

Undergraduate Courses

Department	Course Number and Title	Course Description
AH	3174 Environmental Laws, Regulations, and Issues	Overview of the history and framework of federal environmental legislation to protect the environment along with environmental issues, laws and regulations associated with industrial operations.
AH	3175 Environmental Health	Course will focus on the environmental health consequences of exposure to toxic chemicals, food contaminants and radiation. Basic principles of toxicology will be discussed, followed by lectures on specific topics such as: cancer, occupational hazards, radiation, genetic biomonitoring, risk assessment techniques, risk/benefit analysis, social/legal aspects of regulating toxic chemicals, and other related topics.
AH	3277W Hazardous Chemicals	Hazardous chemicals and their use in the workplaces, their effects on the environment, and the hazards caused by exposure to them
AH	4243. Health Care Issues for the Health Professional	Individual, community and institutional health care needs and issues from a bio-medical and socio-cultural point of view. Health and its relationship to genetics, poverty, ethnicity, life-cycle events, ethics, etc
AH	4570 Pollution Control, Prevention, and Environmental Management Systems	Basic knowledge of environmental management systems, and techniques in controlling and preventing pollution from industrial activities.

ANTH	1000 Other People's Worlds	A survey of the development, contributions, and contemporary social problems of selected non-Euroamerican peoples and cultures
ANTH	3027. Contemporary Native Americans	Analysis of Native American reservations and urban communities and their relationship to the larger U.S. society. Special focus on federal policy and economic development, cultural identity, and politics of Native Americans
ANTH	3028. Indigenous Rights and Aboriginal Australia	Prerequisite: ENGL 1010 or 1011 or 2011 or 3800. Recommended preparation: ANTH 2000. CA 4-INT.
ANTH	3041. Latin American Minorities in the United States	Emphasis on groups of Mexican, Puerto Rican and Cuban origin, including treatment and historical background, social stratification, informal social relations, ethnic perceptions, relations and the concept of Latino identity.
ANTH	3101. Culture, Power, and Social Relations	Comparative and historical analysis of the sources and consequences of power in human populations.
ANTH	3153W. Human Rights in Democratizing Countries	Human rights, political violence, political and legal anthropology, prosecutions of human rights offenders, truth and memory, reconciliation, international justice.
ANTH	3200 Human Behavioral Ecology	The application of the theory of natural selection to the study of human culture and behavior, with emphasis on the interaction between humans and their environment.
ANTH	3302 Medical Ecology	Anthropological perspectives on the interrelationships among culture, biology, environment, and disease. Major topics include ecology and adaptation, population dynamics, nutrition, reproduction, disease in sociological context, health seeking behavior, and the complexity of the interaction of western and non-western medical systems.

ANTH	3309. Violence and Human Rights	Violence and human rights as cultural constructs; human rights claims; war, genocide, terrorism, street crime, domestic violence; deterrence and intervention policy.
ANTH	3325 Introduction to Global Health	Anthropological perspectives on public health in a globalized world, health inequalities within and across countries; diverse social, cultural, and other determinants of global health; pressing global health issues; organizational players involved in addressing global health issues.
ANTH	3339 Cultural Designs for Sustainability	Correspondences among cultural institution design, collective action failure and success, and cultural resilience.
ANTH	3522 Ecological Anthropology Seminar	Interdisciplinary study of the ecology of humans, integrating ecological and anthropological theory with archaeological, historical, and contemporary case-studies.
ANTH	3522W Ecological Anthropology Seminar	(292W) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 or 3800.
ARE	1110 Population, Food, and the Environment	The role of agriculture in the growth and development of societies throughout the world. Economic and social problems of food and fiber needs and production in the developing and the advanced societies. CA 2.
ARE	1150 Principles of Agricultural and Resource Economics	An introduction to agricultural economics, the role of agriculture in today's United States economic system, and relationships that regulate the entire economic environment. CA 2.

ARE	3150 Applied Resource Economics	Applications of intermediate level microeconomic theory to problems and policy issues in agriculture, natural resources, and the environment. Topics include supply, demand, market equilibrium, consumer and producer behavior, perfect and imperfect competition, externalities, common property resources, public goods, and welfare economics. Emphasis will be placed on using the theory in computational exercises.
ARE	3235 Marine Resource and Environmental Economics	Fundamental theory, methods, and policy implications of environmental and resource economics, with an emphasis on coastal and marine environments. Topics include pollution policy, fisheries, water quality and allocation, international trade, wildlife and biodiversity, land use, and economic valuation. Designed for students with diverse departmental affiliations.
ARE	3260 Food Policy	Analysis of food and agricultural policies in the United States and abroad. Designed for students with diverse departmental affiliations.
ARE	3261W Writing in Food Policy	A writing intensive course on issues related to food policy, integrated with course content in ARE 3260.
ARE	3434 Environmental and Resource Policy	Economic and policy aspects of natural resource use and environmental quality issues. Designed for students with diverse departmental affiliations.
ARE	3436 The Economics of Integrated Coastal Management	Explores the theory and practice of integrated coastal management (ICM); introduces major concepts, processes, tools and methods of ICM; and analyzes United States and international experiences with ICM.

ARE	3437 Marine Fisheries Economics and Policy	Explores the various natural, human and management components of the fishery system and presents the application of economic and policy analysis for the optimal allocation of resources to a fishery.
ARE	3440W Writing in Environmental and Resource Policy	A writing intensive course integrated with course content in ARE 3434.
ARE	4305 The Role of Agriculture and Natural Resources in Economic Development	The role of agriculture in the economic development of less developed economies. Microeconomic dimensions of agricultural development, economics of food consumption and nutrition, agricultural technology and productivity, agricultural supply, land tenure and agrarian reform, foreign assistance, trade agreements and agricultural price policy.
ARE	4438 Valuing the Environment	Conceptual and practical understanding of main methods used to evaluate economic benefits of environmental protection and damages from degradation. Methods include: change in productivity, hedonic pricing, travel cost method, contingent valuation, defensive expenditures, replacement costs, and cost-of-illness. Topics covered include: recreation, soil-erosion, energy, forestry, hazardous waste, air pollution, deforestation, wetlands, wildlife, biodiversity, noise, visibility, water and water pollution
ARE	4444 Economics of Energy and the Environment	Economics of energy issues with special reference to impacts on local, regional, and global environmental quality, energy markets and regulatory policies. Environmental and economic implications of developing alternative sources of energy. Conservation policies in relation to transportation, industry, and residential energy use.

ARE	4462 Environmental and Resource Economics	Natural resource use and environmental quality analysis using economic theory. Reviews of empirical research and relevant policy issues.
BADM	3252. Corporate Social Impact and Responsibility	Social impact and human rights implications related to global operations of multinational corporations; regulatory environment and competitive contexts that govern responsible business conduct on a global scale, how to navigate regulatory mandates and design social responsibility strategies to increase a firm's reputation, reduce costs, and improve its competitive positioning while respecting human rights principles.
BLAW	3254. Business Solutions to Societal Challenges	Market-based solutions to social and human rights challenges; how companies create value both for society and business, including role of for-profit businesses as agents for positive social impact in changing legal, regulatory, policy, and market environments. Regulatory and business strategies for long-term economic viability, sustainability, and human rights. Social innovation, statutory benefit corporations, corporate social certifications, social investment, shared value, strategic philanthropy, and business opportunities serving emerging markets.
CE	2210 Decision Analysis in Civil and Environmental Engineering	Time value of money. Evaluation of alternative projects. Fundamentals of probability theory and statistics. Hypothesis testing, linear and multiple regression.
CE	2211 Engineering Economics	Time value of money. Evaluation of alternative projects.

