

ENVS Undergraduate Course Descriptions

3 credits unless otherwise noted

ENVS 137 Foundations of Environmental Science I *This course is intended for majors/minors within the Department Environmental Science.*

This course will introduce concepts that form the basis of environmental science, including elemental cycling, energy flow/transformation, and the interconnectivity among atmosphere, lithosphere, hydrosphere and biosphere, and within ecosystems. Ways in which knowledge of these concepts informs policy, management and social perception to produce positive change will also be examined.

Outcomes: Recognize interconnections among scientific disciplines and how their principles are used to investigate and address environmental issues; understand physical, chemical and ecological principles underlying environmental science and how these interact.

ENVS 200 Environmental Careers and Professional Skills

Introduction to environmental professions and determining skills and individual traits best suited for professions in policy, science, business, community organizing, etc. Begin developing a professional network.

Outcomes: Select appropriate internships, curriculum, projects to enhance knowledge, skills and experience; develop job hunting and communication skills specific to environmental fields, including resumes, cover letters, and presentations.

ENVS 203 Environmental Statistics *Restricted to IES majors.*

This course introduces basic statistics from probability through multiple regression, employing computer programs with ecological, environmental, and relevant social science examples and data sets.

Outcomes: Programming/spreadsheet skills; data structure practices and diagnosis; data visualization; appropriate test selection; test execution and interpretation; introduction to qualitative data analysis.

ENVS 204 Gender, Health & Environment

Exploration of connections between social justice and environmental health using scientific tools of analysis. Focus on experiences of those at intersection of marginalized social locations. Issues include impacts of modern disposable culture and how socially constructed gender roles affect exposure to environmental health risks while biological sex shapes their impacts.

Outcomes: Understanding the web of causality (relationships among scientific, medical, ecological, cultural, behavioral, economic, political, and ethical dimensions) of environmental health problems and how to ameliorate the disproportionate burden of risk.

ENVS 207 Plants & Civilization *Prerequisite: ENVS 137 or UCSF 137.*

Examines the structure, function, ecology, and diversity of plants, their importance to human civilization, and the impact of societal decisions regarding their use and exploitation.

Outcomes: Students will demonstrate an understanding of the critical role of plants in the biosphere, their physiological processes, adaptations for specialization, and linkages to humans including agriculture, pest control, and extraction/use of plant-derived products.

ENVS 218 Biodiversity and Biogeography *Prerequisite: ENVS 137 or UCSF 137*

This course covers the creation and maintenance of biodiversity across taxonomic, temporal and spatial scales. It will provide an overview of the history of biogeography, increase understanding of the evolutionary processes that create biodiversity, the influence of biodiversity on ecosystem services, and the rapid biodiversity loss resulting from human actions.

Outcomes: Students will gain knowledge of and appreciation for the biodiversity of life, its formation through the process of evolution, and the importance of biodiversity to ecosystem function and human welfare.

ENVS 223 Soil Ecology *Prerequisite: ENVS 137 or UCSF 137 or BIOL 101*

This course introduces the properties, functions, and conservation of soil. Topics include belowground ecosystem services, soil biodiversity, biogeochemical cycles, and conservation, human impacts to soils, and the socioeconomic implications of soil degradation. Lectures, laboratory/field soil testing, field trips, and presentations by experts in sustainable soil management are employed.

Outcomes: Students will understand the properties, functions and methods of conservation/remediation of soils, will learn how human activities affect soils and associated socioeconomic consequences, and develop analytical skills to assess soil health.

ENVS 224 Climate & Climate Change *Prerequisite: ENVS 137 or UCSF 137 or BIOL 101*

This course introduces students to basic principles and knowledge to explain climate change. Students will learn about natural and anthropogenic causes of climate change, the interactions between earth-atmosphere-ocean systems, climate feedback mechanisms, and impacts of climate change on the natural physical environment.

Outcome: Students will develop cognitive and mathematical skills to draw valid, logical conclusions regarding various observed phenomena such as observed changes in the climate system and observed impacts of climate change.

ENVS 226 Science and Conservation of Freshwater Ecosystems *Prerequisite ENVS or UCSF 137*

Freshwater ecosystems are threatened by water extraction, pollution, invasive species, and many other pressures. This course covers physical, chemical, and biological processes in freshwaters, and the benefits that humans derive from these ecosystems. Major issues for conservation will be covered at global and Great Lakes scales.

Outcomes: Students will develop cognitive and mathematical skills to draw valid, logical conclusions regarding various observed phenomena such as observed changes in the climate system and observed impacts of climate change.

Outcomes: Students will gain understanding of different types of freshwater ecosystems, their functioning and importance for human societies, and the range of pressures they currently face.

ENVS 227R Ecology of the Mediterranean Sea *Prerequisite ENVS137, BIOL 101 or UCSF 137*

This course examines the ecology of the Mediterranean Sea and how human activity has shaped the present-day ecosystem. Students will learn fundamental ecological concepts including ecosystem functioning, energy flow, matter transformation, and elemental cycles and the human impacts on the Mediterranean environment, including discussion of impact reduction and remediation.

Outcomes: Students will gain understanding of ecological processes/interconnections within the Mediterranean Sea ecosystem, of historical & current human-induced changes therein.

ENVS 237 Foundations of Environmental Science II *Prerequisite ENVS137, BIOL 101 or UCSF 137; Restricted to IES majors*

This course is the second in a three-course sequence required of all ENVS majors. It will provide the basic scientific grounding needed to intelligently discuss environmental policy and to prepare students for more advanced study in the environmental sciences. It focuses on physical science, especially thermodynamics, energy and climate change.

Outcomes: Student will gain understanding of the physics dictating global climate dynamics and climate change, as well as the energetic of different energy sources and technological aspects of alternative energy sources.

ENVS 238 Environmental Science Lab *1 credit; Prerequisites: ENVS 237 (may be taken as co-requisite) or CHEM 111 or BIOL 111*

A lab course designed to be associated with ENVS 237, this course is designed to introduce all ENVS majors to lab safety, basic lab techniques such as use of balances and microscopes, data analysis, and the application of these techniques to the study of environmental science.

Outcomes: Students will learn proper lab techniques and will conduct experiments in which they take and analyze data.

ENVS 260 Environmental Journalism *Writing intensive*

The mission of environmental journalism is to raise public awareness about environmental news and issues. It is about being ethical, accurate, fair, and clear, whether reporting, investigating, or advocating for change.

Outcomes: Students will be able to find, report, and present challenging stories around this topic, in print and in broadcast writing.

ENVS 267 Bird Conservation & Ecology *Prerequisite: ENVS 237*

This engaged-learning course provides an introduction to the theory and practice of avian conservation, ecology and management. Field trips for viewing birds in the wild, observing behavior and collecting data on habitat assessments are highlighted. Students participate in a community service project to gather data for avian conservation and management.

Outcomes: Students will become skilled in critical reasoning and some bird monitoring techniques, and demonstrate an understanding of the many facets of bird conservation.

