceland. Studies the economic history of Iceland in order to explore sustainable development and its implications.

ENTR 3338 Field Research in Sustainable Energy in Iceland. Explores the use of sustainable sources of energy and sustainable resource management in Iceland. Students investigate hydropower and geothermal energy in providing a sustainable source of energy in a developed economy.

ENTR 3520 Impact Investing and Social Finance. Explores impact investing, a transformative way to work with money to achieve a more inclusive and sustainable economy.

ENV 0350 Professional Engineering Review: Environmental Engineering License Exam. Offers students an opportunity to prepare for the Principles and Practice (PE) License Examination in Environmental Engineering.

ENVR 1101 Environmental Science. Focuses on the complex mix of interlocking problems that are reaching crisis levels, including population, resources, environmental degradation, and pollution. Focuses on food and land resources; air, soil, and water resources and pollution; and energy alternatives.

ENVR 1110 Global Climate Change. Covers the geologic history of the last ice age. Discusses the causes of extreme climate changes during the last 50 million years. Examines the landforms and sediments created by past ice sheets in North America and Europe.

ENVR 1111 Weather and Climate. Discusses the patterns and processes that combine to produce our daily weather and how weather integrates over time to define climate. Identifies natural and human-made causes of climate change.

ENVR 1112 Environmental Geology. Covers the causes and effects of problems resulting from human interaction with the earth and geologic processes. Topics include volcanoes, earthquakes, river flooding, soil erosion, groundwater pollution, landslides, and coastal erosion.

ENVR 1121 Marine Resources. Provides a qualitative and quantitative survey of renewable and nonrenewable resources from the sea. Topics include coral reefs, shellfish, marine mammals, sharks, sport and recreational fishing, clams, lobsters, shrimp, toxic seafood, erosion, and more.

EEMB 1122 Physical Oceanography. Provides a description of the physical properties and composition of seawater, waves, tides, and ocean currents. Discusses how these properties are measured by oceanographers and how they influence the earth's environment and climate.

EEMB 1123 Biological Oceanography. Covers the productivity of plant and animal life in the various zones of the ocean and the growing economic importance of the oceans as a source of food for the expanding world population.

EEMB 2420 Fisheries Biology, Policy, and Conservation. Considers how we study and manage economically valuable fish species.

ENVR 1124 New England Fisheries Resources. Emphasizes environmental factors controlling the distribution, quality, and abundance of fisheries resources. Discusses the methods and the effect of direct human utilization of the resource as well as the effects of pollution and habitat modification.

ENVR 1145 Environment and Humankind. Offers an ecological analysis of human interaction with other organisms. Presents the necessary foundation of biological principles.

ENVR 1202 History of Earth and Life. Traces biological and physical development of the earth over the past 4.6 billion years using evidence preserved in rocks. Topics the causes and results of mountain building and plate tectonics and climate change over earth history.

ENVR 3200 Water Resources. Offer students who wish to work in the area of water resources an opportunity to understand the issues related to water's availability and behavior at the Earth's surface.

ENVR 3410 Environmental Geochemistry. Provides a context for understanding environmental problems through studies in atmospheric, terrestrial, freshwater, and marine geochemistry.

EEMB 3500 Ecological Modeling. Seeks to offer students an opportunity to obtain a comprehensive overview of the mathematical and computational concepts needed to construct (meta) population, (meta) community, and (meta) ecosystem models.

ENVR 4504 Environmental Pollution. Offers students necessary tools to critically understand fundamental sources, pathways, and sinks for today's most ubiquitous and/or noxious pollutants.

ENVR 4505 Wetlands. Presents an interdisciplinary overview of physical, biological, and cultural aspects of wetlands for students majoring in geological, biological, or social sciences with an interest in wetland environments and resources.

ENVR 4515 Sustainable Development. Focuses on the development of communities in an environmentally sustainable way and on the division of natural resources within these communities and the global system.

ENVR 5110 Coastal Sedimentation. Examines a current environmental issue or topic through an understanding of the scientific principles controlling the process, review of alternative actions, and inquiry into societal implications of the issue.