CE	2310 Environmental Engineering Fundamentals	Concepts of aqueous chemistry, biology, and physics applied in a quantitative manner to environmental problems and solutions. Mass and energy balances, chemical reaction engineering. Quantitative and fundamental description of water and air pollution problems. Environmental regulations and policy, pollution prevention, risk assessment. Written and oral reports.
CE	3320 Water Quality Engineering	Physical, chemical, and biological principles for the treatment of aqueous phase contaminants; reactor dynamics and kinetics. Design projects.
CE	3530 Engineering & Environmental Geology	Application of geological principles to engineering and environmental problems. Topics include site investigations, geologic hazards, slope processes, earthquakes, subsidence, and the engineering properties of geologic materials. Course intended for both geoscience and engineering majors.
CE	4310 Environmental Modeling	Systematic approach for analyzing contamination problems. Systems theory and modeling will be used to assess the predominant processes that control the fate and mobility of pollutants in the environment. Assessments of lake eutrophication, conventional pollutants in rivers and estuaries and toxic chemicals in groundwater.
CE	4530 Geoenvironmental Engineering	Principles of solid waste management; design of landfills and waste containment systems; compacted clay liners and slurry walls; overview of soil remediation techniques
CE	4910W Civil Engineering Projects	Design of Civil Engineering Projects. Students working singly or in groups produce solutions to Civil Engineering design projects from first concepts through preliminary proposals, sketches, cost estimations, design, evaluation, oral presentation and written reports.

CE	4920W. Civil Engineering Projects II	Design of civil engineering projects. Students working singly or in groups implement previously developed proposals for civil engineering design projects from first concepts through preliminary proposals, sketches, cost estimations, design, evaluation, consideration of realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability, oral presentation and written reports.
CHEM	4370 Environmental Chemistry-Atmosphere	Sources, transport, effects, fate, analytical chemistry, monitoring and management of chemical species; chemical principles, equilibria and reactions. The earth's atmosphere and atmospheric pollution; acid rain, global warming, ozone.
CHEM	4371 Environmental Chemistry-Hydrosphere	Sources, transport, effects, fate, analytical chemistry, monitoring and management of chemical species; chemical principles, equilibria and reactions. The hydrosphere, water and soil pollution. Inorganic metals and organic chemicals in the environment
ECON	1107 Honors Core: Economies, Nature, and the Environment	Impact of nature on societies; effects of geography and climate on economic development and income inequality. Impact of humans on their environment; environmental problems; collapse of societies; sustainable development
ECON	1179 Economic Growth and the Environment	Simple economic concepts and tools and their application to the interactions between growing economies and the environment. Concepts include: supply and demand; models of economic growth; theory of externalities; valuation of natural capital and environmental services; trade theory

ECON	2127. Beyond Self-Interest	A contrast to the assumptions, values, methodology, and philosophical underpinnings of mainstream economic analysis. Altruism, role of social norms and culture, importance of work, moral assessment of economic systems, feminist and ecological economics.
ECON	2127/W Beyond Self-Interest	(207W) Prerequisite: ECON 1200 or 1201; ENGL 1010 or 1011 or 2011 or 3800.
ECON	2441. Labor Economics	Economics of labor: human capital theory, discrimination, unemployment, manpower policy, and trade unions.
ECON	2441W. Labor Economics	(225W) (Formerly offered as ECON 274W.) Prerequisite: ECON 1201 or 1200; ENGL 1010 or 1011 or 2011 or 3800. Recommended preparation: ECON 2201
ECON	2444. Women and Minorities in the Labor Market	Issues and problems confronting women and minorities in the workplace, using economic theory, institutional analysis, and empirical investigation. Historical background, allocation of time, discrimination, earnings determination, occupational structure, labor unions, and public policy.
ECON	2456. Economics of Poverty	Analysis of poverty and income maintenance programs: theories of income distribution and comparison of public policies in the U.S. and other countries.
ECON	2467 Economies of the Oceans	Economies of industries that use and manage ocean resources. Applications of industrial organization, law and economics, natural resource theory, and environmental economics.

ECON	3451. Health Economics	Economic analysis of the health sector: organization and performance of health care delivery systems; economic behavior of patients and providers; markets for health services; health-care finance and insurance; health-care policy; and cost-benefit analysis of health-care programs.
ECON	3468 Economics of the Law	The law as an economic institution. Primary focus on the Common Law, property, tort, and contract. Applications to pollution control, land-use, hazardous wastes, product liability, and worker safety. Ethical as well as economic approaches to the law.
EDCI	3100. Multicultural Education, Equity and Social Justice	Introduction to multicultural education. Includes the nature and purposes of schooling, the relationship between diversity, schooling and society, and the concepts and practices of multicultural education and equity pedagogy.
EDCI	2100. Power, Privilege and Public Education	Service learning course. Interdisciplinary analysis of the development and structure of schooling, teaching, and learning in American society; impact of public education on its many and diverse stakeholders. Includes topics such as: equity and excellence, historical, socio-cultural, philosophical, political, and legal frameworks of education, and current educational reform efforts.
EEB	2208 Introduction to Conservation Biology	Patterns of biodiversity and extinction; causes of extinction and population declines; ecological restoration; conservation planning; protection of ecosystem services; implementing conservation actions; conservation economics; conservation law; effects of global change.

EEB	3205 Current Issues in Environmental Science	Readings and discussions of current issues in environmental science, emphasizing linkages between earth, oceans, atmosphere, and biosphere. Topics include: climate change; watershed changes; alternative energy; population growth; endangered biodiversity; genetically-engineered organisms; deforestation/restoration; risk assessment; tradeoffs; problem-solving; alternative futures.
EEB	3209W Soil Degradation and Conservation	Causes and consequences of soil degradation in agricultural and natural ecosystems, including salinization, erosion, nutrient impoverishment, acidification, and biodiversity loss. Historical perspective and current strategies of soil conservation.
EEB	3271. Systematic Botany	Classification, identification, economic importance, evolution and nomenclature of flowering plants. Laboratory compares vegetative and reproductive characters of major families.
EEB	3307 African Field Ecology and Renewable Resources Management	An intensive, field oriented methods course conducted primarily in South Africa at the Basil Kent Field Station, Great Fish River Reserve in collaboration with the University of Fort Hare. An introduction to South Africa culture and history, ecology, and natural resources is provided in weekly meetings during the semester. This is followed by three weeks in the field in South Africa. Topics covered include vegetation and faunal surveys, data collection and analysis, biodiversity monitoring, and conservation management. A research paper relating to an independent study conducted by the student in the field is required.
ENGL	1601W. Race, Gender, and the Culture Industry	Cultural construction of race and gender in English-language literature, film, and music.