ENVS 273 Energy & the Environment *Prerequisite: ENVS 137 or UCSF 137.*

The concept of energy developed from antiquity through the present day and applied to national and worldwide energy use patterns, the technologies supporting their use, as well as the societal impact and environmental consequences of energy usage.

Outcomes: Students will become skilled in critical reasoning and methods of inquiry, demonstrate an understanding of critical concepts and knowledge: heat and energy, the laws of thermodynamics, and current and future technologies and their impact.

ENVS 274 Chemistry of the Environment *Prerequisite: ENVS 137 & CHEM 101. Restricted to IES majors.*

Introduction to chemical principles in the natural and altered environment. This course covers the fundamentals of organic and inorganic chemistry in the context of the pressing environmental issues: air pollution, stratospheric ozone depletion, climate change, water pollution, and environmental contaminants.

Outcomes: Understand chemistry behind environmental problems; predict solubility, reactivity, storage in environmental compartments; understand different chemical models used to determine fate and transport of chemicals in the environment.

ENVS 275 Chemistry of the Environment Lab *Prerequisite: ENVS 137 & CHEM 101. Restricted to IES majors.*

Basic techniques for chemical analysis of environmental samples, including air, water and soil. Learn to use electronic data acquisition systems and further develop scientific writing skills.

Outcomes: Plan experiments, develop good lab techniques, conduct accurate chemical analyses on environmental samples, interpret chemical data, short and long reports describing work and interpreting significance of results.

ENVS 278 Hydrology

Study of processes which cycle water between oceans, atmosphere, and land surface. This course examines precipitation, evaporation, infiltration, transpiration, groundwater and surface water flow. Understanding these processes is fundamental to managing our resources in the face of mounting environmental challenges and natural resource pressures.

Outcomes: Understanding of key physical processes and multidirectional complex interactions between different components of the water cycle; ability to apply fundamental equations of conservation to quantify flows.

ENVS 279 Climate and History *This course is writing intensive.*

Explores the role of climate in history, from the emergence of homo sapiens to recent anthropogenic climate change. Major topics include the social impact of climate variability, sources of resilience, origins of scientific knowledge, and the use of historical knowledge in the present.

Outcomes: Students will analyze examples of climate shaping history, learn different ways that scholars have treated this relationship, and reflect on how this knowledge might be useful today.

ENVS 280 Principles of Ecology *Prerequisites: ENVS 237 or CHEM 101; Restricted to IES majors*

The purpose of this course is to foster an in-depth understanding of ecology, the study of relationships between organisms and the environment at organizational scales ranging from genes, individuals, and populations to communities, ecosystems, and landscapes. Topics include population dynamics, species interactions, community dynamics, food webs, ecosystem functions, and landscape ecology with a strong emphasis on scientific inquiry and data interpretation.

Outcomes: Students will understand key concepts and principles concerning ecological processes in nature at the gene, individual, population, community, ecosystem and landscape scales and apply knowledge of ecological concepts to current environmental challenges.

ENVS 281c Environmental Sustainability & Sciences in China *Prerequisite ENVS 137, BIOL 101 or UCSF 137*

This course provides students with an understanding of how sustainable systems work and how the structure and function of these systems is altered by human activities. Students will gain first-hand experience studying environmental issues in China (air/water pollution, loss of biodiversity, and climate change) through lectures & field trips.

Outcomes: Students will develop an in-depth understanding of human-environment relations in China and gain an appreciation for the interconnectivity of components, human included, of the natural world.

ENVS 281v Humans and the Environment in Contemporary Vietnam *Prerequisite ENVS 137, BIOL 101 or UCSF 137*

This course will provide students with deep and practical understandings of three interrelated concepts: sustainability, conservation, and biodiversity. Students will also learn about the current condition of Viet Nam's environment, causes of environmental degradation in Vietnam, and current efforts towards environmental sustainability in Vietnam.

Outcomes: Students will grasp the concept of sustainability as it applies to Vietnam, understand the current state of the environment, and current efforts to mitigate problems in Vietnam.

ENVS 283 Environmental Sustainability *Prerequisite: ENVS 137 or UCSF 137.*

This course examines impact of humans as consumers on the environment and how these interactions affect the probability of establishing sustainability for human and non-humans on Earth.

Outcomes: Students will become skilled in critical reasoning and methods of inquiry, and demonstrate an understanding of knowledge critical to the field including current human consumptive practices and their effects on the health and well-being of living organisms.

ENVS 284 Environmental Justice

This course examines how policy interacts with race and class to affect differentially people's access to a clean, safe, productive environment; Reviews history of the environmental justice movement, and community, policy, and legal responses; Develops students' ability to work across diverse social groups to advance environmental justice and sustainability.

Outcomes: Students will understand forces that have led to people of different race and class being differentially affected by environmental benefits, and the burdens and strategies for addressing environmental injustices.

ENVS 286 Principles of Ecology Lab *1 credit. Prerequisites: ENVS 237,238, 280 (280 can be co-req) Restricted to IES BA majors*

This course will allow students to develop experience and skills employed in ecological studies, with an emphasis on field work, laboratory analysis, and hypothesis testing. Topics for lab exercises will correspond closely with material from Ecology (ENVS 280) lecture. Course does not satisfy requirements for BIOL major.

Outcomes: Students will understand basic ecological principles, apply these to design experiments, develop skills in data analysis and interpretation, and learn techniques used to characterize ecosystem properties and human environmental impacts.

ENVS 286s Principles of Ecology Lab *1 credit. Prerequisites: ENVS 203; Restricted to IES BS majors*

Course content includes lab skills and analytical techniques commonly employed in ecological studies; emphasizes sampling, research design, field work, laboratory technique, data analysis, project development, hypothesis testing, and scientific report writing.

Outcomes: Understand ecological principles, apply knowledge to ecological experiments, observational studies, and entry-level mathematical models; assess biotic responses to the abiotic environment and to anthropogenic impacts.

ENVS 288 Applied Interdisciplinary Data Analysis for ENVS *Prerequisites: ENVS 280 or BIOL 265 and STAT 103 or STAT 203;*

This course teaches students to approach environmental problem-solving from a systems perspective by understanding the complex adaptive nature of socio-ecological. It introduces analytic techniques used in the natural/social sciences, and provides opportunity to analyze and connect data from various disciplines (e.g., ecology, economics, sociology) to address pressing environmental concerns.

Outcomes: Students will be able to describe characteristics of complex adaptive systems, become familiar with analytical approaches suited to different sub-disciplines, and apply numerous analytical techniques to real data sets.

ENVS 297 North American Environmental History *This course is writing intensive.*

This course surveys the environment and environmentalism in United States history, from the transformation of New England into a farm ecology, the expansion of the cotton South, the settlement of the West, to the rise of industrial cities, suburban sprawl, and the globalization of the economy.

Outcomes: Students will be able to demonstrate historical knowledge of environmental thought and ecological science, to draw links between environmental concerns and public policies, and to develop critical thinking and communication skills.

ENVS 298 Special Topics

Specific titles and contents vary from semester to semester. Variable credit hours.

ENVS 298 Special Topics with Lab

Specific titles and contents vary from semester to semester. Includes lab component. Variable credit hours.

