**Environmental Initiative, Environmental Studies & Environmental Policy**

**Website:** http://ei.cas.lehigh.edu/ (http://ei.cas2.lehigh.edu/)

Supported by the Office of Undergraduate Studies and Interdisciplinary Programs 610-758-3996; incasip@lehigh.edu

Williams Hall, 31 Williams Drive

The Environmental Initiative is a broadly interdisciplinary program of education, research, and outreach. The curricula include courses in four colleges and 10 departments in social sciences, humanities, education, science, mathematics and engineering. The Environmental Initiative offers an undergraduate BA degree in Environmental Studies, an undergraduate minor in Environmental Studies and a graduate MA degree in Environmental Policy.

**The Environmental Studies subject code ES is in the process of being changed to EVST. Those courses with subject code EVST are equivalent to the corresponding ES course. For example, the course EVST 002 fulfills the requirement for ES 002 in the Environmental Studies Program or any program listing ES 002 as a requirement.**

**UNDERGRADUATE STUDIES**

**Website:** http://ei.cas.lehigh.edu/ (http://ei.cas2.lehigh.edu/)

The Environmental Studies BA program examines a range of factors confronting humans as they struggle with complex problems and possible solutions to environmental questions. Using a social science perspective, the program includes cultural, communication, economic, health, historical, humanistic, political, science and social factors that influence local, national, international and global environmental issues and policies. The program has been designed so students will develop a broad understanding of social science environmental concerns, along with a basic familiarity in at least one of five basic environmental areas: health; humanities; policy, planning & law; politics & society; and science & technology. Embedded in each of these areas are related skills courses to help students prepare for careers and in-depth studies of environmental topics related to the field and the concentration.

The B.A. program will prepare students for a variety of career options in fields such as environmental policy, environmental health, environmental communication, environmental education or environmental law. Careers can be found in federal, state and local government agencies, consulting companies, industries, nonprofit organizations, advocacy groups, online environmental communication sites and elsewhere. The program also will prepare students for graduate studies in a number of environmental policy and social science fields including law.

The B.A. is specifically designed to be broadly inclusive yet flexible enough to encourage double majors and minors in other fields. Double majors or minors in social science fields such as anthropology, health, medicine and society, history, international relations, journalism, political science, psychology, science and environmental writing or sociology could easily be accomplished. Double majors or minors in the humanities in English, art and architecture, philosophy and religion also could be easily completed. In particular, this degree complements existing B.A. and B.S. programs in Earth and Environmental Sciences and the B.S. program in Environmental Engineering. If students are not pursuing a double major, a minor in another field to complement the Environmental Studies major is highly recommended but not required.

The B.A. is considered a social science major and most of its courses fulfill college social science distribution requirements.

**The Environmental Studies subject code ES is in the process of being changed to EVST. Those courses with subject code EVST are equivalent to the corresponding ES course. For example, the course EVST 002 fulfills the requirement for ES 002 in the Environmental Studies Program or any program listing ES 002 as a requirement.**

**Program Honors**

To graduate with honors, a major in Environmental Studies must maintain a 3.2 overall average, attain a 3.5 average in the courses constituting the major program, and complete an honors thesis in the senior year.

**ENVIRONMENTAL STUDIES MAJOR**

The Environmental Studies (ES) major consists of four required courses (11 credits), two core courses selected from among five choices (8 credits), and seven courses (24-28 credits) in a selected concentration. Students should select their preferred concentration preferably by their junior year. Two 300-level courses (4 credits each) are required, with one in a content area of the student’s concentration. ES majors are encouraged to double major or minor in another discipline that complements their concentration or the Environmental Studies program in general.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 001</td>
<td>Introduction to Environmental Studies</td>
<td>4</td>
</tr>
<tr>
<td>ES/EES 002</td>
<td>Introduction to Environmental Science</td>
<td>3</td>
</tr>
<tr>
<td>EES 022</td>
<td>Exploring Earth</td>
<td>1</td>
</tr>
<tr>
<td>EES 023</td>
<td>Weather and Climate: Past, Present, and Future</td>
<td>3</td>
</tr>
<tr>
<td>or EES 024</td>
<td>Climate Change</td>
<td></td>
</tr>
<tr>
<td>or EES 025</td>
<td>The Environment and Living Systems</td>
<td></td>
</tr>
<tr>
<td>or EES 026</td>
<td>Energy – Origins, Impacts, and Options</td>
<td></td>
</tr>
<tr>
<td>or EES 027</td>
<td>Natural Hazards: Impacts and Consequences</td>
<td></td>
</tr>
<tr>
<td>or EES 028</td>
<td>Conservation and Biodiversity</td>
<td></td>
</tr>
<tr>
<td>or EES 029</td>
<td>Human Health and the Environment</td>
<td></td>
</tr>
</tbody>
</table>

