ENVIRONMENTAL POLICY MINOR

Requirements

Environmental Policy Minor

A minor in Environmental Policy consists of 19 hours for students in the Sciences and 18 hours for non-science majors. Science majors must complete EES 240, PS 221, PS 224, PS 226 plus 6 credit hours of electives. Non-Science majors must complete EES 210, PS 221 or PS 224, PS 226 plus 9 credit hours of electives.

Electives in Political Science

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Electives in Environmental Engineering and Earth Science

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PS. POLITICAL SCIENCE

PS-111. INTRODUCTION TO AMERICAN GOVERNMENT

Credits: 3

How and why does the American federal system work? This course introduces students to the constitutional foundations of the American governmental system and explains how and why the system changed over time to function as it does today. Many examples are employed to illustrate the challenges facing those who occupy elected office and the voters who placed them in office. Students are also introduced to basic social science research methods and how they are applied to the study of American politics. Offered every semester.

PS-141. INTRODUCTION TO INTERNATIONAL RELATIONS

Credits: 3

An introduction to the field of international relations. Attention is given to basic theories of international relations as well as the issues and problems that confront contemporary world politics. Factors that determine a nation's foreign policy are also examined. Offered every spring.

PS-151. INTRODUCTION TO COMPARATIVE POLITICS

Credits: 3

This course is an introduction to the study of the politics and government of selected foreign countries. The course will begin with the examination of the various structures and concepts of government around the world and their regional variations. Progressing from the study of a number of alternative structures of politics and government, the course examines several countries in detail providing a specific introduction to the political structures of a number of countries.

PS-212. URBAN GOVERNMENT AND POLITICS

Credits: 3

An examination of the structure and operation of urban governments. Metropolitan politics is also considered. Special attention is given to the politics and policy problems confronting American cities and the political dynamics that complicate solving the problems. Cross listed with ([SOC-263]). Counts as a Criminology elective.

PS-213. PARTIES AND ELECTIONS

Credits: 3

Though America’s Founding Fathers may have had no love for or willingness to incorporate political parties into the Constitution of 1787, parties emerged anyway over the next twenty years. This course explores the origins and developments of political parties and their essential role in our democratic, representative political system. The ideas on which the parties were founded are examined and the evolution to their current positions is analyzed. Many examples of parties and elections at the federal, state and local levels of government are used. Offered every fall semester even years.

PS-221. INTRODUCTION TO PUBLIC ADMINISTRATION

Credits: 3

An introduction to the principles and problems of public administration in an increasingly complex society. Topic such as leadership, informal organizational processes, the relationship of administration to its cultural context, and the question of administrative responsibilities are examined as well as public finance, human resources, ethics, management and administrative law.

PS-224. PUBLIC POLICY ANALYSIS

Credits: 3

This course is an introduction to the study of public policy at the national level. It examines approaches to public policy and the operation of the 'policy process.' A range of public policy examples is employed, from social welfare to energy and environment to foreign and defense issues.

PS-226. ENVIRONMENTAL POLICY

PS-232. CRIMINAL LAW

Credits: 3

An introduction to the study of criminal law. The principles of criminal law are presented using the case method. The structure and operation of the criminal justice system are also reviewed. Offered every fall.

Pre-Requisites

[[PS-111]].
Environmental Policy Minor

PS-233. LAW AND SOCIETY
Credits: 3
An introduction to the study of law and its role in social and political systems. Attention is given to theories of law and to the structure of the legal system. Students are given the opportunity to engage in hypothetical dispute resolutions using common law methods. Offered every spring.

Pre-Requisites
[[PS-111]].

PS-242. INTERNATIONAL LAW AND ORGANIZATION
Credits: 3
The study of the nature, application, and sources of international law and how it relates to the evolution of global and regional organizations and alliances, including international non-governmental organizations and other non-state factors.

Pre-Requisites
[[PS-141]] or consent of instructor.

PS-251. EUROPEAN POLITICS
Credits: 3
Comparison of the development, institutions, problems and prospects of democratic systems is Europe, both west and east. Attention is given to the European Community and its role in the transformation of Europe as well as the development of the former communist states in eastern Europe.