ENVS 300 Seminar

Lectures and discussions of current topics in the natural and environmental sciences

ENVS 301 Environmental Health *Restricted to Juniors and Seniors within IES*

This course is designed as an introduction to environmental public health issues, laws, regulations, research, and advocacy. Environmental factors including biological, physical and chemical factors that affect the health of a community will be presented. The environmental media (air, water and land and various community exposure concerns will also be presented). The course will utilize available internet resources to access environmental data, and focus related research. A team project will be completed requiring literature review and presentation and critical assessment of a successful (or unsuccessful) environmental advocacy campaign.

ENVS 302 Public Health Principles and Practice *Restricted to Juniors and Seniors within IES*

This is a CORE course for the Masters in Public Health Program and is online. The course will provide an overview of multiple aspects of public health including public health infrastructure within the U.S. and basic methods to assess public health issues and programs.

ENVS 303 Introduction to Epidemiology *Restricted to Juniors and Seniors within IES*

Epidemiology is the study of the distribution and determinants of disease in populations and remains the basic science of public health. This methodology is unique to epidemiology, and in some cases, has even been appropriated by other fields. The objective of this course is to familiarize students with the range of tools used to conduct epidemiologic analysis, including design and measures of association. This course will be taught as an online course combined with an intensive interactive session with faculty and students one weekend in Spring.

ENVS 310 Introduction to Environmental Law & Policy

This introduction to environmental law surveys some critical federal environmental statutes, rules, and regulations in the United States; important case law decided under those statutes; interaction between federal, state, and local jurisdictions; and impacts on air, land, water, and natural resources.

Outcomes: Understands how the natural environment is controlled, managed and promoted through the legal system.

ENVS 311 Natural Resources and Land Use Law & Policy *Prerequisite: ENVS 310 recommended*

Focus on legal and policy processes used to govern pollution, water use, endangered species, toxic substances, and environmental impact and risk.

Outcomes: Students will understand how the natural environment is controlled, managed and promoted through the legal system and how land use laws and policy impact social and economic issues.

ENVS 312 Water Law & Policy *Prerequisite: ENVS 310 recommended*

This course looks at how the law allocates and protects one of our most crucial natural resources - water. Understanding development and regulation of water ownership and use and how those decisions impact current environmental and socio-economic issues.

Outcomes: Understand how key laws and policies impact protection and use of water in the United States; understand key legal concepts that shape the management of our water resources.

ENVS 313 Energy Law & Policy *Prerequisite: ENVS 310 recommended*

This course looks at the laws that shape traditional energy production and the growing regulation of renewable and sustainable energy.

Outcomes: Understand how key laws and policies impact production and use of energy; and how energy is controlled by federal and local regulations and policies.

ENVS 319 Winter Ecology *Prerequisite: ENVS 280 or BIOL 265 or permission of instructor*

Students will immerse themselves in the winter environment and learn about habitats on, in, and under snow, both terrestrial and aquatic, organisms that live in these habitats and their physiological, behavioral and morphological adaptations for survival. Students will gain an understanding of research on winter ecosystems.

Outcomes: Students will gain understanding of habitats and organisms present during winter in temperate ecosystems and gain experience with field techniques employed when studying these ecosystems

ENVS 320 Conservation Biology *Prerequisite: ENVS 280 & 286*

Students will learn to apply ecological and evolutionary biological principles to the preservation of wild plant/animal species, and to the preservation/management of ecosystems. Conservation approaches and challenges for all types of ecosystems, will be covered, with emphasis on contemporary threats to biodiversity, including habitat fragmentation, invasive species, and climate change.

Outcomes: Students will understand how the science of ecology can be used to address issues in species/ecosystem conservation, and recognize that consideration of human actions is essential to address conservation problems.

ENVS 321 Conservation Biology Lab *Prerequisite: ENVS 280 & 286; co-requisite ENVS 320*

Students will apply principles learned in ENVS 320 to conservation problems in the Chicago region and elsewhere, through visits to conservation sites and discuss concerns/initiatives with land managers and policy makers. They will develop skills in species identification, ecosystem delineation and description, and the use of field equipment and methods.

Outcomes: This course will provide practical field and lab experience in population, community and ecosystem conservation. Students will learn how the principles of Conservation Biology are applied, and the associated challenges.

ENVS 322 Invasive Species *Prerequisite: ENVS 280 or BIOL 265*

Invasive species are one of the greatest global threats to biodiversity, ecosystem function, economies, and human health. Species become invasive when moved beyond native range, become established, and cause harm. This course covers how species are moved, how and when they become established, and potential harm they can cause.

Outcomes: Understanding that because invasive species are moved by humans, and because many of their impacts are felt by humans, they are an inherently multi-disciplinary problem.

ENVS 325 Sustainable Agriculture *Prerequisite: ENVS 280 or BIOL 265*

This course provides an introduction to the environmental, social, and economic implications of sustainable agriculture. Students will learn the origins, major concepts, and current issues of sustainability in agriculture. Ecological concepts and principles applied to manage sustainable food production to support community health and economic justice will be explored.

Outcomes: Students will be able to explain the characteristics of the U.S. agricultural system, the inter-relation among components of sustainable agriculture, and steps necessary to develop a sustainable agricultural system.

ENVS 326 Agroecosystems *ENVS 237 & 238; OR BIOL 102 & 112; ENVS 223 is recommended.*

In this hands-on course, students will build knowledge and skills in agriculture and ecology through work in greenhouse, laboratory, classroom, and field settings. Students will build on foundations of Environmental Science and Biology by examining challenges of food production, management decisions, and environmental change facing agroecosystems both locally and abroad.

Outcomes: Students will develop understanding of agricultural systems as related to sustainable practices, develop skills in ecological analysis of these systems, and demonstrate proficiency in communicating scientific information to diverse audiences.

ENVS 327 Food Systems Analysis *Prerequisite: ENVS 237*

This course links conceptual and practical considerations of food-system assessment and develop a base of tools for practitioners. It examines major elements of the assessment process: systems thinking and conceptual frameworks; the food system from consumer and producer perspectives; identifying leverage points that might be influenced to affect positive change.

Outcomes: Students will understand inter-relationships among environment, food supply, markets, American diets, and health, learn to analyze assessment methods for food-system sectors, and examine conceptual frameworks for food-system analysis.

ENVS 330 Restoration Ecology *Prerequisites: ENVS 280 & 286 or BIOL 265 & 266; Co-requisite: ENVS 331*

This course provides a theoretical and practical basis for the increasing global efforts to reverse damage caused by humans to ecosystems and species, emphasizing the many perspectives (e.g., ecological, social, political, engineering) that must be considered to develop, implement, and assess restoration projects across a range of ecosystem types.

Outcomes: Students will apply knowledge from ecology and other disciplines to the practice of ecosystem restoration, and learn to integrate information from multiple disciplines, and stakeholder input, to design/manage restoration projects.