**Core Courses**

Select two of the following: 8

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES/POLS 105</td>
<td>US Environmental Policy and Law</td>
</tr>
<tr>
<td>ES/POLS 107</td>
<td>The Politics of the Environment</td>
</tr>
<tr>
<td>ES/POLS/HMS 110</td>
<td>Environmental Planning for Healthy Cities</td>
</tr>
<tr>
<td>ES/ANTH 121</td>
<td>Environment and Culture</td>
</tr>
<tr>
<td>ES/JOUR 125</td>
<td>Environment, the Public and the Mass Media</td>
</tr>
</tbody>
</table>

**300-level courses**

Two courses at the 300-level (4 credits each) are required. One must be in the Required Content Category of a concentration.

**Internships and Practicums**

Students are encouraged to participate in at least one practicum or internship experience. Faculty permission and direct supervision is required for ES 393. Practicum course enrollments in ES 294 must be approved for credit by the Program Director. One course can be substituted for an elective course in one of the concentrations with the consent of the student’s advisor or the program director. A maximum of 8 internship or practicum credits can be counted toward the major.

**Suggested Math Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 012</td>
<td>Basic Statistics</td>
</tr>
<tr>
<td>or MATH 021</td>
<td>Calculus I</td>
</tr>
</tbody>
</table>

**Concentrations**

24-28
There are five concentrations that are wide ranging in the Environmental Studies major. These five programs serve a variety of different interests and possible career choices that students bring to the program. Each concentration has a skills, content and elective section. Preferably by their junior year, students will select one of these five concentrations for their major program: 1) Health, 2) Humanities, 3) Policy, Planning & Law, 4) Politics & Society, or 5) Science & Technology. Many courses are found in more than one concentration, and while switching between concentrations is discouraged, it is possible if needed. In special cases, courses can be substituted within concentrations with the permission of the faculty advisor or program director. At least three ES or ES-crosslisted courses must be taking in a concentration and one of them must be a 3-4 credit course in the required content area. Elective courses can be from the skills, content or elective areas within a concentration.

Total Credits 43-47

A science course taken as a required course cannot be used to fulfill a concentration requirement.

Selected core courses cannot be used to fulfill concentration requirements.

CONCENTRATION: HEALTH
The Health Concentration is geared toward students who are interested in learning about the interconnections between health and environmental impacts, particularly how environmental degradation can affect all age groups, races and countries. It includes mitigation of environmental impacts, particularly how environmental degradation may affect human and societal well-being. The concentration examines these issues from multiple perspectives, including ecological, social, and economic.

Required Skills Courses (choose 2) 6-8
- ES/JOUR 125 Environment, the Public and the Mass Media 4
- ES/POLS 319 Mapping Data for Policymaking 4
- ES/TLT 367 Environmental Education 3
- ANTH 114 Ethnographic Research Methods 4
- CEE 272 Environmental Risk Assessment 2
- HMS/SOC 120 Values and Ethics of Community-Engaged Research 4
- HMS/JOUR 316 Social Epidemiology 4
- JOUR 314 Technical Communication 4
- SOAN 111 Research Methods and Data Analysis 4

Required Content Courses (choose 3) 11-12
- ES/JOUR 125 Environment, the Public and the Mass Media 4
- ES/JOUR 316 Social Epidemiology 4
- ES/POLS 320 Food Justice in Urban Environments 4
- EES 302 Food Justice in Urban Environments 4
- EES 338 Environmental Risk 4
- EES/PSYC 357 Ethnobotany: People and Plants 4
- HMS 180 Introduction to Public Health 4