PS-252. THE CHANGING FACE OF EASTERN EUROPE
Credits: 3
This course examines the theoretical and empirical problems related to the process of transition to democracy in Central and Eastern Europe. Topics such as privatization, human rights, transitional justice, security dilemmas and institutional deadlock are addressed in this course.

PS-255. POLITICAL ECONOMY OF COFFEE
Credits: 3
This course examines the political economic aspects of the production of coffee, principally in Central America. After an examination of the current state of coffee production in the world, this course studies the historic role of coffee in Central America and how it has affected the politics, history, and people of the region.

PS-260. INTRODUCTION TO POLITICAL THINKING
Credits: 3
An introduction to the study of politics through an examination of the crucial issues with which political scientists grapple: justice, equality, freedom, power, and the good life, to name a few. Offered every spring.

PS-261. RESEARCH METHODS IN POLITICAL SCIENCE
Credits: 3
A survey of the major concepts, theories and methods of political science as a discipline. Preparation of a research design and a review of quantitative methods also included. Offered every fall.

PS-262. AMERICAN POLITICAL THOUGHT
Credits: 3
The study of the political ideas, ideals, and ideologies that contributed to and developed from the American experience. An analysis of the ideas that underlie America’s political institutions and practices. Cross listed with [[PHL-236]]. May not be used to meet Area I requirements of the General Education Curriculum.

PS-265. QUANTITATIVE REASONING FOR THE SOCIAL SCIENCES
Credits: 3
This course is an introduction to quantitative analysis for the social sciences using SPSS, one of the most frequently and widely used statistical packages in the world. Students will learn how to enter and manipulate data in SPSS, apply and interpret statistics from descriptive through multiple regression, and test hypotheses using statistical methods. Cross listed with [[SOC-373]].

Pre-Requisites
[[PS-111]] or 141, [[PS-261]] or [[SOC-371]], or approval of instructor.

PS-309. CAREER MENTORING FOR THE SOCIAL SCIENCES
Credits: 2
This course will offer career guidance for students in the Behavioral and Social Sciences. The course will include topics such as mentoring, networking, résumés and interviewing skills. Course credits will not count towards minor credits. Open only to majors in the social and behavioral sciences.

Pre-Requisites
[[PS-111]] or consent of the instructor.

PS-311. THE AMERICAN PRESIDENCY
Credits: 3
An exploration and analysis of the development of the American President as political leader, chief executive, and world leader as well as the origins and growth of the institutional presidency. Special attention is given to the selection process and its effect on the Presidency. Offered in the fall semester in odd years.

Pre-Requisites
[[PS-111]], junior standing. Course will be cross-listed with PSY and [[SOC-309]]

PS-312. THE US CONGRESS
Credits: 3
Congress is often referred to as "the People's Branch" of government because voters now directly elect members of both houses, which is different than the other two branches. Yet Congress regularly is held in low esteem by the public. This course explores the constitutional basis of Congress: how it is elected, its powers and its role in a system of separate branches with checks and balances. It also traces Congress's historical development and explains how and why it functions today. Multiple case studies are used to illustrate important points, and a congressional simulation is conducted at the semester's end in which students assume the role of a newly elected member of the House. Offered every spring semester in even years.

Pre-Requisites
[[PS-111]] or consent of the instructor.

PS-331. THE CONSTITUTION AND THE FEDERAL SYSTEM
Credits: 3
The study of the meaning of the Constitution as interpreted by the Supreme Court. Analysis of the powers of the three branches of government and of the relations between the states and the federal government. Offered in the spring semester in even years.

Pre-Requisites
[[PS-111]], [[PS-233]], or consent of the instructor.
PS-332. CIVIL RIGHTS AND LIBERTIES  
Credits: 3  
The study of the growth and change of the American Constitution through analyses of the landmark decisions regarding free speech and press, separation of church and state, rights of persons accused of crimes, equal protection of the laws, voting rights. Offered in the fall semester in even years.  
Pre-Requisites  
[[PS-111]], [[PS-233]], or consent of the instructor.  

PS-341. MODEL UNITED NATIONS  
Credits: 3  
This course is a comprehensive examination of the role of the United Nations in the world, culminating in the Model United Nations conference in New York. The course will prepare students to participate in the conference by teaching them the structures and functions of the UN as well as the history and viewpoints of the assigned country.  

