Environmental Studies (ES)

Courses

ES 001 Introduction to Environmental Studies 4 Credits
Gateway to the field of Environmental Studies, the course surveys central issues and themes confronting humanity in the natural world on a national and global basis. Topics include humankind’s role in environmental change; society’s response to the dynamism of nature; cultural evaluations of nature; population dynamics; resource availability and pollution sinks; land use patterns; sustainability and consumerism; environmental justice and ethics; policy and planning. This course fulfills a social science credit requirement. Please select ES 002 to fulfill the natural science requirement.

Attribute/Distribution: SS

ES 002 (EES 002) Introduction to Environmental Science 3 Credits
Focuses on natural and human-induced drivers and consequences of environmental change. Exploring options for mitigating and adapting to environmental change in ecosystems, physical and social systems, the course examines such topics as biogeochemical cycles, population pressure, ecosystem diversity, productivity and food security, energy, water resources, climate change, pollution, ozone, urban issues and sustainability. Stresses interactions using case studies. Intended for any student with an interest in the environment. May be combined with EES 022 or EES 004 for 4 credits.

Attribute/Distribution: NS

ES 004 (EES 004) The Science of Environmental Issues 1 Credit
Analysis of current environmental issues from a scientific perspective. The focus on the course will be weekly discussions based on assigned readings. May be combined with other EES 3 credit courses for 4 credits.

Attribute/Distribution: NS

ES 010 Environment and the Consumer Society 4 Credits
Is there such a thing as sustainable consumption, or will life on Earth become increasingly imbalanced? Will our grandchildren accuse us of “devouring” their future? This multidisciplinary course investigates these issues, both locally and globally from the perspectives of anthropology, history, communication and politics. Topics include cultural causes of and responses to past environmental disasters; biological and cultural limits to growth; overfishing the commons; resources and land use issues; communication in a consumer culture; and politics and governmental regulations. Team projects researching the environmental impacts of campus consumption will be included.

Attribute/Distribution: NS

ES 093 Freshmen Supervised Internship in the Environmental Initiative 1-2 Credits
Experiential learning opportunities supervised by EI faculty including fieldwork, data collection or analysis, literature review, and information management. Consent of supervising faculty is required. The experience may be related to either environmental studies or environmental science depending upon the discipline of supervising faculty member.

Repeat Status: Course may be repeated.

Attribute/Distribution: HU, NS, SS

ES 104 Political and Environmental Geography 4 Credits
Geographical foundations of political phenomena and human impacts on the environment. Global focus on geographic influences on growth and development of states and empires, the nature and impact of borders, how people have altered pattern of climate, hydrology, land forms soils, and biota.

Attribute/Distribution: SS

ES 105 (POLS 105) US Environmental Policy and Law 4 Credits
Analysis of the framework that has been established to protect the environment and promote sustainable growth. Focus on the roles of the different branches of the U.S. government and the relative responsibilities of state and local governments within this framework. Consideration of the political nature of environmental issues and the social forces influencing environmental protection in different areas of domestic environmental policy, such as climate change, toxic waste disposal and natural resources conservation.

Attribute/Distribution: SS

ES 106 (POLS 106) Environmental Values and Ethics 4 Credits
An introduction to the ethical perspectives and values that shape human relationships to the natural environment in contemporary society. What are the moral implications of these relationships for justice and human collective action? Given these implications, what policy responses to environmental problems are morally or politically justifiable? In answering these questions, the course explores ethical ideas developed in different schools of environmental thought, such as deep ecology and eco-feminism, in addition to ideas that emerge from social movements, such as environmental justice and bioregionalism.

Attribute/Distribution: SS

ES 107 The Politics of the Environment 4 Credits
A survey of the major environmental, resource, energy and population problems of modern society, focusing on the United States. The politics of people’s relationship with nature, the political problems of ecological scarcity and public goods, and the response of the American political system to environmental issues.

Attribute/Distribution: SS

ES 110 (HMS 110, POLS 110) Environmental Planning for Healthy Cities 4 Credits
An introduction to the topic of environmental planning, the course will review the roles of citizens, other stakeholders, political interests, and local governments in determining the use of land; unpack the meaning of "sustainability;" and grapple with the challenge of balancing communities' demand for development with the need to protect valuable natural resources. Students will be introduced to examples of successful and unsuccessful instances of environmental planning both at home and abroad.