Elective Courses (choose 2) 7-8
- ES 127 Urban Permaculture 1-4
- ES/ANTH 304 Socio-cultural Foundations of Environmental Policy 4
- ES 338 Environmental Risk 4
- ES/ANTH/GS 353 Ethnobotany: People and Plants 4
- ES/PSYC 357 Psychology of Environmental Issues 4

CONCENTRATION: HUMANITIES
The Humanities Concentration offers an opportunity for students to explore contemporary environmental problems from philosophical, historical, artistic and literary frameworks, with an emphasis on fostering out-of-the-box thinking that can cut through hyper-politicized policy debates.

Required Skills Courses (choose 2) 6-8
- ES/JOUR 125 Environment, the Public and the Mass Media 4
- ES/PHIL 301 Philosophical-Policy & Legal Design: Methods & Applications 4
- ES/POLS 319 Mapping Data for Policymaking 4
- ES/TLT 367 Environmental Education 3
- ANTH 114 Ethnographic Research Methods 4
- ARCH/CEE 010 Engineering/Architectural Graphics and Design 3
- ARCH 043 Architectural Design I 4
- DOC/FILM 150 Introduction to Documentary Storymaking 4
- ENGL 100 Working with Texts 4
- JOUR 314 Technical Communication 4

Required Content Courses (choose 3) 11-12
- ES/JOUR 125 Environment, the Public and the Mass Media 4
- ES/PHIL/ETH 119 Environmental Ethics 4
- ES/ASIA/REL/ETH 254 Buddhism and Ecology 4
- ES/HIST 315 American Environmental History 4
- ES/PHIL 343 Comparative Environmental Law & Philosophical-Policy Design 4
- ES/PHIL 343 Comparative Environmental Law & Philosophical-Policy Design 4
- ENGL 091 Special Topics 1-4
- HMS/JOUR 115 Topics in Literature, Medicine, and Health 4
- HMS/ENGL 315 Topics in Literature, Medicine, and Health 4
- ENGL 380 Contemporary American Literature 4

Elective Courses (choose 2) 7-8
- ES/ANTH 304 Socio-cultural Foundations of Environmental Policy 4
- ES/JOUR 320 Food Justice in Urban Environments 4
- ES 393 Supervised Internship 1-4
- ART 004 Three-Dimensional Design 4
EES 026  Energy – Origins, Impacts, and Options  3
ENGL 171  Writing for Audiences  4
HIST/GS 101  Histories of Globalization  4
PHIL 123  Aesthetics  4
PHIL 128  Philosophy Of Science  4
REL 006  Religion and Ecological Crisis  4
REL/GS 013  Religion and Food  4

1  One course must be a 3-4 credit ES course.
2  Can include any required skills or content courses not taken in another part of the concentration or the core courses.

CONCENTRATION: POLICY, PLANNING & LAW
The Policy, Planning and Law Concentration is geared toward students who are interested in learning about local, national and international regulations and programs designed to conserve the natural environment, to ensure that cities and neighborhoods are built in sustainable ways, and to protect vulnerable groups from bearing the brunt of environmental hazards.

Required Skills Courses (choose 2)  6-8
ES/JOUR 125  Environment, the Public and the Mass Media  4
ES/POLS 311  Environmental Valuation for Policy Design  4
ES/POLS 319  Mapping Data for Policymaking  4
ES/TLT 367  Environmental Education  3
ANTH 114  Ethnographic Research Methods  4
ECO 001  Principles of Economics  4
SOAN 111  Research Methods and Data Analysis  4

Required Content Courses (choose 3) 1 11-12
ES/POLS 106  Environmental Values and Ethics  4
ES/POLS 107  The Politics of the Environment  4
ES/POLS/AAS 305  Residential Segregation: Policies and Practices  4
ES/HIST 315  American Environmental History  4
ES/POLS/HMS 320  Food Justice in Urban Environments  4
ES/POLS 328  U.S. Politics and the Environment  4
ES 331  Environmental Law I: Pollution & Risk Abatement  4
ES/PHIL 343  Comparative Environmental Law & Philosophical-Policy Design  4
ES/POLS 366  Advanced Environmental Policy  4