ENVS 331 Restoration Ecology Lab *Prerequisite: ENVS 280 & 286 or BIOL 265 & 266; Co- or Prerequisite: ENVS 330*

Students will apply principles learned in ENVS 330 to restoration sites in Chicago and beyond. They will visit restoration sites and discuss strategies and initiatives with land managers and policy makers. Students will develop skills in ecological-site description, and in the analytical methods required to determine success of restoration projects.

Outcomes: Students will gain an understanding of how the science of restoration ecology is applied in practical settings and learn methods used in restoration and assessment of actual restoration projects.

ENVS 332 Industrial Ecology *Prerequisite: ENVS 363*

Industrial ecology combines Business, Environment, & Engineering to shift industrial processes from linear (open loop) systems, where resources move through the system to become waste, to circular (closed loop) systems where waste becomes inputs for new processes. Students will learn life cycle assessment (LCA) to measure environmental impacts.

Outcomes: Students will understand how business and industry can create zero waste systems, how a circular economy works, and the tools of industrial ecology, including life cycle assessment.

ENVS 333 Circular Economy *Prerequisite: ENVS 137 or UCSF 137; MGMT 201 for Quinlan School of Business students*

Principles and concepts of circular economy that can support a more sustainable economic system. Includes consideration of circular design, materials management, business models, supply chains, policy, financing, metrics, and applications. May include field trips to explore companies with circular business practices.

Outcomes: Students learn to explain circular economy, including opportunities, challenges, critiques. Learn to identify applications of circularity in business models and value creation. Learn metrics and indicators of for circular economies.

ENVS 335 Ecological Economics *Prerequisite ECON 201*

Ecological Economics is a transdisciplinary course that takes a systems approach to the relationship between planetary stewardship, social justice, and the economy to design a prosperous and desirable future for humans on a finite planet. Ecological economics fuses economic theory and sustainability science to generate new solutions for today's challenges.

Outcomes: Understanding of ecological economics history, conceptual foundations, principles, tools, indicators, and applications.

ENVS 336 Biomimicry: Design Inspired by Nature *Prerequisite ENVS or UCSF 137; MGMT 201 for QSB students*

This course provides an introduction to biomimicry (or biomimetics) and the application of biomimicry design principles. Biomimicry is the design of business products, processes, and systems modeled after nature's wisdom. In biomimicry, nature serves as the design inspiration for sustainable solutions to solve complex human problems.

Outcomes: Students will learn the concept of biomimicry and life principles, be able to identify examples, apply biomimicry design principles, and view nature as model, mentor, and measure.

ENVS 338 Climate Change and Human Health *Restricted to Juniors and Seniors within IES; Department Consent*

This course provides an introduction overview of the health consequences associated with climate change and the local, federal, and global response to mitigate these negative health outcomes. During the course students will be expected incorporate course content and develop a realistic response public health plan to climate change for a locality of their choosing.

Outcomes: Students will be able to 1) Outline fundamental public health concerns that have been associated with climate change. 2) Identify and critique future steps forward to reduce public health concerns of climate change.

ENVS 340 Natural History of Belize *Prerequisite: IES Majors/Minors: ENVS 137; Biology Majors/Minors: BIOL 102 & 112; Anthropology or International Studies Majors/Minors: Junior or Senior Standing*

This Study Abroad field course is designed to build on the foundations learned in Ecology, Environmental Science, and Anthropology classes by examining the biodiversity and tropical ecosystems of Belize, by exploring the cultural traditions of some of its peoples, particularly the Mayans; and learn how local communities are involved in protecting and sustaining ecological and natural sites through community based conservation and sustainability practices.

ENVS 345 Conservation & Sustainability in Neotropical Ecosystems *Prerequisites: IES Majors: ENVS 280; Biology Majors/Minors: Bio 265;*

This course provides an introduction to conservation ecology in Neotropical ecosystems via classroom sessions and experiential learning activities during a Spring-Break field trip to Belize. Students will gain experience in environmental monitoring and biological survey methods. Ecosystems studied: coral reefs, mangrove forests, subtropical rain and dry forests, savannas, rivers, wetlands.

Outcomes: Students will gain an understanding of tropical climates, neotropical terrestrial/aquatic ecosystems and applied conservation and environmental practices such as nature reserve design and management, community-based resource management, ecotourism, and ecogriculture.

ENVS 350a Solutions To Environmental Problems: Water

STEP Water is an interdisciplinary and hands-on course in which students learn about a relevant and complex environmental problems pertaining to water and then develop and implement projects that address the problem on campus and in the local community.

Outcomes: Students will develop understanding of water-related environmental problems, demonstrate skills/knowledge needed to address those problems, and develop skills to recognize/articulate future possibilities for environmental leadership and civic engagement.

ENVS 350b Solutions to Environmental Problems: Biogas *Prerequisites: ENVS 137 or UCSF 137, with a grade of C- or higher, or instructor permission*

STEP Biogas is an interdisciplinary and hands-on course in which students learn about relevant and complex environmental problems pertaining to biogas production, processing and transport, and then develop and implement projects that address the problem on campus and in the local community.

Outcomes: Students will develop understanding of environmental problems related to biogas, demonstrate skills/knowledge needed to address those problems, and develop skills to recognize/articulate future possibilities for environmental leadership and civic engagement.

ENVS 350c Solutions to Environmental Problems: Climate Action *Prerequisites: ENVS 224 or instructor permission*

Consideration of environmental, political, economic, historical, and cultural contexts of climate change. Examination of actions occurring at varying geographic scales to mitigate and/or adapt to climate change impacts. Problem-and solution-based learning of how to invest resources effectively to deal with a changing climate and its consequences.

Outcomes: Develop understanding of environmental problems related to climate change, demonstrate skills/knowledge needed to address those problems and recognize/articulate future possibilities for environmental leadership/civic engagement.

ENVS 350f Solutions to Environmental Problems: Food Systems

STEP Food Systems is an interdisciplinary and hands-on course in which students learn about a relevant and complex environmental problems pertaining to food production, processing and transport and then develop and implement projects that address the problem on campus and in the local community.

Outcomes: Students will develop understanding of environmental problems related to food systems, demonstrate skills/knowledge needed to address those problems, and develop skills to recognize/articulate future possibilities for environmental leadership and civic engagement.

ENVS 351 Introduction to Sustainability Concepts & Impacts

Examines environmental, economic, social and political impacts of sustainable practices on general public and global and local organizations. Provides students with understanding of importance to corporations and other entities of measuring, monitoring, and reporting resource use to customers and stakeholders.

Outcomes: Explaining basic concepts of sustainability and how they relate to operations and goals of institutions and organizations; interaction of social, economic, and ecological systems to influence sustainability challenges and solutions.

ENVS 352 Sustainability Assessment & Reporting I *Prerequisites: ENVS 351*

Fundamental concepts and methodology of measuring and reporting environmental sustainability impacts in the areas of energy, air, buildings and transportation.

Outcomes: Ability to assess and report sustainability metrics related to energy, air, buildings, and transportation.

ENVS 353 Sustainability Assessment & Reporting II *Prerequisites: ENVS 351*

Fundamental concepts and methodology of measuring and reporting environmental sustainability impacts in the areas of water, land, food and waste. Environmental and social impacts of water use and sources, land use practices, food sourcing and production, and waste production and recovery.