PS-345. AMERICAN NATIONAL SECURITY POLICY  
Credits: 3  
This course analyzes U.S. National Security Policy, the combination of foreign and defense policies. Using theories of international politics and foreign policy, students learn about the evolution of U.S. national security from the War of Independence to the contemporary period. Theoretical approaches, such as geopolitics, balance of power, and force doctrines, are examined. The agencies and personnel that develop and implement security policy are also studied.  
Pre-Requisites  
[[PS-141]] or permission of the instructor.  

PS-350. COMPARATIVE POLITICS: THEORY AND ANALYSIS  
Credits: 3  
This course is an introduction to the study of politics and governments from a comparative perspective. It is not a survey course of the governmental institutions of particular countries, but rather an examination of types of governments and regimes, the transitions that may occur between types of government, and approaches to studying these topics. The course examines the ways that ethnicity and cultural ideas affect governments and regime transition.  
Pre-Requisites  
Sophomore standing.  

PS-354. ECOTOURISM DEVELOPMENT IN COSTA RICA  
Credits: 3  
As an international service-learning course, this class will work with a selected community in Costa Rica on their ecotourism development plan. Students will assist this community with a variety of tasks including an ecotourism business plan, sustainability projects and other tasks determined by our community partner. The course will begin with an examination of the public policy and economic aspects of the development of ecotourism in Costa Rica and how it can benefit our community partner. The second portion of the course will provide an intensive in-country experience with ecotourism stakeholders from both the public and private sector. Students will design and implement a number of projects in Costa Rica to assist the community in the development of its ecotourism industry. The final segment of the course will examine the effects of the service projects completed in Costa Rica on campus.  

PS-380. POLITICAL SCIENCE SENIOR PROJECT  
Credits: 3  
This course is the capstone experience for Political Science majors. During the semester, the student completes the research project begun during [[PS-261]] (that is, data and information are gathered and analyzed), and the results written in a formal paper. Students present their findings in a public forum where the department’s faculty and students are present. Offered every semester.  
Pre-Requisites  
Senior standing, [[PS-261]] and [[PS-265]].  

PS-394. PRACTICUM  
Credits: 1-3  
Pre-Requisites  
No course prerequisites, but the permission of the instructor or faculty member is required in advance.  

PS-399. COOPERATIVE EDUCATION  
Credits: 1-6  
Professional cooperative education placement in a private or public organization related to the student’s academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student’s discipline. (See the Cooperative Education section of this bulletin for placement procedures.)  
Pre-Requisites  
Sophomore standing, minimum 2.0 cumulative GPA, consent of academic advisor, and approval of placement by the department chairperson.  

EES. EARTH AND ENVIRONMENTAL SCIENCES  

EES-395/396. INDEPENDENT RESEARCH  
Credits: Varies with topic 1-3 credits.  
Independent study or research of specific earth or environmental science topic at an advanced level under the direction of a departmental faculty member.  
Click here for course fees.  
Pre-Requisites  
Upper class standing and approval of academic advisor, research advisor, and department chairperson.  

EES-198/298/398. TOPICS IN EES  
Credits: Varies with topic  
Departmental courses on topics of special interest, not extensively treated in regularly scheduled offerings, will be presented under this course number on an occasional basis. May be repeated for credit.  
Click here for fee for courses with a lab.  
Pre-Requisites  
Varies with topic studied.
EES-105. PLANET EARTH
Credits: 3
The nature of our planet and how it works are examined in the context of Earth as a constantly changing dynamic system. An emphasis on global scale processes and the interaction of humans and their physical environment is coupled with in-depth coverage of how science is done and the scientific principles that influence our planet, its rocks, mountains, rivers, atmosphere, and oceans. Major sub-topical areas in the Planet Earth series may include geology (Forces of Geologic Change), oceanography (The Restless Ocean), astronomy (The Cosmic Perspective), geography (Global Regions and Geography), and the relationship between people and their physical surroundings (The Global Environment). Intended for students who are not majoring in science, engineering, pre-pharmacy, nursing, or B.S. programs in mathematics or computer science. Two hours of lecture and two hours of lab per week.
Click here for course fees.