ENVR 5202 Environmental Science Field Seminar Abroad. Offers an intensive environmental science field study experience. Students learn to recognize and record significant data, and to reach conclusions about a range of field-based problems being studied.

ENVR 5210 Environmental Planning. Examines aspects of surface runoff from geomorphic and hydrologic perspectives.

ENVR 5250 Geology and Land-Use Planning. Studies the causes and solutions of geologic environmental problems related to land use. Emphasizes geologic-based land-use planning solutions to problems related to landslides, ground subsidence, coastal erosion, and groundwater pollution.

ENVR 5400 Marine Science Policy and Ethics. Offers ethics training for a critical review of marine policies in such areas as marine environmental ethics (conservation and preservation), conflicts of interest/research integrity, human subjects/mammal protections, ethical challenges in marine science modeling, and ethics of fishing governance (marine conservation and regulations).

ENVS 2342 Eating and the Environment. Focuses on the impact that our daily consumptions and purchases make on the environment and our health.

ESC 1110 Environmental Science. Introduces the physical, biological, and social aspects of the environment. Topics include ecosystems, climate, rocks, soil, human population, land use, air and water pollution, energy use, and conservation issues.

ESC 1121 Introduction to Meteorology and Weather Forecasting. Describes the principal causes of large-scale air motions, the classification and description of the world's climates, and storm development.

ESC 1250 The Environment and Society. Surveys Western attitudes toward the natural world, the development of the conservation movement, environmental crises of the 20th century, and the sustainability movement.

ESC 1300 Science, Technology and Society. Examines the nature of scientific inquiry within the social context. Examines the impact of scientific discoveries and technological advances in the context of sustainability.

ESC 1525 Energy for Today and Tomorrow. Focuses on traditional sources of energy (fossil fuels and nuclear) as well as renewable sources, such as solar, wind, hydrogen, biomass, hydropower, and geothermal.

ESC 1845 Environmental Planning. Covers environmental, social, political, and economic factors that affect population growth and distribution patterns and how these factors relate to efforts intended to manage and protect environmental resources.

ESC 2010 Introduction to Oceanography. Considers geological, chemical, and biological components of the ocean as well as the current issues regarding resource extraction and environmental protection.

ESC 2015 Disasters, Nature's Violence, and the Human Threat. Covers the causes, nature, and geographical occurrence of natural and human-induced disasters.

ESC 2120 Wetlands and Coastal Ecology. Explores the hydrology and biogeochemistry of specific wetland types, as well as wetland management and environmental protection strategies.

ESC 2121 Urban Ecology. Investigates the biological, chemical, and physical processes and components of urban environments, with emphasis on domestic and industrial pollution, population density, and urban resources.

ESC 2435 Air Quality and Human Respiratory Problems. As modern societies continue to pollute the atmosphere, human respiratory problems increase exponentially with decreasing air quality.

ESC 3015 Introduction to Hydrology and Related Health Issues. Covers the processes that affect the movement and composition of water at and near the earth's surface.

ESC 3210 Air, Water and Life: Pollution. Focuses on pollutants affecting the hydrosphere and atmosphere, their sources, chemical interactions, effects, and mitigation techniques.

ESC 3230 Soils and Sustainability. The genesis, structure, classification systems, chemical and biological components and processes of soils are discussed.

ESC 3240 Energy: Sources and Issues. Carbon fuels, nuclear, wind, solar, and geothermal sources of energy are examined from multiple disciplinary perspectives.

ESC 3241 Environmental Practices and Applications. Introduces students to basic engineering aspects of water, land, and air pollution control.

ESC 3250 Urban Ecology. More than half of the world's population lives in urban areas. Examines sustainability issues with global and local examples.

ESC 3435 Water Resources Management. Introduces students to the challenges associated with the sustainable development and management of water resources.

ESC 4850 Environmental Assessment and Remediation. Focuses on the creation of environmental impact statements and plans for remediation.

ETM 4403 Renewable Energy Power. Concentrates on renewable energy resources to generate thermal and electrical power for residential or commercial applications.