Attribute/Distribution: SS

ES 111 Introduction to Environmental Economics 4 Credits
An examination of the interactions between our economic systems and the environment. Pollution as a consequence of human activity within a framework for analyzing the relationships between environmental quality, scarcity of resources and economic growth. How to develop appropriate public policies to deal with these issues.

Attribute/Distribution: SS

ES 115 (JOUR 115) Communicating about the Environment 4 Credits
Introduction to the need for and ways to communicate about environmental issues to laypersons, government officials, journalists, members of the judiciary and technical experts. Explores case studies of good and bad communication about environmental issues. Internet communication, including the efficacy of placing governmental reports and databases on the Web for public consumption, will be evaluated.

Attribute/Distribution: SS

ES 117 (HMS 117, JOUR 117) Environmental Health Risks and the Media 4 Credits
This course explores the risks and effects of environmental contamination on human health and behavior as well as the role of the mass media in alerting citizens to potential environmental health risks. Environmental topics vary but usually include air and water pollution, endocrine disrupters and radioactive waste.

Attribute/Distribution: SS

ES 121 (ANTH 121) Environment and Culture 4 Credits
Impact of environment upon cultural variability and change. Comparative study of modern and past cultures and their environments as well as current theories of human/environmental interaction.

Attribute/Distribution: SS
ES 123 Sustainability in Action I 1-4 Credits
First half of a year-long experiential learning program for students to engage with sustainability in both general theory and applied practices. Students will learn the political, economic and social effects of changing earth systems through a global, national and local lens. Students will explore the multitude of challenges posed by increasing natural resource consumption, inequitable distribution of wealth and rapid uneven globalization. Most importantly, students will engage the Lehigh community and broader community in developing and implementing practical solutions to creating a more sustainable and just world. Offered in coordination with the Campus Eco-Reps program. Instructor permission required.
Repeat Status: Course may be repeated.

ES 124 Sustainability in Action II 1-4 Credits
Continuation of ES 123 Sustainability in Action I; second half of a year-long experiential learning program for students to engage with sustainability in both general theory and applied practices. Students will learn the political, economic and social effects of changing earth systems through a global, national and local lens. Students will explore the multitude of challenges posed by increasing natural resource consumption, inequitable distribution of wealth and rapid uneven globalization. Most importantly, students will engage the Lehigh community and broader community in developing and implementing practical solutions to creating a more sustainable and just world. Students in ES 124 expand the scope and scale of sustainability projects and activities piloted in ES 123. Offered in coordination with the Campus Eco-Reps program. Instructor permission required.
Repeat Status: Course may be repeated.

ES 125 (JOUR 125) Environment, the Public and the Mass Media 4 Credits
Extensive exploration of local, national and international environmental problems and their social, political and economic impacts. Analysis of mass media coverage of complex environmental issues and the media's effects on public opinion and government environmental policies. Examination of environmental journalism principles and practices in the United States and around the world.
Attribute/Distribution: SS

ES 131 Internship 1-4 Credits
Practical experience in the application of environmental studies for both on- and off-campus organizations. is designed to provide credit for supervised experiential learning experiences. Consent of program director required.
Repeat Status: Course may be repeated.
Attribute/Distribution: ND

ES 170 Special Topics 1-4 Credits
Intensive, research-oriented study of a subject or issue in Environmental Studies not covered in other courses. For students of demonstrated ability and adequate preparation. Consent of program director required.
Repeat Status: Course may be repeated.
Attribute/Distribution: HU, SS

ES 171 (CEE 171, CHE 171, EMC 171) Fundamentals of Environmental Technology 4 Credits
Pollution control technologies and how they work for water, air and solid wastes. Assessment and management of risk as applied to remediation of contaminated wastes. Role of life cycle analysis of products in risk reduction. Emphasis on technologies leading to sustainable environment. Government policies and regulations, including litigation and Best Engineering Practices. Must have completed a course designated as NS. Not available to students in RCEAS.

ES 181 Independent Study 1-4 Credits
Directed readings or research on an Environmental Studies topic. Consent of program director required.
Repeat Status: Course may be repeated.
Attribute/Distribution: HU, SS

ES 194 Practicum in Environmental Studies 1-4 Credits
Supervised collaborative work on local, state or national environmental issues.
Repeat Status: Course may be repeated.