Outcomes: Ability to assess and report sustainability metrics related to water, land, food, and waste.

ENVS 354 *Prerequisites: ENVS 351, 352, 353*

Capstone course in the four course sequence on Sustainability Assessment & Planning. Using concepts and methodology to create a comprehensive sustainability plan including stakeholder engagement, life cycle analyses, set resource baselines, short- and long-term sustainability goals, budgets and draft sustainability plan for a representative entity.

Outcomes: Learn best practices to inspire and engage partners and stakeholders to advance environmental sustainability in different types of organizations. Ability to create a comprehensive sustainability plan for organizations and institutions.

ENVS 363 Sustainable Business Management *Prerequisites: ENVS 137 or UCSF 137; MGMT 201 for Quinlan School of Business students*

Course introduces students to the emerging field of sustainability in business and the growing focus on the social, environmental, and economic performance of businesses. The course presents the scientific, ethical, and business cases for adopting sustainability.

Outcomes: Students will understand the dimensions of sustainability; understand economics for sustainability; understand the tools and techniques to apply sustainability in each functional area of the business.

ENVS 364 Sustainability Management in the Global Context *Prerequisites: UCSF or ENVS 137 (ENVS 363 recommended); MGMT 201 for QSB students*

This study abroad course takes students to international destinations to learn about business and sustainability management in the global context. Students hear presentations from local experts on sustainability in government, nonprofit, & for-profit entities, visit entities that have adopted sustainability practices, & visit local cultural sites. Fulfills MGMT elective.

Outcomes: Students will understand sustainability perspectives outside the U.S., practical examples of circular operations and strong sustainability, and global, regional, and local sustainability concerns.

ENVS 369 Field Ornithology *Prerequisite: ENVS 280/286 or BIOL 265/266. Recommended: BIOL 215 (not required)*

Field ornithology is an intensive 3-week engaged-learning course at the Loyola University Retreat and Ecology Campus during the peak of the migratory season intended to provide an introduction to the theory and practice of field ornithology. Emphasis will be on field identification and song recognition, census techniques, and avian behavior.

Outcomes: Students will become skilled in critical reasoning, field techniques, and scientific investigation that demonstrate an understanding of knowledge and techniques used in field ornithology

ENVS 380 Introduction to Geographic Information Systems *This course is intended for upper-division undergraduates (junior/senior) and graduate students.*

Geographic Information Systems (GIS) is a mapping tool that allows users to create interactive searches, analyze spatial information, edit data and maps, and present the results visually. The course includes lecture, laboratory, and project components. Students will learn basic GIS skills and applications and work on projects with community organizations.

Outcomes: Students will be able to describe the conceptual/theoretical and practical/technological background of GIS; describe ethical issues germane to GIS; prepare/analyze GIS data in research; apply GIS in community-service projects.

ENVS 381 Advanced GIS Applications *Prerequisite: ENVS 380*

Students in this course will learn tools required to solve complex environmental problems and gain experience with spatial analysis, network analysis, 3-D analysis, GIS modeling, geostatistics, and other ArcGIS extensions. Students will also learn about internet-based mapping for dissemination of spatial data.

Outcomes: Understand various spatial relationship concepts and their applications; identify and address common methodological challenges; understand how to use spatial data to make sound arguments in spatial problem solving and planning/policy.

ENVS 383 Human Dimensions of Conservation

This course will increase student knowledge of the social, political, economic, psychological, and cultural dimensions that influence the success of conservation projects and develop skills in conducting human dimensions-inquiry using surveys, interviews, observation, and/or participatory methods. It will contribute to preparation for employment in the conservation field and/or graduate study.

Outcomes: Students will understand the importance of treating the human dimensions of conservation problems with the same scientific rigor customarily given to the ecological dimensions.

ENVS 384 Conservation Economics *Prerequisite ECON 201*

Explores resource conservation issues using economic principles. Topics include management of forests, wildlife and mineral resources; the demand for parks and outdoor recreation; the debate between environmental preservation and conservation; valuation of ecosystem services; the economics of biodiversity and endangered species; and policies to promote conservation in agriculture.

Outcomes: Students will learn how natural resource use is affected by economic values, how to critically evaluate natural resource management problems, and evaluate models of dynamic resource extraction and user preferences.

ENVS 385 Global Health Epidemiology *Restricted to Juniors and Seniors within IES*

This course covers a specific topic in public health. This course examines social science theories and research as applied to conservation and ecological restoration.

Outcomes: Students will be able to articulate a general understanding of the selected topic.

ENVS 387 Principals of Ecotoxicology *Prerequisites: BIOL 265 or CHEM 312 or ENVS 280*

This course will provide information on how pollutants affect ecosystems and how we might ameliorate their negative effects in our world. The emphasis of this course will be the fate and effects of pollutants in the ecosystem. The effects will be from molecular level to individual organism, community, and ecosystem levels.

Outcomes: This course will provide students with scientific knowledge in the cause and effects of pollutants in ecosystems and to prepare them for graduate study/future career.

ENVS 388 Applied Environmental Statistics *Prerequisites: ENVS 203 or STAT 103, Restricted to IES juniors and seniors*

Tools and methods for analyzing combined social and ecological datasets. Emphasis on learning advanced quantitative statistics and applying this to project work. Students required to include both ecological and social data analysis in their projects & working with computer programs and output written in R/R-Studio, and interpreting output from these programs.

Outcomes: Understand and be able to articulate fundamental statistical concepts; interpret software output and published articles; communicate results; describe data, articulate relevant hypotheses, know statistical tests which may be correctly applied.

ENVS 389 Ecological Risk Assessment *Prerequisites: ENVS 274 and 275, ENVS 203 recommended*

This course covers the area of potential effects of pollutants to ecosystems and practices on risk assessment for pollutants based on exposure and effect data in the literature. Different approaches for assessing the potential ecological impacts and risks of pollutants in support of environmental management will be discussed and practiced.

Outcomes: Learn toxic effects of pollutants, acquire, organize, and synthesize monitoring and effect data using advanced analysis methods and skills in support of environmental impact and risk assessment via case studies.

ENVS 390 Integrative Environmental Seminar *IES seniors only*

This course requires students to focus on a specific environmental issue or theme, integrating multidisciplinary perspectives, through individual or group presentations, discussion, and analysis of presentations by outside speakers.

Outcomes: Students will demonstrate an understanding of the multi-faceted and interdisciplinary nature of environmental issues.

ENVS 391 Independent Environmental Research *Department permission*

Students may register for independent research on a topic mutually acceptable to the student and any professor in the department. Usually this research is directed to a particular course or to the research of the professor.

Outcomes: Students will be able to design and carry out the research that is original and meaningful, including data collection, analysis, and interpretation.

ENVS 391c Independent Environmental Research (Capstone) *Prerequisite: IES advisor approval and senior standing.*

Fulfills capstone requirement for IES majors. Through independent research experience, examine how scientific, sociological, economic and political knowledge and perspectives interact and define environmental problems and solutions/mitigation efforts. Research projects must use a multi-disciplinary perspective in analysis and interpretation.