ETM 4411 Fuel Cells: Principles and Technologies. Examines the underlying thermodynamics and electrochemical principles of energy conversion through fuel cells, including oxidation, free energy, and standard potential of the cell.

ETM 4512 Hybrid Vehicle Technologies and Design. Covers the mechanics, power, and propulsion of vehicles for terrestrial transportation.

FINA 2720 Sustainability in the Business Environment. Looks at a variety of environmental problems, including global warming, use and disposal of toxic substances, and depletion of natural resources such as water and petroleum.

GE 1201 Alternative Energy Technologies Abroad. Interdisciplinary course that seeks to build an understanding of alternative energy systems and technologies and how they can impact the environment.

GE 3300 Energy Systems: Science, Technology, and Sustainability. Offers students an opportunity to obtain a sound scientific, technological, and economic understanding of our modern energy system and the challenge of energy sustainability.

GST 6350 Global Economics of Food and Agriculture. Focuses on a broad-based understanding of the global food system, while assessing its performance in terms of satisfying world food needs.

GST 6440 Global Focus: Resources and Markets. Examines how emerging market economies and natural resource exporters pursue development in light of constraints.

GST 6610 Sustainable Development. Examines the tools of policy analysis in the area of sustainable development.

HIST 2342 Environmental History of North America. Takes a continental approach to studying the history of environmental change, focusing on land, wildlife and habitat, water, and air.

HIST 3412 Global Environmental History. Examines the impact of four significant human transitions on the environment of the planet Earth.

HIST 4620 Topics in Historical Geography. Covers special topics in the ways in which geographic, climatic, environmental, and demographic factors have affected the course of history.

HIST 5295 Population in History. Examines causes and consequences of changes in human marriage, birth, death, and migration rates, focusing on the role of the environment, relative economic growth, differential nutritional status, epidemic disease, etc.

HIST 7223 Graduate Global Environmental History. Designed for students committed to studying the broad sweep of global history from an environmental perspective.

HIST 7316 Research Seminar in Global Environmental History. Gives students the opportunity to do research and write a paper that addresses historical environmental issues and processes significant at a global scale.

HIST 7702 Advanced Seminar in Global Environmental History. Entails research and preparation of a global environmental history paper intended to be part of a larger dissertation.

HONR 3310 Interdisciplinary Perspectives on Global Justice. Most of the important political issues of our day—climate change, terrorism, health pandemics—are global in nature. This course approaches global justice from an interdisciplinary perspective.

HPA 6050 Design Concepts for Hospitality. Introduces the importance of design considerations within hospitality industry focusing on sustainability.

HPA 6060 Sustainable Operations and Planning. Covers the topic of infusing sustainability initiatives into all aspects of a hospitality operation through the use of case studies and planning exercises.

HPA 6070 Contemporary Design and Sustainability Issues. Gives students an opportunity to design sustainability elements into a new, renovated, or refreshed facility through a variety of sustainability audit systems.

HRMG 6219 Leadership for Environmental Sustainability. Offers students an opportunity to study the role of organizations, networks, and the individuals who create them.

HSC 2101 Health Issues of Environmental Problems. Surveys the key aspects of the environmental health and safety field.

HUSV 3570 Strategic Philanthropy and Nonprofit Management. Through theoretical and experiential learning, students will explore the nonprofit sector's social and economic role in the U.S. and its capacity to advance social change within complex systems.

INTB 1203 International Business and Global Social Responsibility. Covers the forces and issues confronted in our era of rapid globalization.

IE 4600 Systems Design for Sustainability. Covers the fundamental process of designing and building systems, from systems identification to the entire systems life cycle. Discusses sustainability, functionality, and capability of systems with respect to systems' objectives.

IE 5640 Data Mining in Engineering. Introduces data mining concepts and statistics/machine learning techniques for analyzing and discovering knowledge from large data sets that occur in engineering domains such as manufacturing, healthcare, sustainability, and energy.

LARC 2130 Sustainable Urban Site Design. Focuses on site planning and design with an emphasis on parks and open-space systems in the adaptive reuse of urban sites.

LARC 2140 Designed Urban Ecologies. Focuses on sustainable community/campus/neighborhood design at the intersection of large-scale urban and environmental systems.