ES 223 Advanced Sustainability in Action I 1-4 Credits
Leadership and coordination of Sustainability in Action projects and activities for students in ES 123. Experienced students who have completed the year-long Sustainability in Action sequence (ES 123 and ES 124) continue in course coordination role. Offered in coordination with the Campus Eco-Reps Program. Consent of instructor required.
Repeat Status: Course may be repeated.
Prerequisites: ES 123 and ES 124

ES 224 Advanced Sustainability in Action II 1-4 Credits
Continuation of ES 223. Leadership and coordination of Sustainability in Action projects and activities for students in ES 124. Experienced students who have completed the year-long Sustainability in Action sequence (ES 123 and ES 124) continue in course coordination role. Offered in coordination with the Campus Eco-Reps Program. Consent of instructor required.
Repeat Status: Course may be repeated.
Prerequisites: ES 123 and ES 124 and ES 223

ES 254 (ASIA 254, REL 254) Buddhism and Ecology 4 Credits
Buddhism's intellectual, ethical, and spiritual resources and reexamined in light of contemporary environmental problems. Is Buddhism the most green of the major world religions? What are the moral implications of actions that affect the environment?
Attribute/Distribution: HU, SS

ES 293 Supervised Internship in the Environmental Initiative 1-4 Credits
Experiential learning opportunities supervised by EI faculty including fieldwork, data collection or analysis, literature review, and information management. The experience may be related to either environmental studies or environmental science depending upon the discipline of supervising faculty member. The students should collaborate with faculty to develop a work plan that describes the credits requested as well as the activities included in the internship and expected outcomes. Consent of supervising faculty is required.
Repeat Status: Course may be repeated.
Prerequisites: ES 093
Attribute/Distribution: HU, NS, SS

ES 301 (PHIL 301) Philosophical-Policy & Legal Design: Methods & Applications 4 Credits
A basic class on the idea of policy design, as opposed to standard economic analysis of public policy and its application to various domestic and international areas of law, including environmental law. The course will introduce Philosophical-Policy Methods, or the protocol employing integrated philosophical systems to justify specific policy-legal design arguments, through the use of a variety of distinct policy paradigms.

ES 305 (POLIS 305) Residential Segregation: Policies and Practices 4 Credits
This course is an introductory planning course, with an emphasis on housing and community development policy. It will examine historical and contemporary aspects of urban politics; the economic, demographic, and spatial evolution of American cities; and various urban problems, such as the spatial mismatch between people and jobs, housing quality and affordability, and residential segregation. Finally, the course will review how planners have addressed conditions in cities and regions over time.
Attribute/Distribution: SS
ES 306 (HMS 306) Food Justice in Urban Environments 4 Credits
This course will review how urban agriculture and city greening programs and policies are part of a growing movement working to strengthen neighborhoods, promote healthier living, and create more localized and sustainable food economies. This class will explore research and readings from multiple disciplines on these programs and policies, and will also delve into individual case studies that illustrate how efforts to improve food access, beautify vacant land, and reduce farm-to-table distances get creatively and successfully combined.

ES 310 (SDEV 310) Foundations of Sustainable Development Practice 4 Credits
The broad goal of this course is to introduce students to the foundations of key sectoral and thematic knowledge for important challenges to sustainable development: food and nutritional security, social service delivery, energy policy, water resource management, urbanization, infrastructure, human rights, biodiversity, adaption to climate change, mitigating GHGs, sustainable business, good governance, and more. Through the Global Classroom we will do this together virtually with academic partners from around the world.

Attribute/Distribution: SS

ES 311 (POLS 311) Environmental Valuation for Policy Design 4 Credits
Seminar on how to value the environment for the purpose of designing and analyzing environmental policies. Review of the "contingent valuation method" currently used to price environmental resources, and assessment of this method's empirical and normative strengths and weaknesses. Evaluation of "deliberative monetary valuation" as an improved method for environmental assessment. Consideration of non-monetary approaches to environmental valuation as alternatives to understanding the environment's relationship to human well-being in policy contexts.