Outcomes: Students will be able to design and carry out research that is original and meaningful, including data collection, analysis, and interpretation.

ENVS 395 Environmental Internship 3 credits

Students seek out and engage in a semester- or summer-long internship with a civic, business, governmental, or academic group providing hands-on experience in work on environmental issues.

Outcomes: Students will demonstrate, through daily activity logs and a comprehensive final report, a clear understanding of the environmental context and practical applications of their internship experience.

ENVS 395c Environmental Internship (Capstone) Prerequisite: IES advisor approval and senior standing.

Fulfills capstone requirement for IES majors. Through internship experience, students reflect upon academic and extra-curricular activities in their degree program and learn how scientific, sociological, economic and political knowledge and perspectives interact and define environmental problems and solutions/mitigation efforts.

Outcomes: Guided reflection on relationship between coursework and internship experience, relate learning to specific activities and experiences in the internship, assess value of internship to future career plans.

ENVS 398 Special Topics Prerequisite: Junior or senior standing.

Specific titles and contents vary from semester to semester. Variable credit hours

ENVS 398L Special Topics with Lab Prerequisite: Junior or senior standing.

Specific titles and contents vary from semester to semester. Includes a lab component. Variable credit hours

ENVS 399 Directed Readings 1-3 credits

Directed by an ESP faculty member, students will read, analyze, and discuss a publications focusing on different aspects of a specific environmental issue or theme.

Outcomes: Students will demonstrate comprehension of, and the ability to apply information from, scientific literature and be able to synthesize information to produce a cogent, synthetic analysis of their topic based on these readings

Non-ENVS courses applicable to ENVS BA and BS majors

ANTH 104 The Human Ecological Footprint

This course is an introduction to global human ecology and concentrates on how we as humans affect global ecosystems and how these changes can impact our behavior, health, economics, and politics.

Outcomes: Students will be able to draw connections between basic ecological processes and the global patterns of human population growth, health and disease, inequality and poverty, subsistence strategies, and land use and technology.

ANTH 303 People & Conservation

This course considers the interplay between indigenous peoples and environmental resources utilizing current perspectives from evolutionary and community ecology, conservation biology, anthropology, political ecology and economics.

Outcomes: Students will demonstrate an understanding of factors influencing this interplay, including environmental ethics, traditional environmental knowledge, resource management, community-based conservation, property rights, common-pool resources, sustainable development, land tenure, indigenous movements, and eco-tourism.

ANTH 317 Ethnographic Methods *Prerequisite: ANTH 304 or Instructor's permission*

This course is designed to offer an introduction to qualitative methods in anthropology. Students will learn methodologies such as participant observation, interviewing, and document analysis, and we will also address ethical issues in field research. Students will design and carry out an ethnographic research project.

Outcomes: Students will demonstrate in-depth knowledge of qualitative research techniques; critically discuss ethical implications of ethnographic research; undertake original ethnographic fieldwork; prepare a comprehensive, theoretically informed, and clearly written report based on original ethnographic data.

BIOL 101 General Biology I with Lab *4 credits*

Fundamental principles of Biology including: introduction to the scientific method, basic biological chemistry; cell structure and function; energy transformations; mechanisms of cell communication; cellular reproduction; and principles of genetics.

Outcomes: Students will be able to demonstrate understanding of the historical foundations, methodologies employed, general architecture and functioning of the cell - the basic unit of life.

BIOL 111 General Biology Lab I

Complements General Biology I lecture material through observation, experimentation, and when appropriate, dissection of representative organisms. Physical and chemical phenomena of life as well as systematics and comparative anatomy and physiology of selected organisms will be examined.

Outcomes: Students will be able to demonstrate an understanding of the diversity of living organisms, including comparisons in cell structure and function, and comparative organismal evolution and ecology.

BIOL 102 General Biology II with Lab *4 credits Prerequisites: BIOL 101, 11.*

A continuation of Biology 101. Fundamental principles of Biology including: evolutionary theory; general principles of ecology; study of plant structure and function; and comparative animal physiology.

Outcomes: Students will be able to demonstrate an understanding of the fundamental principles of ecology and evolution, as well as the anatomy and physiology of representative plant and animal phyla.

BIOL 112 General Biology Lab II *Prerequisites: BIOL 101, 111*

Complements General Biology II lecture material through observation, experimentation, and when appropriate, dissection of representative organisms. Physical and chemical phenomena of life as well as systematics and comparative anatomy and physiology of selected organisms will be examined.

Outcomes: Students will be able to demonstrate an understanding of the diversity of living organisms, including comparisons in cell structure and function, and comparative organismal evolution and ecology.

BIOL 215 Ornithology

An introduction to the biology of birds including the topics of anatomy, physiology, behavior, ecology and evolution. Includes some field trips to learn how to identify species and to collect behavioral information.

Outcomes: Students will demonstrate an understanding of the biology of birds and be able to identify some of the commoner species of birds in our area.

BIOL 327 Wetland Ecology *Prerequisite: BIOL 265*

An introduction to the study of wetlands habitats. This course includes discussion of physical and chemical factors, biota, production and community dynamics. Laboratories include several field trips to regional wetland habitats.

Outcomes: Students will understand the functioning of wetlands, become aware of the variety of wetlands and become familiar with wetland biota, especially wetland plants.

BIOL 328 Conservation Biology *Prerequisite: BIOL 265*

This course explores species diversity, natural and human induced extinctions, environmental ethics, and conservation practices being developed at the population, community, and ecosystem levels.

Outcomes: Students will be able to describe conservation strategies being used by institutions around the world and understand the ecological theory that supports those strategies.

BIOL 335 Introduction to Biostatistics *4 credits; Prerequisites: MATH 132 or 162; BIOL 102, 112.*

An introduction to statistical methods used in designing biological experiments and in data analyses. Topics include probability and sampling distribution, designed biological experiments and analysis of variance, regression and correlation, stochastic processes, and frequency distributions. Computer laboratory assignments with biological data.

BIOL 375 Aquatic Insects Lecture & Lab *4 credits Prerequisite: BIOL 265.*

This course focuses on the classification and ecology of insects that have become fully or partially adapted to the aquatic environment. Emphasis will be on the ecology and biology (behavior, physiology and phylogeny) of aquatic insects. The course includes laboratory field trips to local and upper Midwest aquatic habitats.

Outcomes: Students will acquire an understanding of the ecological relationships between aquatic insects and their physical and biological environment, including their interactions with humans.

BIOL393 Natural Resource Conservation *Pre-requisite: BIOL 265*

A basic environmental course that covers different types of natural resources and the principles of resource management as well as the problems and solutions regarding waste disposal, pollution and energy production.

Outcomes: Students will learn about the major environmental problems facing our species now and in the future. They will be able to distinguish between renewable and non-renewable resources as well as sustainable and non-sustainable methods of resource utilization.

CHEM 101 - General Chemistry A Lecture/Discussion *Prerequisite: MATH 117 or equivalent.*

A year of high school chemistry is recommended. Co-requisite: CHEM 111 and MATH 118.