Elective Courses (choose 2 within one of the subconcentrations)  2  7-8

PLANNING SUBCONCENTRATION
ES/HMS/POLS 110  Environmental Planning for Healthy Cities  4
ES/HMS/JOUR 117  Environmental Health Risks and the Media  4
ES/POLS 311  Environmental Valuation for Policy Design  4
ES/POLS 312  Urban Environmental Policy Workshop  4
ES/POLS 314  Urban Agriculture Policy, Planning and Practice  4
ES/ANTH 321  Information Ecology  4
ES/POLS 355  Environmental Justice: From Theory to Practice  4
ES/PSYC 357  Psychology of Environmental Issues  4
ES 393  Supervised Internship  1-4
EES 027  Natural Hazards: Impacts and Consequences  3

POLS 348  Land Use, Growth Management, and the Politics of Sprawl  4

POLICY AND LAW SUBCONCENTRATION
ES/ANTH 121  Environment and Culture  4
ES/POLS 311  Environmental Valuation for Policy Design  4
ES/POLS 312  Urban Environmental Policy Workshop  4
ES/POLS 314  Urban Agriculture Policy, Planning and Practice  4
ES/HMS/JOUR 323  Health and Environmental Controversies  4
ES/POLS 328  U.S. Politics and the Environment  4
ES 331  Environmental Law I: Pollution & Risk Abatement  4
ES/PHIL 343  Comparative Environmental Law & Philosophical-Policy Design  4
ES/POLS 355  Environmental Justice: From Theory to Practice  4
ES 393  Supervised Internship  1-4
EES 023  Weather and Climate: Past, Present, and Future  3

1  One course must be a 3-4 credit ES course.
2  Can include any required skills or content courses not taken in another part of the concentration or the core courses.

CONCENTRATION: POLITICS & SOCIETY
The Politics and Society Concentration is geared toward students who are interested in learning about how human-environment relationships are shaped by cultural practices, politics and broader social institutions, and how these cultural, political, and social factors might be changed to create more sustainable and socially just relationships.

Required Skills Courses (choose 2)  6-8
ES/JOUR 125  Environment, the Public and the Mass Media  4
ES/PHIL 301  Philosophical-Policy & Legal Design: Methods & Applications  4
ES/POLS 319  Mapping Data for Policymaking  4
ES/TLT 367  Environmental Education  3
ANTH 012  Human Evolution and Prehistory  4
ANTH 114  Ethnographic Research Methods  4
ECO 001  Principles of Economics  4
SOAN 111  Research Methods and Data Analysis  4

Required Content Courses (choose 3) 1 11-12
ES/POLS 106  Environmental Values and Ethics  4
ES/POLS 107  The Politics of the Environment  4
ES/POLS/AAS 305  Residential Segregation: Policies and Practices  4
ES/HIST 315  American Environmental History  4
ES/POLS/HMS 320  Food Justice in Urban Environments  4
ES/POLS 328  U.S. Politics and the Environment  4
ES 331  Environmental Law I: Pollution & Risk Abatement  4
ES/PHIL 343  Comparative Environmental Law & Philosophical-Policy Design  4
ES/POLS 366  Advanced Environmental Policy  4

Elective Courses (choose 2)  2  7-8

ES/POLS 106  Environmental Values and Ethics  4
ES/POLS/AAS 305  Residential Segregation: Policies and Practices  4
ES/ANTH 121  Environment and Culture  4
ES/ASIA/REL 254  Buddhism and Ecology  4
ES/ANTH 304  Socio-cultural Foundations of Environmental Policy  4
ES/HIST 315  American Environmental History  4
ES/ANTH 321  Information Ecology  4
ES/POLS 328  U.S. Politics and the Environment  4
ES/POLS 355  Environmental Justice: From Theory to Practice  4
ES/GE/SOC 370  Globalization and the Environment  4
ES/POLS 375  Seminar: Green Polity  4

Elective Courses (choose 2)  2  7-8
ES/EES 004  The Science of Environmental Issues  1
ES 127  Urban Permaculture  1-4
EES/POLS/AAS 305  Residential Segregation: Policies and Practices  4
The Science and Technology Concentration is designed for students who seek to develop a more in-depth understanding of the science, technology, the environment and society, which requires integrating knowledge across multiple disciplines.