Attribute/Distribution: SS

ES 312 (POLS 312) Urban Environmental Policy Workshop 4 Credits
An urban environmental planning and policy course in which students explore an issue affecting the local community, evaluate current policy responses and possible alternatives, and present recommendations to public officials, local organizations, and community members. Student research and analysis will draw on primary and secondary data, as well as feedback from conducting individual interviews, focus groups, and community meetings. Prior projects include determining how Bethlehem's new City Revitalization improvement Zone (CRIZ) might best benefit the South Side of Bethlehem, PA.

Attribute/Distribution: SS

ES 314 (POLS 314) Urban Agriculture Policy, Planning and Practice 4 Credits
Review of urban agriculture and greening programs in growing social movement to strengthen neighborhoods, promote healthier living, and create localized and sustainable food economies. Students consider these programs in relation to national farm policy and develop urban agriculture projects with community partners. Case studies illustrate how improving food access, beautifying vacant land, and reducing farm-to-table distances, are creatively and successfully combined. Students will receive hands-on gardening and farming experience at a community garden.

Attribute/Distribution: SS

ES 315 (HIST 315) American Environmental History 3-4 Credits
Relationship between Americans and their natural environment from the colonial period to the present: impact of European settlement, attributes toward wilderness, role of technological development, rise of preservation and conservation movements, establishment of national parks, recent environmental protection legislation.

Attribute/Distribution: SS

ES 318 (POLS 318) Data Analysis for Policymaking 4 Credits
This research methods course teaches students to highlight important conditions and trends — ones that warrant policymakers' attention — using publicly available data sources (like the Census). Conveying information in a clear and persuasive way, one that motivates decision-makers to act, is a key step in any policymaking process. Students will become familiar with these databases and proficient at generating charts, graphs and maps using Microsoft Excel, Microsoft Access, and ArcMAP (three programs central to most jobs in policy-related fields).

ES 320 (HMS 320) Food Justice in Urban Environments 4 Credits
This course will review how urban agriculture and city greening programs and policies are part of a growing movement working to strengthen neighborhoods, promote healthier living, and create more localized and sustainable food economies. This class will explore research and readings from multiple disciplines on these programs and policies, and will also delve into individual case studies that illustrate how efforts to improve food access, beautify vacant land, and reduce farm-to-table distances get creatively and successfully combined.

Attribute/Distribution: SS

ES 321 (ANTH 321) Information Ecology 4 Credits
Information theory, critical social theory, and ecological principles are combined to model how information organizes human ecosystems. These concepts are applied to environmental policy analysis using case studies.

ES 323 (HMS 323, JOUR 323, STS 323) Health and Environmental Controversies 4 Credits
Exploration of health and environmental controversies from the perspectives of scientific uncertainty and mass media coverage. Examines genetic engineering, biotechnology, environmental health risks, and nanotechnology. Includes discussion of ethical and social responsibilities and interactions with the public.

Attribute/Distribution: SS

ES 328 (POLS 328) U.S. Politics and the Environment 4 Credits
An examination of contemporary American politics and policy dealing with environmental issues. Current controversies in the legislative and regulatory areas will be covered to examine environmental issues and the political process. Significant portions of the course readings will be taken from government publications.

Attribute/Distribution: SS

ES 331 Environmental Law I: Pollution & Risk Abatement 4 Credits
This course studies the practical reality of environmental regulation as codified law. It also aims at understanding the law’s foundation in argument and justification as both existing law and proposed policy through the use of cases, statutes, and regulations on air, water, risk, waste and environmental impact. Utilizing two legal paradigms for charting the relationship between humanity and nature, it examines a wide range of environmental law as well as ethical, political, economic, scientific, and policy dimensions.

Attribute/Distribution: SS

ES 333 (PHIL 333) International Environmental Law & Philosophical-Policy Design 4 Credits
This course studies international law and the natural environment assuming that the superficial legal structure and policy dilemmas of globally regulating the natural world are the result of the more essential philosophical ideas and concepts that have created both the international legal system and humanity’s evolving interrelationship with nature. Learning the current structure of the international-environmental legal system we shall comparatively apply theory to practice to both explain existing law and justifying policy change.

Attribute/Distribution: HU

ES 338 Environmental Risk 4 Credits
Starting with the distinction between traditional pollution problems and environmental risk, this course examines the policy and legal implications of its unique characteristics.