ENGL	1601W. Race, Gender, and the Culture Industry	Study of writings, from the colonial era to the modern, reflecting diverse ways of imagining humanity's relation to the natural environment.
ENGL	3715 Nature Writing Workshop	For student writers of proved ability who wish training in techniques of nature writing. Emphasis on nonfiction or poetry.
ENGR	1101 Living in an Engineered World	A survey course that provides students an insight into the technical world around them. As a society in the 21st Century, we will be faced with a rapidly changing world influenced greatly by the advances in technology, the history of technological changes and the continued need for conservation of energy and sustainability.
ENGR	1166 Foundations of Engineering	Introductory topics in a specific engineering major. Topics selected by Department or Program, or Regional Campus faculty. Students to select section based on their selected or intended major. In the context of the discipline, students would develop skills transferable to other engineering disciplines.
ENGR	3257. Assessment for Human Rights and Sustainability	Foundational concepts of human rights and environmental impacts pertaining to global supply chains. Regulations and voluntary standards in engineering-intensive sectors, including infrastructure, biofuels, electronics. Case study analysis of corporate assessment practices for labor rights protection and environmental impacts.

ENVE	1000 Environmental Sustainability	<p>Detailed examination of anthropogenic impacts on the environment, resulting from the need for energy, food and shelter. Subtopics in the broad areas of energy, food, shelter, waste, water, sustainable development will be grounded with case studies of UCONN activities/programs in sustainability. Overarching and linking each topic is the impact of population and water resources with a focus on environmental literacy. Resolution of scientific/technological, public policy and economic aspects of environmental sustainability issues will be explored, including strategies for success, and possible pitfalls, in achieving environmental sustainability in the subtopic areas.</p>
ENVE	1320 The Environmental Debate I	<p>Structured review of environmental issues and active debate during class time. Presentation of current environmental issues by environmental professionals and experts.</p>
ENVE	2310 Environmental Engineering Fundamentals	<p>Concepts from aqueous chemistry, biology, and physics applied in a quantitative manner to environmental problems and solutions. Mass and energy balances, chemical reaction engineering. Quantitative and fundamental description of water and air pollution problems. Environmental regulations and policy, pollution prevention, risk assessment. Written and oral reports.</p>
ENVE	2320 The Environmental Debate II	<p>Structured review of environmental issues and active debate during class time. Presentation of current environmental issues by environmental professionals and experts.</p>
ENVE	2330 Decision Analysis in Civil and Environmental Engineering	<p>Structured review of environmental issues and active debate during class time. Presentation of current environmental issues by environmental professionals and experts.</p>

ENVE	3230 Introduction to Air Pollution	Gaseous pollutants and their properties; basic analytical techniques for air pollutants; particulate pollutants and their properties; equipment design for removal of gaseous and particulate materials; economic and environmental impact of air pollutants; federal and state regulations.
ENVE	3270 Environmental Microbiology	Water purification and water quality control; aeration and mass transfer, biological mechanisms and kinetics; design of biological reactors and sludge treatment facilities; design and operation of physical purification methods; alternative processes for industrial wastewater treatment.
ENVE	4220 Introduction to Water Pollution	Water purification and water quality control; aeration and mass transfer, biological mechanisms and kinetics; design of biological reactors and sludge treatment facilities; design and operation of physical purification methods; alternative processes for industrial wastewater treatment.
ENVE	4320 Ecological Principles and Engineering	An introduction to ecology and natural treatment systems for managing waste and pollutants with a focus on aqueous contaminants. Topics will include stormwater management, treatment wetlands, restoration ecology, composting, and bioremediation.
ENVE	4910W Environmental Engineering Design I	Students working individually or in groups produce solution to environmental engineering design projects from data acquisition through preliminary design, cost estimating and final specifications, oral presentation and written reports.

ENVE	4920 Environmental Engineering Design II	Students working individually or in groups complete the implementations of protocols and techniques covered in ENVE 4910W, final cost of entire project, feasibility, oral presentation and written reports. Instructors will supply initial conditions and performance expectations.
EVST	1000 Introduction to Environmental Sciences	Interdisciplinary survey of relationships between humans and nature; investigation of specific environmental themes and contemporary issues.
GEOG	1070 Global Change and Natural Disasters	Climate change, global warming, natural hazards, earth surface processes, and the impact these have on populations now and in the past.
GEOG	1100 Globalization	Linkages between spatial processes and social, cultural, economic, political and environmental change around the world today. Focus on theory and impacts of globalization through case studies at the local, regional, national and international scales.
GEOG	1300 Climate, Weather, and the Environment	Interactions between weather and climate and the human and natural environment. Emphasis on understanding the linkages between natural processes and societal/environmental issues.
GEOG	2100 Economic Geography	Examination of the relationship among economic, cultural, and geographic processes which affect the patterns, structure, and growth or decline of economic activities. The global extent of the agricultural, manufacturing, and service sectors is presented with particular emphasis on the interdependency of non-western and western economies.
GEOG	2200 Introduction to Human Geography	Geographic perspectives on the relationships between human behavior/activities, and the physical, economic, and cultural environments.

GEOG	3100 The Geography of Economic Development	Analysis of processes and patterns of economic organization and spatial change at the international, national and intra-national scales. Examines development from both linear (neo-classical) and structuralist (political economy) perspectives, and emphasizes relationships between advanced and developing economies within the context of the global economy.
GEOG	3320 W Environmental Evaluation and Assessment	Concepts and methods of environmental analysis in contemporary geography. Emphasis on the ecological impact of human activities and on the evaluation and assessment of existing and future environments.
GEOG	3330 W Environmental Restoration	Restoration of natural environments including rivers, wetlands, coastal areas, grasslands and forests. Theoretical discussions of restoration ecology, management and engineering concerns. History of environmental restoration; relevant policy debates; specific case studies of river, wetland, coastal, grassland, and forest restoration.
GEOG	3340 Environmental Planning and Management	The basic elements of the conflict between human environments and natural systems are considered, along with the methods of analysis and resolution of problems caused by that conflict. Emphasis on public policy related to environmental issues. A fee of \$10 is charged for this course.
GEOG	3400 Climate and Weather	Analysis of atmospheric processes giving rise to weather systems and climate patterns. The dynamic integration of atmospheric systems is emphasized.

GEOG	3410 Human Modifications of Natural Environments	A geographical and historical interpretation of the changing relationships between culture and environment. Emphasis on the modification of the biophysical environment by preagricultural, agricultural and urban societies in Europe, southwest Asia, and North America.
GEOG	3700 The American Landscape	Survey and analysis of contemporary U.S. and Canadian landscapes, including consideration of the environmental, social, political, and economic forces that generate them.
GEOG	2400. Introduction to Sustainable Cities	Pathways to make cities more sustainable from social, economic, and environmental perspectives. Topics include sustainable transportation, renewable energy, recycling of waste, and green infrastructure in contemporary metropolitan areas in developed and developing nations.
GERM	2400 The Environment in German Culture	Ecological thinking in German culture from the Greeks (Plato) to the Greens (Amery). The second half of the semester consists of student projects on current environmental policies in the European Union.
GPS	3203 Promoting Sustainability	Critical analysis of social systems and comparison with ecological systems in order to question and identify what qualities promote sustainability. Sustainability will be understood as the conditions that promote democratic and mutually beneficial relationship between all engaged parties, be they social institutions, human groups and individuals as well as other living entities.
GSCI	1070 Global Change and Natural Disasters	Climate change, global warming, natural hazards, earth surface processes, and the impact these have on populations now and in the past.