A lecture and discussion course including topics on atomic and molecular structures, states of matter, energetics, and stoichiometry of reactions.

Outcomes: Students will learn basic chemical principles in these areas.

CHEM 111 - General Chemistry Lab A *Pre or co-requisite: CHEM 101.*

Laboratory course designed to illustrate fundamental models and theories in chemistry with an emphasis on significant digits, calculations, and analysis and discussion questions.

Outcomes: Students will be able to use equipment properly and demonstrate correct laboratory technique.

CHEM 102 - General Chemistry B *Prerequisites: CHEM 101 or CHEM105; MATH 118.*

This lecture and discussion course is a continuation of 101 and includes topics on equilibrium systems, chemical thermodynamics, electrochemistry, and descriptive chemistry.

Outcomes: Students will learn basic chemical principles in these areas.

CHEM 112 - General Chemistry Lab B *Pre or co-requisite: CHEM 102. Prerequisite: CHEM 111.*

The second semester of general chemistry laboratory exposes students to qualitative analysis and continues the process of experimenting and collecting data to test the validity of theories and models presented in lecture.

Outcomes: Students will demonstrate success in lab by making perceptive qualitative observations and accurate quantitative measurements.

CHEM 221 Organic Chemistry I *Prerequisite: CHEM 106 or 102 and 112.*

A lecture, discussion and laboratory course for chemistry majors covering structure and bonding in organic molecules; nomenclature, chemical and physical properties and reactions of non-aromatic hydrocarbons, alkyl halides, alcohols, ethers; stereochemistry and conformational analysis; and spectroscopy.

Learning Outcomes: Students will understand the chemical behavior of organic molecules and the mechanisms of reactions.

CHEM 222 Organic Chemistry II *Prerequisite: CHEM 221 or 223. Chemistry majors only.*

A lecture, discussion and laboratory course for chemistry majors continuing from 221 covering nomenclature, properties, reactions, syntheses, and spectroscopy of further classes of aliphatic and aromatic compounds, carbohydrates and other polyfunctional compounds.

Outcomes: Students will be able to assign IUPAC names, spectroscopically identify, prepare, and propose reactions for these groups.

CHEM 312/313 Environmental Chemistry with Lab *4 credits Prerequisites: CHEM 106 or 102 and 112.*

This course will discuss the three major environmental compartments- atmosphere, hydrosphere and lithosphere- and their interconnections and cover ozone depletion, air pollution, persistent organic pollutants, the water cycle, waste treatment and environmental remediation methods.

Outcomes: The student will have a good understanding of the environment when finishing this course.

CHEM 313 Environmental Chemistry Lab *Prerequisites: CHEM 106 or 102 and 112.*

Co-requisite: CHEM 312.

This laboratory course will cover the most important environmental applications including water analysis, detection of persistent organic pollutants, and heavy metals.

Outcomes: The student will be able to prepare and quantify environmental samples with the appropriate analysis method.

COMM 101 Public Speaking & Critical Thinking

This introductory course is designed to supply students with the skills of public address, a fundamental understanding of critical thinking practices, foundational tenets of communication theory, a grasp of the relationship between context and communication, and a sense of the social responsibility that comes with the capacity for communication.

Outcomes: Students gain skills in public speaking and an understanding of critical thinking.

COMM 231 Conflict Management and Communication *Prerequisite: COMM 175*

This course explores the role of communication in conflict resolution. Special attention is paid to mediation and other forms of alternative dispute resolution.

Outcomes: Students will acquire methods of analyzing the nature of conflict and applying appropriate communicative strategies for managing conflict.

COMM 234 Interviewing for Communication *Prerequisite: COMM 175*

This course explores the crucial skill of interviewing necessary for many aspects of professional and daily life. Students will learn different ways of interviewing depending on communication context.

Outcomes: These approaches will enhance students' interviewing ethics as they gain practical experience.

COMM 277 Organizational Communication *Prerequisite: COMM 175*

This course is an introduction to theory and practice of organizational communication, with an emphasis on organization contexts, culture, and systems, and the role of communication in building relationships with internal and external stakeholders.

Outcomes: Students will be able to analyze organizational communication, and understand the impact of technology, globalization, community and diversity on organizational systems.

COMM 306 Environmental Advocacy

This course explores the rhetorical means by which citizens influence the policies and practices affecting our natural and human environments. The focus is on current controversies.

Outcomes: The course seeks to provide an understanding of the history and range of communication styles in the U.S. environmental movement and to help students develop practical skills relevant to entering into environmental debates.

COMM 363 - Research Methods in Advertising/Public Relations

This course will introduce Advertising/Public Relations majors to sound and effective social science research methods commonly used in the profession, including surveys, focus groups, content analysis, and audience analyses.

Outcomes: Students will learn the research process and how to apply it to establish, build, and evaluate Ad/PR strategies, goals, and campaigns.

ECON 328 Environmental Economics *Prerequisites: Sophomore standing, minimum grade of "C-" in ECON 201.*

This course applies economic theory to environmental and natural resource problems and policies, investigates the role economic incentives play, and discusses externalities, property rights, common property problems, pollution and pollution control, and renewable and non-renewable resource management.

Outcomes: Students will understand that environmental problems are fundamentally economic problems that

come about because there is a market failure (e.g., an externality or public good) and that environmental problems have economic solutions.

ENGL 288 Nature in Literature *Prerequisite: UCLR 100 for students admitted to Loyola University for Fall 2012 or later. No requirement for students admitted to Loyola prior to Fall 2012 or those with a declared major or minor in the Department of English, Department of Classical Studies, or Department of Modern Languages and Literatures.*

This course focuses on the relationship of human beings and the environment in which they function, as represented in a variety of literary works.

Outcomes: students will be able to demonstrate understanding of the representations of "nature" in various periods of literary history and diverse cultural contexts.

HIST 300 Food, Hunger and Power in 19th Century Europe

Special topics or new approaches of current interest to the instructor. This course may be used to fulfill the history major distribution requirement in 300-Level Post-1700 European History or may count as a 300-Level history elective. Students may repeat the course for credit when the topic changes.

Outcomes: Students will gain familiarity with the topic; the ability to make connections between secondary and primary sources; and the capacity to think critically about the ways that historians have approached major issues.

HIST 389G North American Environmental History

Special topics or new approaches of current interest to the instructor. This course surveys the environment and environmentalism in United States history, from the transformation of New England into a farm ecology, the expansion of the cotton South, the settlement of the West, to the rise of industrial cities, suburban sprawl, and the globalization of the economy.

Outcomes: Students will be able to demonstrate historical knowledge of environmental thought and ecological science, to draw links between environmental concerns and public policies, and to develop critical thinking and communication skills.

MARK 320 Marketing for Environmental Sustainability *Pre-requisites: MARK 201; Junior standing or above.*

The course shows students how to use marketing to address the complexities of sustainability including: climate change, poverty, food shortages, oil depletion and species extinction. Design-for-environment, full-cost pricing, greening the channels of distribution and life-cycle impact are some of the concepts covered in this course.