LARC 2230 Site Materials and Methods. Introduces fundamental techniques of sustainable site engineering in the urban realm, including earthworks, water, and vegetal systems.

LARC 2240 Sustainable Site Construction and Detailing. Focuses on construction technologies, methods, and materials for sustainable site elements, including environmental performance infrastructures, circulation systems, and basic site structures.

LARC 5210 Landscape Ecology. Introduces fundamental-to-advanced concepts in the field of landscape and urban ecology.

LARC 5220 Sustainable Practices & Materials. Offers a lecture/workshop/field-based course that builds upon landscape technology skills introduced in LARC 2230 and LARC 2240, with a focus on ecotechnologies operating in the built environment.

LAW 2329 Environmental Law. Focuses on federal and state environmental laws and explores legislative policy and regulatory decisions as well as enforcement issues.

LAW 2514 Natural Resources Law. Addresses legal requirements and institutions dealing with animal and plant species, biological resources, habitats, and ecosystems.

LAW 2491 Human Rights in the Global Economy. Focuses on the potential use of human rights law to address basic human social and economic needs and the major international and regional human rights treaties.

LPSC 7312 Cities, Sustainability and Climate Change. Provides an overview of the various aspects of urban sustainability planning.

LWP 6405 Law and Policy Strategy and Concepts 4: Environment and Business. Offers a continuation of the course sequence in scholastic and practitioner curriculum in foundational law and policy concepts, case studies, and applications.

MARS 3310 Water Resources Policy and Management. Explores the ways in which water has affected our bodies, our planet, our history, our culture, and the danger posed by increasing demand, waste, and pollution on our limited supply of usable fresh water.

MARS 3315 Wetlands: Ecology and Hydrology. Investigates the vital role of wetlands in the hydrology and ecology of global landscapes.

MARS 3325 Coastal Zone Management. Focuses on outstanding issues in coastal environment affairs. Discusses scientific, legal, economic, and technical aspects of coastal issues and integrates them into problem-solving exercises.

ME 5645 Environmental Issues in Manufacturing and Product Use. Explores environmental and economic aspects of different materials used in products throughout the product life cycle.

ME 7300 Combustion and Air Pollution. Deals with the formation of pollutants during combustion processes and their subsequent transformations in the atmosphere.

ME 7320 Solar Thermal Engineering. Develops a model for the hourly direct and diffuse radiation under a cover of scattered clouds and the transmission and absorption of this radiation by passive and active systems.

MEIE 4600 Systems Design Sustainability. Covers the fundamental process of designing and building systems, from systems identification to the entire systems life cycle.

MGMT 3330 Organizing for Environmental Sustainability. Explores how a variety of organizations, including businesses, governments, government-sponsored enterprises, and nongovernmental organizations (NGOs), interact on environmental issues.

PHIL 1180 Environmental Ethics. Focuses on a current ecological crisis and addresses the values that underlie our concern over this crisis, whether the values at issue are anthropocentric or biocentric.

PHIL 3480 Environmental Philosophy. Examines philosophical issues that arise in the context of human interactions with the natural environment.

PHTH 5214 Environmental Health. Introduces the field of environmental health, which encompasses concerns related to physical, built, and social environments. Discusses the tools used to study environmental exposures and diseases.

PHYS 1132 Energy, Environment and Society. Provides nonscience students with a practical knowledge of our present use of the earth's energy resources and the environmental consequences.

POLS 2357 Growth and Decline of Cities and Suburbs. Introduces students to the field of urban studies, focusing on how cities and suburbs evolve, what makes a city or suburb a good place to live, and how cities and suburbs are (or are not) planned.

POLS 2358 Current Issues in Cities and Suburbs. Covers pressing urban issues: urban sprawl, poverty, education, transportation, economic development, and housing.

POLS 2395 Environmental Policy and Politics. Examines the policymaking processes, historical and socioeconomic factors, political forces, governmental institutions, and global trends that shape environmental policy at national and subnational levels in the United States.

POLS 7331 Environmental Policy and Politics. Explores debates surrounding the making of environmental policy in the United States and other nations.