GSCI	4050W Geoscience and Society	Application of fundamental geological principles to issues of concern to society such as global climate change; wildfires; drought and water resources; earthquake, volcano, and tsunami hazards; medical geology; energy resources; sustainability; and coastal processes.
GSCI	4510 Applied and Environmental Geophysics	Principles of imaging the Earth's interior using observations of electric, magnetic and gravity fields, with applications to environmental problems.
HDFS	3342 Family Resource Management	Decision-making process of families concerning the utilization of financial, personal, environmental and social resources.
HIST	3204 Science and Social Issues in the Modern World	Social context of science in the United States and Europe since 1850. Genetics and eugenics; ecology and the environment; nuclear issues; gender, race, and science
HIST	3204W Science and Social Issues in the Modern World	(207W) Prerequisite: ENGL 1010 or 1011 or 2011 or 3800; open to juniors or higher.
HIST	3540 American Environmental History	Transformations of the North American environment: the effects of human practices and policies, varying ideas about nature across cultures and time periods; and the rise of environmental movements.
HIST	3540W American Environmental History	(230W) Prerequisite: ENGL 1010 or 1011 or 2011 or 3800; open to juniors or higher
HIST	3541 The History of Urban America	(241W) (Also offered as URBN 3541W.) Prerequisite: ENGL 1010 or 1011 or 2011 or 3800.
HIST	3541W The History of Urban America	(241W) (Also offered as URBN 3541W.) Prerequisite: ENGL 1010 or 1011 or 2011 or 3800.

HIST	3542. New England Environmental History	Interdisciplinary history of New England's terrestrial and marine environmental change. Links among land, sea, and human natural resource use and management, including precontact patterns, colonial impacts, agricultural decline, industrial pollution, overfishing, reforestation, and the rise of eco-tourism,
HORT	3620 Vegetable Production	Fundamentals of soil management and crop plant husbandry as applied to commercial vegetable production and home gardening. Horticultural principles of crop growth. Focus is on sustainable practices. Field laboratory will consist of field trips (some outside designated laboratory time) during the early part of the semester to organic and conventional farms to observe production and marketing practices.
HORT	3670 Greenhouse Technology and Operations	Introduction to greenhouse systems with emphasis on structures, environmental control, root media, irrigation and fertilization, and pest control, in relation to requirements for plant growth and crop production. Laboratories provide experience in greenhouse operations and crop production.
HORT	3765 Phytotechnology: Use of Plants for Ecosystem Services	Principles of sustainable landscapes and ecological enhancement using planted systems. Modification of urban environments with streetscaping, green roofs and green walls. Phytoremediation of soil pollution and brownfield reclamation. Bioretention for integrated water resource management. Role of planted systems in biodiversity conservation and climate change.

HRTS	3257. Assessment for Human Rights and Sustainability	Foundational concepts of human rights and environmental impacts pertaining to global supply chains. Regulations and voluntary standards in engineering-intensive sectors, including infrastructure, biofuels, electronics. Case study analysis of corporate assessment practices for labor rights protection and environmental impacts.
LAND	3230W Environmental Planning and Landscape Design	Theories, concepts and methods for sustainable design of the land to balance the needs for conservation and development. Topics include land use planning, ecological design, and cultural and natural landscape assessment at a variety of scales and settings.
LING	1020 Language and Environment	Effects of geography, society, and politics, on language use and variation (sociolinguistics). The geographical spread, growth and death of languages (language ecology).
MARN	1001 The Sea Around Us	The relationship of humans with the marine environment. Exploitation of marine resources, development and use of the coastal zone, and the impact of technology and pollution on marine ecosystems.
MARN	3000 The Hydrosphere and Global Climate	Interactions of the physical and chemical components of the global water and energy cycles and how all apply to climate. The science behind climate change predictions reviewed and applied to case studies.
MARN	3030 Coastal Pollution and Bioremediation	Overview of processes and compounds leading to pollution in the nearshore marine environment. The impact of pollution on the marine foodweb and its response is emphasized. Alleviation of pollution through metabolism of organisms, including bacteria, seagrasses, and salt marshes.

MARN	3801W Coastal Studies Seminar	Scientific analysis of coastal zone issues and their interdisciplinary implications. Written analysis and discussion of primary literature.
MARN	4002 Science and the Coastal Environment	Specific cases of multiple impacts on environmental resources and coastal habitats. Current scientific understanding as a basis for sociopolitical decision-making (e.g., land-use impacts on coastal processes in relation to zoning regulation and water-quality criteria).
MATH	1050Q Mathematical Modeling in the Environment	An interdisciplinary approach to environmental issues, such as: ground water contamination, air pollution, and hazardous materials handling. Emphasis on mathematical models, social and ethical implications, and physical and chemical principles. Includes a spread sheet program for water and air pollution data; a computer modeling package to analyze hazardous materials emergencies; creative use of the internet and field research.
MCB	3635 Applied Microbiology	A study of the biology, physiology, and genetics of microorganisms useful in industry, agriculture, and selected environmental processes.
ME	3239 Combustion for Energy Conversion	Introduction to combustion processes and chemical kinetics. Mechanism of the formation of pollutants such as nitrogen oxides, carbon monoxide, soot, and unburned hydrocarbons in stationary and vehicular power plants.

ME	3264 Applied Measurements Laboratory	Application of fundamental measurement techniques developed in ME 3263 to various mechanical systems and processes. Hands-on laboratory experiences include measurements in energy conversion, solid mechanics, dynamics, and fluid and thermal sciences, as well as statistical methods to analysis of experimental data.
ME	3270 Fuel Cells	Advanced course on fuel cells as an alternative energy conversion technology. Subjects covered include: thermodynamics and electrochemistry of fuel cells, operating principles, types of fuel cells, overview of intermediate/high temperature fuel cells, polymer electrolyte fuel cells and direct methanol fuel cells.
MSE	4801 Materials for Alternative, Renewable Energy	4801 Materials for Alternative, Renewable Energy Overview of energy conversion and storage systems - centralized and distributed generation to stationary and motive batteries; efficiency calculation and thermodynamics; electrochemistry - primary and secondary batteries; fuels - chemistry, processing, impurities; combustion, gasification and electrochemical systems; materials requirements; bulk and surface properties; metals, ceramics and superalloys; gas -metal interactions; gas - liquid - metal interactions; development trend - alloying principles, coatings, claddings; alloy processing and coating techniques.