Pre-Requisites
No previous background in science or college-level mathematics is required.

EES-201. ENVIRONMENTAL ETHICS AND SUSTAINABILITY
Credits: 1
This course entails an examination of the central topics of environmental ethics and sustainability as viewed from the perspectives of science. Ethical and sustainability paradigms that all environmental scientists should be aware of will be studied. Course is delivered online.

Pre-Requisites
[[EES-240]] or permission of the instructor.

EES-202. BIOGEOCHEMISTRY
Credits: 3
Fundamentals of the circulation of materials through the earth's air, soils, waters, and living organisms are examined from the perspective of introductory chemical principles. Global cycles of water, carbon, nitrogen, phosphorus, and sulfur are investigated in detail with emphasis on the roles of microorganisms, chemical equilibrium, and oxidation-reduction processes in biogeochemical cycling. Laboratory focuses on 1) student designed projects to gather data that illustrate key concepts in chemical weathering processes in aqueous solutions, oxidation-reduction reactions, and microbial mediation of elemental cycling and 2) building problem solving skills. Two hours of lecture and three hours of lab per week.
Click here for course fees.

Pre-Requisites
[[CHM-115]].

EES-210. GLOBAL CLIMATE CHANGE
Credits: 3
The nature and function of earth's global climate are examined from a unified system perspective. Major questions focus on scientific versus public understanding of trends in global temperature, precipitation, and sea level. The course emphasizes negative and positive feedback processes that force key changes in the earth's climate system: past, present, and future. Topics include fundamentals of global and regional heat and water balance, the role of elemental cycles in controlling climate (e.g., the carbon cycle), descriptive climate classification, long-term, short-term, and catastrophic climatic change (e.g., ice ages and bolide impacts), and human effects on climate (e.g., enhanced greenhouse, rising sea level). This course integrates a scientific understanding of climatic change and explores contemporary social and economic policy responses to change scenarios. Three hours of lecture per week.

EES-211. PHYSICAL GEOLOGY
Credits: 4
Description, analysis, and laboratory studies of earth materials, structure, and processes, including earth's surface, interior, age, and origin. Three hours of lecture and three hours of lab per week. Requirements: For CS, Engineering, Math, and Science majors only. Cross listed with [[GEO-211]].
Click here for course fees.

EES-212. HISTORICAL GEOLOGY
Credits: 3
A study of the geologic record of the earth's formation and evolution, including methods of dating. Two hours of lecture and three hours of lab per week. Cross listed with [[GEO-212]].
Click here for course fees.

Pre-Requisites
[[EES-211]] or permission of the instructor.

EES-213. CLIMATE MODELING
Credits: 1
Students will utilize software to construct basic models of Earth Systems. No prior knowledge of the software is assumed or required. Weekly assignments will consist of computer-based modeling exercises, each progressively building upon previous assignments. Specifically, students will utilize software to construct relatively simple models of world population growth, fossil fuel consumption, the global carbon cycle, and the Earth's energy balance. The final modeling exercise couples the population growth, carbon cycle, and Earth energy balance assignments in an effort to explore the effects of future population growth and carbon dioxide emissions on global mean temperature. Two hours of lab per week.

Co-Requisites
[[EES-210]]

EES-218. ENVIRONMENTAL ETHICS
Credits: 3
An examination of the central problems of environmental ethics as viewed from the perspectives of science and of philosophy. The value of nature and 'natural objects,' differing attitudes toward wildlife and the land itself, implications of anthropocentrism, individualism, ecocentrism, and ecofeminism, bases for land and water conservation, and other topics will be examined within a framework of moral and scientific argument. Cross-listed with [[PHL-218]].

Pre-Requisites
[[PHL-101]] or [[EES-240]] or permission of the instructor.

EES-230. OCEAN SCIENCE
Credits: 4
An interdisciplinary approach to the study of the fundamentals of oceanography emphasizing physical, chemical, and biological interrelationships. Three hours of lecture and three hours of lab. Requirements: For CS, Engineering, Math, and Science majors only.
Click here for course fees.
EES-240. PRINCIPLES OF ENVIRONMENTAL ENGINEERING & SCIENCE  
Credits: 4  
A study of physical, chemical, and biological components of environmental systems and a discussion of processes involved in water quality management, air quality management, waste management, and sustainability. Three hours of lecture and three hours of lab per week.