Attribute/Distribution: SS
ES 342 (PHIL 342) International Law & Philosophical-Policy Design 4 Credits
Using the techniques of Philosophical-Policy and Legal Design we will examine the evolution of those fundamental ideas from the 16th to the 19th centuries that have shaped our current understanding of international law. To assess both what law is, and what it ought to be, we will contrast narrow theories of international law with more comprehensive philosophical arguments that place the evolution of legal practice within a more universal concern for practical reason and human nature. Attribute/Distribution: HU

ES 343 (PHIL 343) Comparative Environmental Law & Philosophical-Policy Design 4 Credits
Globalization is changing our perception of environmental policy as a strictly “domestic” issue. Those interested in humanity’s future interaction with nature need to understand not only the comparative practice of law and policy but the various philosophical principles that inform distinct approaches to environmental regulation within different political systems. We will explore both the components of the generic legal system and the range of alternatives for environmental law and policy design as practiced in various parts of the world. Attribute/Distribution: HU

ES 352 (ANTH 352) Environmental Archaeology 4 Credits
This course reviews the various categories of archaeological data used to examine the nature of past human-environmental relationships. We will explore how archaeologists use data to recognize anthropogenic and natural environmental changes, as well as cultural adaptations to local environments. Attribute/Distribution: SS

ES 355 (POLS 355) Environmental Justice: From Theory to Practice 4 Credits
This course explores the various ways in which environmental law and policy can have discriminatory effects. It examines the rise and evolution of environmental justice movement, and the impact of environmental justice claims on administration policies, especially at the federal level. Considering the role of politics in the ongoing struggle for environmental justice, it reviews theories of substantive and procedural justice, and uses them to consider strategies for advancing equity in environmental law and policy. Prerequisites: POLS 105 or ES 105 Attribute/Distribution: SS

ES 367 (TLT 367) Environmental Education 3 Credits
Introductory environmental education course designed to prepare students to implement environmental education opportunities in formal and non-formal education settings. Topics include history and philosophy of environmental education, environmental laws and regulations, GIS, environmental issues and decision making, curriculum integration and environmental education teaching methodologies. This is a Web enhanced containing both online and fieldwork components. Attribute/Distribution: SS

ES 368 (TLT 368) Teaching and Learning with Geospatial Tools 3 Credits
Exploration of geospatial tools, including but not limited to global positioning systems (GPS), geographic information systems (GIS), and related visualization tools (e.g., Google Earth). Application of these tools and techniques to instructional settings, including appropriate pedagogy and assessment. Attribute/Distribution: SS

ES 370 (GS 370, SOC 370) Globalization and the Environment 4 Credits
This course investigates globalization and the environment including how globalization has influenced society-nature relationships, as well as how environmental conditions influence the globalization processes. A key focus will be on the rapidly evolving global economic and political systems that characterize global development dynamics therefore resource use. Particular attention is paid to the role of multi-national corporations, international trade, and finance patterns and agreements. Questions related to consumption, population, global climate change, toxic wastes, and food production/distribution represent key themes. Attribute/Distribution: SS

ES 371 Special Topics 1-4 Credits
Intensive, research-oriented study of a subject or issue in Environmental Studies not covered in other courses. For students of demonstrated ability and adequate preparation. Consent of program director required. Repeat Status: Course may be repeated. Attribute/Distribution: HU, SS

ES 375 (POLS 375) Seminar: Green Polity 4 Credits
Development of guidelines and applications for public policy and political action directed toward environmental sustainability and political feasibility. Focus on problem-solving and policy design, connecting sustainable environmental goals with workable and responsive institutional designs. Attribute/Distribution: SS

ES 381 Senior Seminar: Issues in Environmental Studies 4 Credits
Advanced seminar focusing on discussion and research on specialized subjects in Environmental Studies. Subject matter varies from semester to semester. Intended for Environmental Studies majors and minors but open to others. Consent of program director. Prerequisites: ES 001 or ES 002 Attribute/Distribution: SS

ES 391 Honors Thesis 1-4 Credits
Directed undergraduate research thesis required of students who apply and qualify for graduation with program honors. Consent of program director required. Repeat Status: Course may be repeated. Attribute/Distribution: HU, SS