Outcomes: Provide students with the knowledge and skills needed to develop marketing products that contribute to environmental sustainability.

MGMT 201 Managing People and Organizations *Prerequisite: Sophomore standing*

This course introduces students to the dynamics of human behavior in the workplace through the study of such topics as perception, learning, motivation, leadership and group behavior.

Outcomes: Students will learn principles of interpersonal influence, conflict resolution, and effective group behavior and develop an awareness of ethical issues in the workplace and organizational social responsibility.

PHIL 287 Environmental Ethics *Prerequisite: PHIL 130 for students admitted to Loyola University for Fall 2012 or later. No requirement for students admitted to Loyola prior to Fall 2012 or those with a declared major or minor in the Department of Philosophy or Department of Political Science.*

This course introduces students to ethical reasoning and to various topics in environmental ethics. Topics may include: pollution, animal rights, and natural resources.

Outcomes: Students will demonstrate an understanding of diverse ethical theories and an ability to use philosophical reasoning to defend positions in topics covered.

PLSC 101 American Politics *Prerequisite: ANTH 100, PLSC 102, PSYC 100 or SOCL 101*

American national government and politics, including institutions, group and electoral processes, and public policy.

Outcomes: Students will be able to demonstrate an understanding of the American political system, the patterns of political participation and behavior of diverse individuals and groups in American society, and evaluate the roles and processes of U.S. political institutions.

PLSC 354 Global Environmental Politics

This course examines the linkages between the world's natural environment and the global political system.

Outcomes: Students will be able to demonstrate an understanding of the role of various private, national and international actors in the formulation, adoption and implementation of environmental public policies.

PLSC 392 Environmental Politics

This course applies economic theory to environmental and natural resource problems and policies, investigates the role economic incentives play, and discusses externalities, property rights, common property problems, pollution and pollution control, and renewable and non-renewable resource management.

Outcomes: Students will understand that environmental problems are fundamentally economic problems that come about because there is a market failure (e.g., an externality or public good) and that environmental problems have economic solutions.

PSYC 277 Environmental Psychology

Human behavior is at the root of environmental degradation. This course examines how psychological processes influence behaviors that help or hurt the environment and how psychology can promote conservation. The course identifies theory-based interventions and evaluates their effectiveness. Class activities allow students to practice applying psychology to promote environmental sustainability.

Outcomes: Students will be able to identify the psychological bases of environmental problems. Students will be introduced to theories and practical strategies to change behavior as it relates to environmental issues.

SOCL 206 Principles of Social Research

The course is an introduction to the basic research methodologies of sociology. A variety of methods used in sociological analysis and data generation will be considered. Students learn how to select and use methodologies appropriate for various research projects.

Outcomes: Students will learn how social science research is conducted. They will be able to critically evaluate existing research and select appropriate techniques to undertake original research

SOCL 252 Global Inequities

This course examines inequality on a global scale, focusing on the impact of globalization processes on race, class and gender inequalities here and abroad.

Outcomes: Students will analyze how race, class and gender inequalities influence each other across national boundaries, and will recognize global causes and consequences of inequality.

SOCL 265 Globalization & Society

This course examines the nature of contemporary globalization and considers how it influences communities, nations and the world. The course examines the positive and negative consequences of globalization and the global justice movements that have emerged seeking more equality, tolerance and environmental stewardship.

Outcomes: Students learn how economic, political and cultural aspect of globalization impact society in an increasingly interconnected world.

SOCL 272 Environmental Sociology

This course examines the distinctively social aspect of the relationship of people to their environments, both built and natural.

Outcomes: Students will recognize the role that both social and physical factors play in the environmental problems facing the world. Students will also develop critical thinking skills needed to evaluate statements and policy proposal to improve environmental quality.

SOCL 276 Sociology & the Politics of Food

This course explores the impact of globalized economic, political, and social relationships through the prism of food, and considers the cultural and ideological dimensions of food, the structure of food production and consumption, and responses to the global food system.

Outcomes: Students will gain awareness of themselves as consumers of food and food products.

SOCL 301 Statistics for Social Research *Prerequisite: SOCL 206*

This course is a comprehensive introduction to statistical analysis in social research. Topics include: univariate, bivariate, and multivariate analysis, computer statistical applications and interpretation of results.

Outcomes: Students will demonstrate understanding of statistical thinking and data analysis techniques and be able to use them to evaluate existing research and conduct original research.

SOCL 302 Qualitative Research

An introduction to the major qualitative methods of social inquiry. Participant observation, interviewing, historical analysis, and content analysis, as well as ethical issues of field research are studied.

Outcomes: Students will gain understanding of important methods of data collection and analysis common in social science research. Students will gain experience using these techniques to conduct research and evaluate the research of others.

STAT 103 Fundamental Statistics

This course provides an introduction to statistical reasoning and techniques in descriptive and inferential statistics and their applications in economics, education, genetics, medicine, physics, political science, and psychology. Not open to students who have completed ISOM 241.

Outcomes: Students will obtain a background in the fundamentals of descriptive and inferential statistics along with an understanding of their uses and misuses. This course satisfies the quantitative literacy requirement of the core curriculum

STAT 203 Statistics *Prerequisite: MATH 132 or 162*

This course covers a variety of topics as it provides an introduction to statistical methodology and theory using the techniques of one-variable calculus.

Outcomes: Students obtain the theoretical and computational background in areas such as experimental design, inferential statistics, and correlation theory and regression needed to study advanced topics in statistics.

STAT 303 SAS Programming & Applied Statistics *Prerequisite: STAT 103 or 203 or 335*

This course provides an introduction to SAS programming in the context of practical problems taken from applied statistics.

Outcomes: Students obtain extensive experience with data-set manipulations, SAS procedures, and their application in contexts such as t-tests, simple and multiple regression, ANOVA, and regression.

THEO 184 Moral Problems: Ecology Crisis

Christian Life & practice-Ethics: This course considers traditional religious and ethical assumptions about humanity and our relationship to the non-human world.

Outcomes: Students will examine a number of religious and philosophical traditions and learn how they describe nature, how they evaluate non-human nature's relationship to humanity, how they define "community" to include or exclude the non-human world, and how they relate or do not relate the sacred to the natural world.

THEO 204 Religious Ethics and the Ecological Crisis

Advances in technology and industry confront us with unprecedented abilities for altering long standing climate patterns. These capacities challenge many traditional religious and ethical assumptions about humanity and our relationship to the nonhuman world. We will examine the resources that religious traditions of the world offer for promoting ecological responsibility

Outcomes: students will be able to summarize relevant history related to scientific, policy & political data and decisions; describe central scientific and ethical challenges posed by the climate crisis; relate key ideas, traditions, & practices in Christian theological, philosophical, and other religious thought that may help address this crisis.

THEO 344 Theology & Ecology

Examination of the ecological, ethical and theological analyses of humanity's relationship to the natural world.

Outcomes: Students will be able to demonstrate understanding of ethical comprehension, analysis, and decision-making within the context of select theological and religious traditions.