Pre-Requisites  
[[MTH-111]] or higher. Requirements For CS, Engineering, Math, and Science majors only.

EES-242. ENVIRONMENTAL HEALTH  
Credits: 3  
To provide students with an understanding of man’s impact on the environment and how those impacts can be controlled or mitigated. Students completing this course should be able to recognize environmental problems and understand control and preventative measures. Three hours of lecture.

Pre-Requisites  
Introductory physics and chemistry. Students who have taken [[EES-240]] will be admitted only with the consent of the instructor.

EES-251. SYNOPTIC METEOROLOGY  
Credits: 4  
Topics include surface and upper air weather systems, weather phenomena, climate, and local weather influences. Synoptic map analysis and interpretation are emphasized. Three hours of lecture and three hours of lab per week. Requirements: For CS, Engineering, Math, and Science majors only

Click here for course fees.

EES-261. REGIONAL GEOGRAPHY  
Credits: 3  
Topics covered include maps and charts and basic elements of physical, cultural, historical, and economic geography as applied to specific geographic regions. Three hours of lecture per week.

EES-271. ENVIRONMENTAL MAPPING I: INTRODUCTION TO GPS AND GIS  
Credits: 3  
Information Systems (GIS), and environmental mapping concepts and applications. Topics include coordinate systems, reference ellipsoids, geodetic datums, map projections, history of GIS, relational database management, quality control, GIS as a decision support tool, and data manipulation, processing, and analysis. Practical field use of GPS is emphasized within the context of understanding system components, satellite signal processing, selective availability, base station differential correction, and data export to GIS. Geospatial data science is discussed within the context of real-world locational phenomena. Two hours of lecture and two hours of lab per week.

Click here for course fees.

EES-272. ENVIRONMENTAL MAPPING II: ADVANCED GIS AND REMOTES SENSING  
Credits: 3  
Terms Offered: Spring  
An advanced course on Geographic Information Systems (GIS) and Remote Sensing. GIS topics build upon introductory-level coursework in EES 271, and introduce more advanced applications of GIS software such as density mapping and interpolation of point data (geostatistical methods), surface analysis and 3D modeling of environmental data, open source alternatives to ArcGIS, and web map development and design. Remote sensing topics include aerial and satellite visual imagery, digital image processing, photogrammetry, Light Detection and Ranging (LiDAR), and multispectral remote sensing systems and theory. The course will also include case studies of remote sensing and GIS techniques applied in environmental studies. Field use of GPS is emphasized, in addition to the use of small Unmanned Aerial Systems (sUAS) to capture aerial digital imagery. Laboratory component emphasizes practical skills and tools in achieving desired results in processing geospatial data, particularly raster data types. Two hours of lecture and three hours of lab per week. Prerequisite: EES 271 or permission of the instructor.

Click here for course fees.

EES-280. PRINCIPLES OF ASTRONOMY  
Credits: 4  
Topics include orbital mechanics, results of planetary probes, spectra and stellar evolution, and cosmology. Three hours of lecture and three hours of lab per week. Requirements: For Science majors only

Click here for course fees.

EES-302. SCIENCE RESEARCH AND COMMUNICATION  
Credits: 1  
The aim for this course is to provide students with the necessary foundation to think critically about scientific research and communication. The course introduces students to the (1) philosophy of science, (2) design, execution, and evolution of scientific projects, (3) exploration, evaluation, and management of scientific literature, (4) methods and ethics of scientific communication, and (5) proposal design for a project to be continued into Senior Project (EES/GEO 391/392) that includes a literature review, definition of research questions, objectives, or testable hypotheses, and the methods used to carry out the project. The broader social and political context in which scientific research is situated and must respond to and interact with is also explored. More than that, this course explores the important connections between research design and communication by having students focus on the application of learned theory and skills to projects with Senior Project advisor.

Pre-Requisites  
Junior standing.