ES 401 Philosophical-Policy & Legal Design: Methods & Applications 3 Credits
A basic class on the idea of policy design, as opposed to standard economic analysis of public policy and its application to various domestic and international areas of law, including environmental law. The course will introduce the idea of Philosophical-Policy Methods, or the protocol employing integrated philosophical systems to justify specific policy-legal design arguments, through the use of a variety of distinct policy paradigms. Attribute/Distribution: NS

ES 402 (EES 402) Scientific Foundations for Environmental Policy Design 3 Credits
This course explores the science behind the environmental issues that bear on the policy process at local, national and global scales. It delves into the science of selected environmental issues that have either arisen from anthropogenic activities, or that impact social systems, or that help policy makers understand the consequences of different policy options. The course will consist of readings and discussions of timely topics and one major project. Attribute/Distribution: SS

ES 404 (SOC 404) Socio-cultural Foundations of Environmental Policy Design 3 Credits
This course is based on the premise that social and ecological sustainability require new policy approaches. Drawing on social, organizational, and behavioral theory, students will learn techniques for analyzing and critiquing existing environmental policies and designing more effective policies. Case studies highlight how cultural values, social norms, public opinion and politics shape policies and their outcomes. We examine the entire policy process from how environmental problems are defined, to how organizations implement policies and how policies are evaluated. Attribute/Distribution: NS

ES 405 (POLS 405) Residential Segregation: Policies and Practices 3 Credits
This course is an introductory planning course, with an emphasis on housing and community development policy. It will examine historical and contemporary aspects of urban politics; the economic, demographic, and spatial evolution of American cities; and various urban problems, such as the spatial mismatch between people and jobs, housing quality and affordability, and residential segregation. Finally, the course will review how planners have addressed conditions in cities and regions over time.
**ES 406 Food Justice in Urban Environments 3 Credits**
This course will review how urban agriculture and city greening programs and policies are part of a growing movement working to strengthen neighborhoods, promote healthier living, and create more localized and sustainable food economies. This class will explore research and readings from multiple disciplines on these programs and policies, and will also delve into individual case studies that illustrate how efforts to improve food access, beautify vacant land, and reduce farm-to-table distances get creatively and successfully combined.

**ES 410 Foundations of Sustainable Development Practice 3 Credits**
The broad goal of this course is to introduce students to the foundations of key sectoral and thematic knowledge for important challenges to sustainable development: food and nutritional security, social service delivery, energy policy, water resource management, urbanization, infrastructure, human rights, biodiversity, adaptation to climate change, mitigating GHGs, sustainable business, good governance, and more. Through the Global Classroom, an approach pioneered by Columbia University and the Global Masters of Development Practice Association (http://globalmdp.org/), we will do this together virtually with.

**ES 411 (POLS 411) Environmental Valuation for Policy Design 3 Credits**
Seminar on how to value the environment for the purpose of designing and analyzing environmental policies. Review of the “contingent valuation method” currently used to price environmental resources, and assessment of this method’s empirical and normative strengths and weaknesses. Evaluation of “deliberative monetary valuation” as an improved method for environmental assessment. Consideration of non-monetary approaches to environmental valuation as alternatives to understanding the environment’s relationship to human well-being in policy contexts.

**ES 412 (POLS 412) Urban Environmental Policy Workshop 3 Credits**
An urban environmental planning and policy course in which students explore an issue affecting the local community, evaluate current policy responses and possible alternatives, and present recommendations to public officials, local organizations, and community members. Student research and analysis will draw on primary and secondary data, as well as feedback from conducting individual interviews, focus groups, and community meetings. Prior projects include determining how Bethlehem’s new City Revitalization improvement Zone (CRIZ) might best benefit the South Side of Bethlehem, PA.

**ES 414 (POLS 414) Urban Agriculture Policy, Planning and Practice 3 Credits**
Review of urban agriculture and greening programs in growing social movement to strengthen neighborhoods, promote healthier living, and create localized and sustainable food economies. Students consider these programs in relation to national farm policy and develop urban agriculture projects with community partners. Case studies illustrate how improving food access, beautifying vacant land, and reducing farm-to-table distances, are creatively and successfully combined. Students will receive hands-on gardening and farming experience at a community garden.