A double major or minor is Earth and Environmental Sciences (EES) with a concentration in Earth and Environmental Sciences (EES) integrating knowledge across multiple disciplines.

CONCENTRATION: SCIENCE & TECHNOLOGY
The Science and Technology Concentration is designed for students who seek to develop a more in-depth understanding of the science of environmental problems, and of the complex interactions between science, technology, the environment and society, which requires integrating knowledge across multiple disciplines.

A double major or minor is Earth and Environmental Sciences (EES) is strongly suggested for this concentration.

**Required Skills Courses (choose 2)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ES/JOUR 125</td>
<td>Environment, the Public and the Mass Media (Writing Intensive)</td>
<td>4</td>
</tr>
<tr>
<td>ES/POLS 319</td>
<td>Mapping Data for Policymaking</td>
<td>4</td>
</tr>
<tr>
<td>ES/TLT 367</td>
<td>Environmental Education</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 114</td>
<td>Ethnographic Research Methods</td>
<td>4</td>
</tr>
<tr>
<td>CEE 272</td>
<td>Environmental Risk Assessment</td>
<td>2</td>
</tr>
<tr>
<td>CSE 003</td>
<td>Introduction to Programming, Part A</td>
<td>2</td>
</tr>
<tr>
<td>CSE 012</td>
<td>Survey of Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>ECO 001</td>
<td>Principles of Economics</td>
<td>4</td>
</tr>
<tr>
<td>EES 318</td>
<td>Geographic Analysis in EES</td>
<td>1</td>
</tr>
<tr>
<td>EES 325</td>
<td>Remote Sensing of Terrestrial and Aquatic Environments</td>
<td>4</td>
</tr>
<tr>
<td>JOUR 314</td>
<td>Technical Communication</td>
<td>4</td>
</tr>
<tr>
<td>SOC 336</td>
<td>Computational Text Analysis</td>
<td>4</td>
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**Required Content Courses (choose 3)**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ES/EES 004</td>
<td>The Science of Environmental Issues</td>
<td>1</td>
</tr>
<tr>
<td>ES/POLS 106</td>
<td>Environmental Values and Ethics</td>
<td>4</td>
</tr>
<tr>
<td>ES/HMS/POLS 110</td>
<td>Environmental Planning for Healthy Cities</td>
<td>4</td>
</tr>
<tr>
<td>ES 127</td>
<td>Urban Permaculture</td>
<td>1-4</td>
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<tr>
<td>ES/CEE/CHE/EMC 171</td>
<td>Fundamentals of Environmental Technology</td>
<td>4</td>
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<tr>
<td>ES/POLS 328</td>
<td>U.S. Politics and the Environment</td>
<td>4</td>
</tr>
<tr>
<td>ES 331</td>
<td>Environmental Law I: Pollution &amp; Risk Abatement</td>
<td>4</td>
</tr>
<tr>
<td>EES 024</td>
<td>Climate Change</td>
<td>3</td>
</tr>
<tr>
<td>EES 025</td>
<td>The Environment and Living Systems</td>
<td>3</td>
</tr>
<tr>
<td>EES 028</td>
<td>Conservation and Biodiversity</td>
<td>3</td>
</tr>
<tr>
<td>EES 029</td>
<td>Human Health and the Environment</td>
<td>3</td>
</tr>
<tr>
<td>EES 152</td>
<td>Ecology</td>
<td>3</td>
</tr>
<tr>
<td>EES 250</td>
<td>Terrestrial Ecosystems</td>
<td>4</td>
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</table>