MUSI	1003. Popular Music and Diversity in American Society	An introduction to popular music and diversity in America: jazz, blues, Top-40 pop, rock, hip-hop and other genres. Musicians and their music studied in the context of twentieth-century and contemporary American society, emphasizing issues of race, gender, class, and resistance.
MUSI	1005. Honors Core: Music and Nature, Music and the Environment	An exploration of how 1) musicians have drawn upon nature as a source of inspiration, and 2) music has been used, in the recent past and continuing today, to call attention to the dangers facing the environment
MUSI	1006. Earthtones: Vocal Ensemble	World music vocal ensemble that brings to life the songs of specific cultures as a means to gain knowledge and understanding of communities, culture, spirituality and social justice
NRE	1000 Environmental Science	An introduction to basic concepts and areas of environmental concern and how these problems can be effectively addressed. Topics include human population; ecological principles; conservation of biological resources; biodiversity; croplands, rangelands, forestlands, soil and water conservation; pollution and water management; and wildlife and fisheries conservation.

NRE	1235 Environmental Conservation	<p>Overview of the history of natural resource use and environmental conservation policy development from prehistoric to present times. Examination of the emergence of the 20th century conservation movement in North America and the transition to the environmental movement is used to highlight recurring environmental issue themes such as: private ownership vs. public trust doctrine; commercial trade in natural resources; development vs. protection; sustainability; and the role of society and governments in regulation. Through selected readings and case studies, students are challenged to begin development of their personal ethics regarding the development, conservation and protection of the environment.</p>
NRE	1315 Introductory Wildlife Ecology and Conservation	<p>An introduction to wildlife ecology, conservation programs, and resource values. The distribution, life history and status of those amphibians, reptiles, birds, and mammals whose populations humans are attempting to preserve, reestablish, or control.</p>
NRE	1615 Introduction to Natural Resources	<p>An introduction to the field of renewable resources. Field trips required.</p>
NRE	2215 Introduction to Water Resources	<p>Introduction to surface and ground water resource assessment, development and management. Integration of scientific, legal, environmental and human factors that enter into developing and maintaining sustainable water resources. Examines current and future plight of water shortages and water quality issues here and abroad.</p>

NRE	2325 Fish and Fisheries Conservation	An examination of the linkages between life history, habitat and effects of human activities on the conservation and sustainable use of marine, estuarine and freshwater fishes.
NRE	2345 Introduction to Fisheries and Wildlife	An introduction to the basic principles used in the management of wildlife and fish populations, their habitats and ecosystems, and their human stewards. Students will be introduced to the fundamental concepts, topics, and skill sets that are commonly needed in the wildlife and fisheries profession.
NRE	2455 Forest Ecology	Forest structure and functional processes and their relation to physical environment (light, temperature, water, soil); the influence of time (succession, disturbance, stand dynamics) and space (landscape ecology, ecosystem management). Laboratory will be in the field or computer lab.
NRE	3105 Wetland Biology and Conservation	Principal wetland habitats of North America are surveyed, and the relationship of wildlife associations to biological and physical features of wetlands is reviewed. Emphasis is placed on issues relating to wetlands conservation and management.
NRE	3115 Air Pollution	The meteorology, effects and controls of air pollution.
NRE	3146 Climatology	
NRE	3155 Water Quality Management	An introduction to all aspects of water quality problems relating to the many beneficial uses of water, including the physical, chemical, and biological properties.

NRE	3201 Conservation Law Enforcement	<p>Basic pre-professional course for majors in natural resource conservation and related disciplines. Recommended for persons considering a career in wildlife, fisheries, law enforcement, or other natural resource conservation and management disciplines.</p>
NRE	3205 Stream Ecology	<p>A broad overview of stream ecology will be presented. Emphasis will be placed on types of lotic habitats and the diversity and community patterns of organisms which inhabit them. Adaptations to life in running water and energy flow in stream ecosystems will also be discussed. Efforts targeted at the conservation of streams will be integrated throughout the semester. One or more field trips required.</p>
NRE	3245 Environmental Law	<p>An overview of environmental law including the common law principles of nuisance, negligence, and trespass. Students will become acquainted with legal research techniques; emphasis will be on federal, state, and municipal programs addressing clear air, clean water, hazardous waste, inland wetlands, coastal zone management, and prime agricultural farm land and aquifer protection.</p>

NRE	3246 Human Dimensions of Natural Resources	Leadership, management, and workplace skills in professional natural resources management in governmental and nonprofit sectors. Public policy and administration, strategic collaboration and networks, organizational leadership, and conflict resolution will be covered.
NRE	3252 Geographic Information Science for Natural Resources Management	Introduction to geodetic and cartographic principles underlying the creation of accurate maps. Particular emphasis is given to mapping topography and natural areas. Topics include: horizontal and vertical geodetic datums, the geoid, map projections, coordinate systems, global positioning systems (GPS), GIS data modeling with regional database management systems, and digital terrain models.

NRE	3305 African Field Ecology & Renewable Resources Management	<p>An intensive, field oriented methods course conducted primarily in South Africa at the Basil Kent Field Station, Great Fish River Reserve in collaboration with the University of Fort Hare. An introduction to South Africa culture and history, ecology, and natural resources is provided in weekly meetings during the semester. This is followed by approximately three weeks in the field in South Africa (a required part of the course.) Topics covered include vegetation and faunal surveys, data collection and analysis, biodiversity monitoring, and conservation management, and other selected themes. A research paper relating to an independent project conducted by the student in the field is required.</p>
NRE	3315 Introduction to Aquaculture	<p>Basic principles and practice of environmentally compatible aquaculture. Emphasis on commercial aquaculture production including concepts and principles of various re-circulation systems, species, and culture techniques. Application of biotechnology will also be covered.</p>
NRE	3335 Wildlife Management	<p>Brief review of wildlife conservation and ecological principles; management of wetlands, farmlands, rangelands, and forest lands for wildlife; programs dealing with exotic, urban, nongame, and endangered wildlife; contemporary economic, administrative, and policy aspects of management.</p>

NRE	3345 Wildlife Management Techniques	Based upon understanding and applying ecological principles, technology and science based information to fulfill human goals for wildlife resources and their habitats. Use of literature, development of basic field and laboratory skills, and application of management and research principles are integral. Collection and reporting of biological data upon which wildlife conservation decisions are based are emphasized. Designed for pre-professional students and meets professional certification requirements.
NRE	3345W Wildlife Management Techniques	Prerequisite: NRE 3335; ENGL 1010 or 1011 or 2011 or 3800; open to juniors or higher.
NRE	3355 Public Lands Wildlife Management	Applied natural resources management in different ecosystems (forestlands, grasslands, and drylands). Meet one hour per week for background readings from current literature. Two short research papers and presentation to the class. Required field trip last two weeks of May. Students are responsible for cost of field trip.

NRE	3365 Private Lands Wildlife Management	Companion course for Public Lands Wildlife Management (NRE 3355). Provides practical experience and acquaintance with persons or groups managing wildlife resources on private properties such as nature preserves, land trusts, non-governmental organizations, farms, recreational clubs, commercial shooting preserves and propagation facilities. Appreciation for private land management options, economic realities and other challenges, plus ability to assess resource potentials on private land, are stressed. Field trips required.
NRE	3500 Exurban Silviculture	Application of ecological principles in controlling forest establishment, composition, health and growth. Study of cultural treatments that maintain and enhance desired benefits from the forest on a sustainable basis, with an emphasis on the diverse needs and values of landowners and society within the exurban forest.
NRE	3674 Introduction to Environmental and Natural Resources of China	Basics about the environmental and natural resources of China, including geography, climate, agriculture, history and culture.
NRE	3675 Environmental and Natural Resources of China	Three credits. Prerequisite: Open to juniors or higher; advanced sophomores (above 50 credits) may be considered. Recommended preparation:NRE 3674. Yang
NRE	4000W Natural Resources Planning and Management	Concepts and methods of planning for the allocation, management and utilization of terrestrial and aquatic ecosystems. Techniques and methods of managerial decision making. Written technical reports required.