PPUA 4701 Food Systems Sustainability, Health, and Equity Practicum. Offers an opportunity to work in teams under faculty guidance on applied projects in food systems sustainability, health, and equity.

PPUA 5260 Ecological Economics. Discusses methods and tools of ecological economics, an interdisciplinary field which draws on theories, concepts, and tools from the physical, life, and social sciences; unites the relevant aspects of different disciplines; and generates new knowledge that can serve as a basis for investment and policy making.

PPUA 5261 Dynamic Modeling for Environmental Decision Making. Covers the theory, methods, and tools of dynamic modeling for policy and investment decision making, with special focus on environmental issues.

PPUA 5270 Food Systems and Public Policy. Explores the public policy dimensions of the contemporary food system.

PPUA 7231 Transportation Policy. Examines the physical, technological, economic, social, cultural, and political underpinnings of transportation policy in the United States.

SCI 0913 Surveys of New England Coastal Ecosystems. Explores these coastal habitats as well as current research in each: rocky intertidal zone, sandy beach, salt marsh, and nearshore benthic (ocean floor) zone.

SCI 6510 Threats to Marine Biodiversity. Focuses on the five primary threats the human race poses on the diversity of ocean life.

SCI 6530 AP Environmental Science. For educators who teach advanced or capstone environmental science courses for high school juniors or seniors and who want to prepare students for college-level work in environmental science or for the College Board AP environmental science exam.

SCI 6535 Energy 1: Integrating the Sciences through Energy. Offers a graduate-level science course designed for pre-service and in-service K–12 science teachers.

SCI 6541 Backyard Ecology: Exploring the Local Ecosystem. Focuses on environmental science through an intensive field study in a local outdoor ecosystem.

SOCL 1246 Environment and Society. Examines the political economy of the global environmental crisis.

SOCL 1346 Environmental Activism and Movements: An Open Classroom. Focuses on the role of environmental activists and movements in addressing the global ecological crisis.

SOCL 3485 Environment, Technology and Society. Explores the complex relationships among human society, technology, and the natural environment.

SOCL 4522 Political Ecology and Environmental Justice. Analyzes the global ecological crisis and state of environmental politics.

SOCL 7230 Political Ecology of Global Capitalism. Analyzes the political economy of international capitalism, really existing state socialism, and the global environment.

SUEN 6110 Graduate Studio 1: Sustainable Urban Sites. Core topics include fundamental site analysis, formal organization, spatial definition, and site operations.

SUEN 6120 Graduate Studio 2: Sustainable Urban Systems. Covers fundamental landscape planning, design, and strategic management of environmental infrastructures at the urban and regional scale.

SUEN 6210 Implementation and Visualization for Urban Environments 1. Offers an intensive introduction to site analysis and manipulation of earthworks, water, and vegetation, with a focus on disturbance regimes within waterfront and brownfield zones.

SUEN 6220 Implementation and Visualization for Urban Environments 2. Constitutes the second half of a two-part sequence and builds upon material in SUEN 6210.

SUEN 6310 Cities, Nature, and Design in Contemporary History and Theory. Presents a historical overview of evolving cultural, environmental, and technological influences on societal attitudes toward the relationship of cities, nature, and design.

SUEN 6340 Topics in Urban Environmental Design. Exposes students to cutting-edge methods of research and practice in designed urban environments.

SUEN 7130 Masters Research Studio I: Design and the Resilient City. Offers an advanced graduate studio focusing on contemporary landscape and urbanism research strategies.

SUEN 7230 Urban Ecologies and Technologies 1. Offers a workshop-based course as the first in a two-part sequence, documenting ecotechnologies operating in the built environment, with a focus on design and implementation metrics, material life cycle management, funding models, and aesthetic and cultural aspects.

SUEN 7240 Urban Ecologies and Technologies 2. Offers a community outreach course. Core theme is development of innovative, market-based ecotechnology prototypes for the urban landscape that contribute to the environmental and cultural life of the city.

TOXC 5572 Environmental Toxicology. Discusses the distribution, interaction, and effects of toxic agents on the biosphere.