EES-304. ENVIRONMENTAL DATA ANALYSIS  
Credits: 2  
To acquaint students majoring in earth and environmental sciences with the techniques and methods of data acquisition and analysis, including environmental sampling methodology and data management. Emphasis will be placed on examination of real data sets from various areas of the earth and environmental sciences with particular emphasis placed on using and applying graphical and statistical procedures used in [[EES-391]];392 (Senior Projects). Two hours of lecture per week.

Pre-Requisites  
[[MTH-150]] and Junior standing or permission of the instructor.
EES-340. CONSERVATION BIOLOGY
Credits: 3
This course will cover the major topics of conservation biology including an introduction to biodiversity, threats to biodiversity, and solutions to diminish extinctions and population declines. Lecture: three hours per week. Cross-listed with [BIO-340].

Pre-Requisites
BIO 121-122, BIO 225-226 or permission of the instructor.

EES-341. FRESHWATER ECOSYSTEMS
Credits: 3
A study of the biological and ecological aspects of streams, lakes, and wetlands from a watershed perspective. An initial introduction to physical, chemical, and geological principles of limnology is followed by a focus on freshwater biology. Laboratories include field-based watershed investigations and lake management assessments using geographic information systems techniques. Cross-listed with [BIO-341]. Two hours of lecture and three hours of lab per week. Offered in alternate years.

Click here for course fees.

Pre-Requisites
[bio-211] or [bio-121]-122 or permission of the instructor.

EES-343. MARINE ECOLOGY
Credits: 3
An examination of the biology of marine life within the context of modern ecological principles. The structure and physiology of marine organisms will be studied from the perspectives of adaptation to the ocean as habitat, biological productivity, and interspecific relationships. Emphasis will be placed on life in intertidal zones, estuaries, surface waters, and the deep sea. Two hours of lecture and three hours of lab per week. Cross-listed with [BIO-343]. Offered in alternate years.

Click here for course fees.

Pre-Requisites
[ees-230] and [bio-121]-122 or permission of the instructor.

EES-344. ECOLOGY
Credits: 4
Ecology examines contemporary ecological thinking as it pertains to the interrelationships of organisms and their environments. Interactions at the populations and community level are emphasized. Two hours of lecture and three hours of lab per week. Cross-listed with [BIO-344]. Offered in alternate years.

Click here for course fees.

Pre-Requisites
[bio-121]-122, 223-224, or permission of the instructor.

EES-366. FIELD BOTANY
Credits: 3
This is a specialized summertime field course, which emphasizes a taxonomic, phylogenetic, and ecological survey of higher plants indigenous to Northeastern Pennsylvania. Due to the extensive field work, enrollment is somewhat more restricted than in other courses; therefore, written permission from the instructor is the primary prerequisite for those upperclassmen who wish to register for the course. Cross-listed with [BIO-366]. Offered in alternate years.

Click here for course fees.

Pre-Requisites
[bio-121]-122, 223-224, or permission of the instructor.
EES-392. SENIOR PROJECTS II
Credits: 2
Design and development of selected projects in earth and environmental sciences and other related fields under the direction of a staff member. Technical as well as economical factors will be considered in the design. A professional paper to be presented and discussed in an open forum is required.
Click here for course fees.

Pre-Requisites
[[EES-391]] or department permission. (See the department for more details about the department permission.)

EES-394. FIELD STUDY
Credits: 1-3
On-site study of an earth or environmental problem or situation incorporating field documentation and investigative techniques. May be repeated for credit when no duplication of experience results. One hour of lecture, plus field trips.
Click here for course fees.

Pre-Requisites
[[EES-211]] and [[EES-240]].

EES-399. COOPERATIVE EDUCATION
Credits: 1-6
Professional cooperative education placement in a private or public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. See the Cooperative Education section of this bulletin for placement procedures.

Pre-Requisites
Sophomore standing; minimum 2.0 cumulative GPA; consent of the academic advisor, and approval of placement by the department chairperson.

EES-498. TOPICS
Credits: Varies with topic
Departmental courses on advanced topics of special interest, not extensively treated in regularly scheduled offerings, will be presented under this course number on an occasional basis. Available for either undergraduate or graduate credit. May be repeated for credit.
Click here for fee for courses with a lab.

Pre-Requisites
Senior or graduate standing