NRE	4165 Soil and Water Management and Engineering	Floodplain management, erosion and erosion control, reservoir management, storm water control, watershed management, and on-site sewage treatment systems. Written technical reports, use of spreadsheets and field work required. Some field trips required.
NRE	4170 Climate-Human-Ecosystem Interaction	Understanding pathways of interactions among climate change, ecological processes, and human activities through time are studied. Feedbacks that either reinforce or limit such interactions will also be discussed.
NRE	4175 Environmental Meteorology	Applied meteorology in environmental science and engineering. Solar energy, winds and air pollution, atmospheric-hydrologic interactions, agricultural and forest meteorology, and biometeorology.
NRE	4335 Fisheries Management	Introduction to fisheries management principles with application to the biotic, habitat, and human components of fisheries. Selected topics include sampling gears, harvest regulations, stocking, population dynamics, and habitat management practices in ponds, lake, reservoir, river, and stream fisheries.

NRE	4340 Environmental Toxicology	Understanding impacts of contaminants on the environment. Topics include uptake, bioaccumulation and elimination of contaminants, use of laboratory and field tools to measure impacts, responses in organisms, and existing and emerging areas of ecotoxicology (pesticides, nutrients, pharmaceuticals). Labs are focused around further exploring toxicant fate and effects in ecosystems.
NRE	4475 Forest Management	Application of forest mensuration, ecology, and silviculture in sustainable forest management. Field trips required.
NRE	4601 Current Topics in Environment and Natural Resources/Honors	An exploration of a diverse set of environmental and natural resource topics that will be examined using a continuum of applied-to-theoretical approaches. Each week, readings will introduce and familiarize students with a guest lecturer's research and allow students to engage in an in-depth discussion with each lecturer prior to attending their seminar. Honors students will meet for an hour after each seminar and will include student-led discussion and presentations on the seminar research topic.
NUSC	1167 Food, Culture, and Society	Social, cultural, and economic factors affecting food intake and nutritional status. Includes contemporary topics such as world food problems, hunger in the United States, dieting and eating disorders, health foods and vegetarianism.
OSH	3277W. Hazardous Chemicals	Hazardous chemicals and their use in the workplaces, their effects on the environment, and the hazards caused by exposure to them.

OSH	4570 Pollution Control, Prevention and Environmental Management Systems	Basic knowledge of environmental management systems, and techniques in controlling and preventing pollution from industrial activities.
PHIL	3216 Environmental Ethics	Inquiry into obligations to, or concerning, the environment, particularly the moral standing of animals, species, ecosystems, and natural objects.
PHIL	3216W Environmental Ethics	(216W) Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, 1107; ENGL 1010 or 1011 or 2011 or 3800; open to juniors or higher.
PHYS	1030Q Physics and the Environment	Concepts of physics applied to current problems of the physical environment: energy, transportation, pollution. No previous knowledge of physics is assumed.
PHYS	1035Q Physics and the Environment Lab	Concepts of physics applied to current problems of the physical environment: energy, transportation, pollution. No previous knowledge of physics is assumed.
PLSC	1125 Insects, Food and Culture	Introduction to the fascinating world of insects and their ubiquitous interactions with people. Role of insects in food and fiber production; insects as food; impact of insects on human health, commerce and history; and insects as inspiration sources for art, music, film and literature around the world.
PLSC	1150 Agricultural Technology and Society	Development of agricultural systems and technologies and their influence on societies. Topics include plant and animal domestication, food and industrial crops and centers of production, environmental issues, and agricultural ethics.

PLSC	3230 Biotechnology-Science, Application, Impact, Perception	Scientific, legal, and ethical aspects of Biotechnology application in agriculture, health medicine, forensics, and the environment. Designed for students with diverse departmental affiliations.
PLSC	3240 Plant Biotechnology	Principles of recombinant DNA and plant gene transfer technologies. Applications of plant biotechnology in agriculture, horticulture, forestry, human/animal health care, and pharmaceutical industry. Social and environmental impacts of plant biotechnology.
PLSC	3840 Integrated Pest Management Design and Analysis of Agricultural Experiments	Principles of integrated pest management covering insect, disease, and weed problems in agronomic crops, vegetables, fruits, turfgrass, ornamentals, and greenhouse production. Environmental impacts and pest control strategies will be covered.
PLSC	Environmental Sustainability of Food Production in Developed	Foundations of modern systems that produce the majority of food calories consumed in North America and other developed countries. Benefits and environmental risks associated with modern food production systems. Alternative food production systems and sustainability. Local food production and food security. Food production and climate change.
POLS	3239 Politics of Environment and Development	Politics of the environment and development with a focus on environmental issues in developing countries.
POLS	3412 Global Environmental Politics	Politics of how humans and natural systems interact. Managing the global environment, regulating resource commons, and coordinating to solve environmental problems.

SOCI	1701 Society in Global Perspective	Economic, political, social and cultural processes in globalization. The world economy, the autonomy of nation-states, the role of the media, and the social and environmental problems of societies in a world context.
SOCI	3407 Energy, Environment, and Society	Sociological perspectives on energy production, distribution and consumption, environment and social organization.
SOCI	3407W Energy, Environment, and Society	(259W) Prerequisite: ENGL 1010 or 1011 or 2011 or 3800; open to juniors or higher.
SOCI	3701. The Developing World	Social and economic conditions in Asia, Africa, and Latin America and attempts to improve them.
SOCI	3701W. The Developing World	(258W) Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.
SOCI	3971 Population	Size, growth, composition and distribution of population; social factors in population change.
SOCI	3971 Population	(255W) Prerequisite: ENGL 1010 or 1011 or 2011 or 3800; open to juniors or higher.
SOIL	2120 Environmental Soil Science	Introduction to the physical, chemical and biological properties of soils. The relationship between soils and the growth of higher plants. Impact of soils on environmental quality
TURF	3800 Turfgrass Pests and Control	Turfgrass weed, insect, disease and vertebrate identification and control. Emphasis on biological

URBN	3439 Urban and Regional Economics	Economic problems of cities and regions: urban markets for land, labor, and housing; location decisions of businesses and households; metropolitan transportation problems; urban/suburban fiscal relations; urban and regional environmental quality; and the economics of crime.
URBN	3541 The History of Urban America	The development of urban America with emphasis on social, political, physical, and environmental change in the industrial city.

Graduate Courses		
Department	Course Number and Title	Course Description
ARE	5201 Microeconomics I	Beginning graduate microeconomics covering consumer and producer theory, price determination, economic efficiency, and welfare analysis
ARE	5305 The Role of Agriculture and Natural Resources in Economic Development	The role of agriculture in the economic development of less developed economies. Microeconomic dimensions of agricultural development, economics of food consumption and nutrition, agricultural technology and productivity, agricultural supply, land tenure and agrarian reform, foreign assistance, trade agreements, and agricultural price policy.
ARE	5462 Environmental and Resource Economics	Natural resource use and environmental quality analysis using economic theory. Reviews of empirical research and relevant policy issues.