**ES 418 (POLS 418) Data Analysis for Policymaking 3 Credits**
This research methods course teaches students to highlight important conditions and trends — ones that warrant policymakers’ attention — using publicly available data sources (like the Census). Conveying information in a clear and persuasive way, one that motivates decision-makers to act, is a key step in any policymaking process. Students will become familiar with these databases and proficient at generating charts, graphs and maps using Microsoft Excel, Microsoft Access, and ArcMAP (three programs central to most jobs in policy-related fields).

**ES 420 (POLS 420) Food Justice in Urban Environments 3 Credits**
This course will review how urban agriculture and city greening programs and policies are part of a growing movement working to strengthen neighborhoods, promote healthier living, and create more localized and sustainable food economies. This class will explore research and readings from multiple disciplines on these programs and policies, and will also delve into individual case studies that illustrate how efforts to improve food access, beautify vacant land, and reduce farm-to-table distances get creatively and successfully combined.

**ES 421 (SOC 421) Information Ecology 3 Credits**
Information theory, critical social theory, and ecological principles are combined to model how information organizes human ecosystems. These concepts are applied to environmental policy analysis using case studies.

**ES 431 (POLS 431) U.S. Environmental Law I: Pollution and Risk Abatement 3 Credits**
The study of bureaucracy and problems of public and nonprofit organization and management; executive leadership; personnel management systems and regulatory administration.

**ES 433 International Environmental Law & Philosophical-Policy Design 3 Credits**
This course studies international law and the natural environment assuming that the superficial legal structure and policy dilemmas of globally regulating the natural world are the result of the more essential philosophical ideas and concepts that have created both the international legal system and humanity’s evolving interrelationship with nature. Learning the current structure of the international-environmental legal system we shall comparatively apply theory to practice to both explain existing law and justify policy change. 

**ES 435 Environmental Valuation for Policy Design & Legal Analysis 3 Credits**
Reviewing the history and legal context that gave rise to the current use of the “contingent valuation method” for pricing environmental resources, this course assesses empirical and normative strengths of this method, as well as the weaknesses that challenge its effectiveness and political legitimacy. Students will evaluate the recent turn to “deliberative” methods of resource valuation and consider empirical and normative problems that deliberative methods address.

**ES 442 International Law & Philosophical-Policy Design 3 Credits**
Using the techniques of Philosophical-Policy and Legal Design we will examine the evolution of those fundamental ideas from the 16th to the 19th centuries that have shaped our current understanding of international law. To assess both what law is, and what it ought to be, we will contrast narrow theories of international law with more comprehensive philosophical arguments that place the evolution of legal practice within a more universal concern for practical reason and human nature.

**ES 443 Comparative Environmental Law & Philosophical-Policy Design 3 Credits**
Globalization is changing our perception of environmental policy as a strictly “domestic” issue. Those interested in humanity’s future interaction with nature need to understand not only the comparative practice of law and policy but the various philosophical principles that inform distinct approaches to environmental regulation within different political systems. We will explore both the components of the generic legal system and the range of alternatives for environmental law and policy design as practiced in various parts of the world. 

**Attribute/Distribution: SS**
ES 455 (POLS 455) Environmental Justice: From Theory to Practice 3 Credits
This course explores the various ways in which environmental law and policy can have discriminatory effects. It examines the rise and evolution of environmental justice movement, and the impact of environmental justice claims on administrative rule making at state and federal level. Reviewing the history of case law concerning environmental justice suits filed under the 1964 Civil Rights Act, it also examines the future of environmental justice in environmental law and policy.

ES 475 (POLS 475) Seminar: Green Polity 3 Credits
Development of guidelines and applications for public policy and political action directed toward environmental sustainability and political feasibility. Focus on problem-solving and policy design, connecting sustainable environmental goals with workable and responsive institutional designs.

ES 480 Internship in Environmental Policy 3 Credits
Students will gain practical experience working with governmental or non-governmental organizations or public officials formulating and/or implementing environmental policies at local, regional, national or international levels. Requires submission of a formal proposal drafted in collaboration with a faculty advisor and the professional mentor who will oversee the student’s internship. Upon completion of the internship, students will report project outcomes in oral presentation, written, or digital media format.

Repeat Status: Course may be repeated.

ES 483 Independent Study 1-3 Credits
Repeat Status: Course may be repeated.

ES 490 Thesis 1-6 Credits
Thesis.