ARE	5464 Benefit-Cost Analysis and Resource Management	Theoretical foundations and applications of benefit-cost analysis in project appraisal and in evaluation of public policies regarding resource management and environmental protection.
ARE	6466 Environmental Economics	Economic analysis of environmental problems and corrective policy instruments. Theory of externalities and public goods, role of uncertainty and imperfect information in policy design, benefit-cost analysis, and non-market valuation. Applications to environmental problems (such as air and water pollution, hazardous waste, and occupational health and safety).
ARE	6468 Economics of Natural Resources	Economic concepts and issues related to the allocation of stock resources through time, the use and protection of flow resources, and the role of natural resources in economic growth.
ARE	6472 Microeconomic Applications to Food Markets	This course trains students in applied microeconomics, with particular emphasis on food markets and public policy. The course is divided into three broad areas: production economics, economics of consumer behavior, and market analysis. Particular emphasis is placed on quantitative tools using empirical models and welfare economics. Students design and undertake an individualized project in their area of interest.
CE	5220 Transportation & Air Quality	Extended discussions on presentations contributed by staff, students and outside speakers. A certificate of completion will be issued from the Environmental Engineering Program.
CE	5394 Seminar in Environmental Sciences and Engineering	Extended discussions on presentations contributed by staff, students and outside speakers. A certificate of completion will be issued from the Environmental Engineering Program.

CE	5810 Hydrometeorology	Global dynamics of aquatic distribution and circulation. Hydrologic cycle, atmospheric circulation, precipitation, interception, storage, infiltration, overland flow, distributed hydrologic modeling, and stream routing.
CE	5811 Hydroclimatology	This course focuses on the physical principles underlying the spatial and temporal variability of hydrological processes. Topics include atmospheric physics and dynamics controlling the water/energy budgets; global water cycle, its dynamics, and causes of variability/changes; occurrence of drought and flood; climate teleconnections and their hydrological application; hydrological impact of global changes; quantitative methods in hydroclimatic analysis.
CE	5812 Ecohydrology	This course focuses on the interactions between ecological processes and the water cycle, emphasizing the hydrological mechanisms underlying various terrestrial ecological patterns and the ecological properties controlling the hydrologic and climatic regimes. Topics include conceptual understanding of hydrological cycle over vegetated land, quantifying and modeling flux exchanges in the soil-vegetation-atmosphere continuum, case studies on the hydrological impact of land use land cover changes, ecosystem response to environmental changes, and vegetation-climate feedback at the regional and global scales.
CHEG	5374 Bioremediation	Application of engineering and biological principles toward remediation of hazardous wastes. Degradation of toxic chemicals using genetically-engineered microorganisms. Biological contacting devices for waste remediation.

CHEG	5385 Air Pollution	Sources and properties of air pollutants, atmospheric chemistry, dynamics of atmospheric pollution, analytical and sampling techniques, control and abatement processes and air pollutants.
CHEG	5389 Chemical Transport in the Environment	Movement and fate of chemicals within the air, water, and soils in the environments. Emphasis on interfacial processes and exchange rates involving surface water, groundwater and air pollution problems.
CHEM	5370 Environmental Chemistry I	Sources, transport, effects, fate, analytical chemistry, monitoring and management of chemical species; chemical principles, equilibria and reactions. Water and atmospheric pollution; acid rain, global warming, ozone.
CHEM	5371 Environmental Chemistry II	Inorganic metals and organic chemicals in the environment; energy sources; fossil fuels, nuclear power, fuel cells, and alternatives.
ECON	6466 Environmental Economics	Economic analysis of environmental problems and corrective policy instruments. Topics covered will include the theory of externalities and public goods, the role of uncertainty and imperfect information in policy design, benefit-cost analysis, and non-market valuation. Applications to various environmental problems (such as air and water pollution, hazardous waste, and occupational health and safety) will be discussed.
EDCI	5555 Environmental Education	An exploration of state, national, and international environmental issues and instructional approaches for developing student awareness, knowledge, and concern for the environment, K-12. Includes classroom and field study.

EEB	5209 Soil Degradation and Conservation	Causes and consequences of soil degradation in agricultural and natural ecosystems, including salinization, erosion, nutrient impoverishment, acidification, and biodiversity loss. Historical perspectives and current strategies for soil conservation. Readings in original literature will be emphasized.
EEB	5307 African Field Ecology and Renewable Resources Management	An intensive, field oriented methods course conducted primarily in South Africa at the Basil Kent Field Station, Great Fish River Reserve in collaboration with the University of Fort Hare. An introduction to South Africa culture and history, ecology, and natural resources is provided in weekly meetings during the semester. This is followed by 3 weeks in South Africa. Topics covered include vegetation and faunal surveys, data collection and analysis, biodiversity monitoring, and conservation management. A research paper relating to an independent study conducted by the student in the field is required.
EEB	5310 Conservation Biology	Case studies and theoretical approaches to conservation of biological diversity, genetic resources, plant and animal communities, and ecosystem functions. Topics emphasize ecological and evolutionary principles that form the scientific basis of this emerging, interdisciplinary field, as well as socio-political, legal, economic, and ethical aspects of conservation.
EEB	5369 Current Topics in Biodiversity	Analysis and discussion of current literature on biodiversity.
EEB	5370 Current Topics in Conservation Biology	Analysis and discussion of current literature on conservation.

EEB	6481 Seminar in Biodiversity	Provides the opportunity for students to present research plans, reports of work in progress, and full-length seminars on completed research projects in ecology, systematics, and evolutionary biology to a supportive but critical audience. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory.)
EMBA	5993 Sustainable Competitive Strategy	For the firm to continue to create value for its owners over the long run, it must develop a sustainable competitive advantage. In this course, students evaluate how to defend businesses against competitive challenges and environmental change while maintaining high ethical standards. Students focus on game theory, sustainability, and temporal tradeoffs to understand the effects of managerial choices on competitors, internal stakeholders, society and the future performance of the firm.
ENVE	5094 Seminar in Environmental Sciences and Engineering	Extended discussions on presentations contributed by staff, students and outside speakers. A certificate of completion will be issued from the Environmental Engineering Program
ENVE	5220 Transportation & Air Quality	Mobile source emissions models in theory and practice. Regulatory framework. Emissions control technology. Field and laboratory measurement techniques. Roadway dispersion modeling. Current topics in mobile source emissions.

ENVE	5810 Hydrometeorology	Global dynamics of aquatic distribution and circulation. Hydrologic cycle, atmospheric circulation, precipitation, interception, storage, infiltration, overland flow, distributed hydrologic modeling, and stream routing.
ENVE	5811 Hydroclimatology	This course focuses on the physical principles underlying the spatial and temporal variability of hydrological processes. Topics include atmospheric physics and dynamics controlling the water/energy budgets; global water cycle, its dynamics, and causes of variability/changes; occurrence of drought and flood; climate teleconnections and their hydrological application; hydrological impact of global changes; quantitative methods in hydroclimatic analysis.
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GEOG	5120 Economic Geography of Environmental Issues	Seminar on theory and applications of economic geography to environmental issues. Location theories and spatial interaction models are considered from local to international scales of analysis.

GEOG	5220 Geography of Sustainable Development	<p>Conceptualizing international development; understanding theories, strategies and ideologies of development; and use of case studies to understand development in practice. Emphasis placed on the concept of sustainable development and sustainability, grassroots-driven approaches to development, the role of women, and geographic explanations as to how and why uneven development has occurred.</p>
GEOG	5310 Advanced Fluvial Geomorphology	<p>Research methods for analyzing fluvial forms and processes. Theoretical discussion of factors controlling open-channel flow, sediment transport, channel morphology, adjustments of rivers to environmental changes and human impacts. River management and restoration strategies. Requires one weekend field trip.</p>
GEOG	5380 Advanced Environmental Restoration	<p>Research issues relating to restoration of natural environments including rivers, wetlands, coastal areas, grasslands and forests. Theoretical discussions of restoration ecology, as well as applied discussions of management and engineering concerns. History of environmental restoration; relevant policy debates; specific case studies of river, wetland, coastal, grassland, and forest restoration.</p>
GEOG	5560 GIS and Environmental Geography	<p>Applicability of Geographic Information Systems to solve environmental problems. Case studies address environmental assessment and monitoring, analysis and modeling, planning and management. Recommended Preparation: GEOG 5500.</p>

GPAH	5325 Issues in Economic Development	<p>This course concerns economic, social, and demographic change in those countries comprising the less wealthy regions of the South. It examines development from linear (neoclassical), structuralist (political economy), and other perspectives, and emphasizes relationships between "advanced" and "developing" countries within the context of the global economy. In addition to theoretical grounding, the course provides practice in preparing development profiles of individual countries.</p>
GSCI	5530 Applied and Environmental Geophysics	<p>Potential theory (gravity, static electricity and magnetic fields), electromagnetic coupling, Maxwell's equations; electromagnetic wave propagation; principles of detection of subsurface interface and structures by geophysical methods.</p>
GSCI	GSCI 5550 – Physics of the Earth	<p>Potential theory (gravity, static electricity and magnetic fields), electromagnetic coupling, Maxwell's equations; electromagnetic wave propagation; principles of detection of subsurface interface and structures by geophysical methods.</p>
HSA	5325 Advocacy and Grassroots Development	<p>This course addresses the importance of advocacy in the sustainable development process. Students will be introduced to the concept of advocacy, its role and functions in a sustainable development and empowerment. Students will be given the opportunity to explore ways and means to develop effective advocacy programs.</p>

HSA	5377 Environmental Compliance & Regulations	<p>Compliance and knowledge of a whole new generation of environmental regulations is required of all managers. This course begins with general compliance obligations, common law, trespass, nuisance and negligence. The major Federal environmental laws affecting companies and agencies are reviewed along with even more stringent State and local regulations. Also presented is a view of the severe civil and criminal penalties liabilities attached to environmental regulations, and a discussion of the sharply increasing punishments for non-compliance. The final section of the course will outline strategies for compliance with specific comments on proactive environmental management as a method for reducing legal exposure from environmental issues. It is required of managers. It empowers private citizens</p>
HRTS	5390 Economic Rights	<p>Economic rights include the right to an adequate standard of living, the right to work, and the right to basic income guarantees for those unable to work. These rights are grounded in international law - particularly in the Universal Declaration of Human Rights and the International Covenant on Economic, Social, and Cultural Rights. This class will explore the conceptual bases, measurement, and policy applications of economic rights. Specific topics will include: child labor, the right to development, non-governmental initiatives, and the institutionalization of economic rights (e.g., constitutionalization versus statutory implementation versus discretionary policies).</p>

HRTS	5301 Contemporary Debates in Human Rights	Key Debates in Human Rights will introduce students to the main modern debates in the academic field of human rights. It is interdisciplinary in scope, including recent intellectual contributions from philosophy, law, political science, sociology, anthropology, literature and history. It will address a number of central issues and questions, including the normative philosophical foundations of human rights, whether human rights are universal or relative, whether human rights can be held collectively, and the justifications for women's rights and cultural rights.
MARN	5032 Coastal Pollution and Bioremediation	Overview of processes and compounds leading to pollution in the nearshore marine environment. The impact of pollution on the marine foodweb and its response is emphasized. Alleviation of pollution through metabolism of organisms, including bacteria, seagrasses and salt marshes.
MARN	5033 Marine and Atmospheric Processes of Global Change	Fundamentals of marine and atmospheric processes in global biogeochemistry. Evaluation of atmospheric, biological and chemical processes that contribute to global change.
ME	6178 Applied Solar Energy	Study of the technology and economics of solar energy conversion to useful forms. Review of heat transfer and energy storage. Collector design and performance analysis. System design of water heaters and space heating/cooling systems. Review of wind power, wave power, ocean thermal energy conversion and satellite solar power systems.

NRE	5155 Principles of Nonpoint Source Pollution	An advanced investigation of sources, impacts, modeling and management of nonpoint sources of water pollution.
NRE	5325 Wildlife Management	The application of ecological principles as practiced by natural resource agencies throughout North America.
NRE	5345 Advanced Fisheries Management	Principles, practices, and current trends in fisheries science and management.
PLSC	5240 Plant Biotechnology	Principles of recombinant DNA and plant gene transfer technologies. Applications of plant biotechnology in agriculture, horticulture, forestry, human/animal health care, and the pharmaceutical industry. Social and environmental impacts of plant biotechnology.
PLSC	5620 Soil Fertility	Factors governing nutrient uptake by plants, fate of nutrients applied to soils, principles and practices in the use of fertilizers and amendments for crop production, laboratory and field studies of social and plant response to applied nutrients.
PSYC	5617 Occupational Health and Safety	Research methods, theories and findings related to the impact of work duties and environmental conditions on occupational safety and health.
PUBH	5404 Environmental Health	Explores the policy, political and public health implications of such issues as air pollution, drinking water, exposure to hazardous chemicals, indoor air pollution, food protection, lead poisoning, housing, international issues, etc. Provides the student with some basic technical information and familiarity with terms for a better understanding of policy and political decisions and health effects of environmental exposures.

PUBH	5477 Food, Health, and Politics	<p>This course will provide a comprehensive overview of the factors that influence how our food is grown; what foods are available, affordable, and advertised; and the ensuing public health implications. We will examine the history of food production in America, the development of public and private food assistance programs, the fast food movement, and food marketing. Students will explore the political, social, economic and environmental factors that impact food availability and consumption, and discuss the implications of these factors on health outcomes, such as obesity, hunger, chronic diseases, and health disparities.</p>
PUBH	6493 Occupational and Environmental Health: Exposures, Risk and Prevention	<p>Exposure pathways, risk analysis techniques and prevention strategies relevant to both occupational and environmental settings. Lectures reinforced by discussion of case studies presented by students.</p>
SOCI	5471 Energy, Environment, and Society	<p>Sociological perspectives on energy production, distribution and consumption; environmental impacts and constraints; alternative energy and environment futures; and cross-national studies of policy formation and implementation.</p>