**Elective Courses (choose 2 within one of the subconcentrations)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES/ANTH 121</td>
<td>Environment and Culture</td>
<td>4</td>
</tr>
<tr>
<td>ES/HIST 315</td>
<td>American Environmental History</td>
<td>4</td>
</tr>
<tr>
<td>ES/HMS/JOUR 323</td>
<td>Health and Environmental Controversies</td>
<td>4</td>
</tr>
<tr>
<td>ES/ANTH/GS 353</td>
<td>Ethnobotany: People and Plants</td>
<td>4</td>
</tr>
<tr>
<td>EES 393</td>
<td>Supervised Internship</td>
<td>1-4</td>
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<tr>
<td>EES 014</td>
<td>Lands of the Midnight Sun</td>
<td>3</td>
</tr>
<tr>
<td>EES 023</td>
<td>Weather and Climate: Past, Present, and Future</td>
<td>3</td>
</tr>
<tr>
<td>EES 026</td>
<td>Energy – Origins, Impacts, and Options</td>
<td>3</td>
</tr>
<tr>
<td>EES 027</td>
<td>Natural Hazards: Impacts and Consequences</td>
<td>3</td>
</tr>
<tr>
<td>EES 032</td>
<td>Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>EES 042</td>
<td>The Natural History of Costa Rica</td>
<td>3</td>
</tr>
<tr>
<td>CEE 170</td>
<td>Introduction to Environmental Engineering</td>
<td>4</td>
</tr>
<tr>
<td>CEE 375</td>
<td>Environmental Engineering Processes</td>
<td>3</td>
</tr>
</tbody>
</table>
| SCIENCE SUBCONCENTRATION

**Required Courses (choose 3 from the subconcentrations)**

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>ES/ANTH 121</td>
<td>Environment and Culture</td>
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<td>ES/HIST 315</td>
<td>American Environmental History</td>
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<td>Health and Environmental Controversies</td>
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<td>ES/ANTH/GS 353</td>
<td>Ethnobotany: People and Plants</td>
<td>4</td>
</tr>
<tr>
<td>EES 393</td>
<td>Supervised Internship</td>
<td>1-4</td>
</tr>
<tr>
<td>HIST/GS 107</td>
<td>Technology and World History</td>
<td>4</td>
</tr>
<tr>
<td>HIST 308</td>
<td>Industrial America since 1945</td>
<td>4</td>
</tr>
<tr>
<td>HIST 336</td>
<td>Bethlehem and the Lehigh Valley</td>
<td>4</td>
</tr>
<tr>
<td>REL 006</td>
<td>Religion and Ecological Crisis</td>
<td>4</td>
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<tr>
<td>REL/GS 013</td>
<td>Religion and Food</td>
<td>4</td>
</tr>
<tr>
<td>HIST/GS 101</td>
<td>History of Globalization</td>
<td>4</td>
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<tr>
<td>HIST/GS 107</td>
<td>Technology and World History</td>
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</tr>
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<td>HIST 336</td>
<td>Industrial America since 1945</td>
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<tr>
<td>HIST 036</td>
<td>Bethlehem and the Lehigh Valley</td>
<td>4</td>
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<tr>
<td>JOUR 124</td>
<td>Politics of Science</td>
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<tr>
<td>CEE 170</td>
<td>Introduction to Environmental Engineering</td>
<td>4</td>
</tr>
<tr>
<td>CEE 375</td>
<td>Environmental Engineering Processes</td>
<td>3</td>
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</table>
| TECHNOLOGY SUBCONCENTRATION

**Required Courses (choose 3 from the subconcentrations)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES/ANTH 121</td>
<td>Environment and Culture</td>
<td>4</td>
</tr>
<tr>
<td>ES/ANTH 321</td>
<td>Information Ecology</td>
<td>4</td>
</tr>
<tr>
<td>ES/HMS/JOUR 323</td>
<td>Health and Environmental Controversies</td>
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<td>CEE 375</td>
<td>Environmental Engineering Processes</td>
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</tr>
<tr>
<td>CEE 170</td>
<td>Introduction to Environmental Engineering</td>
<td>4</td>
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</table>

**MINOR IN ENVIRONMENTAL STUDIES**

A minor in Environmental Studies consists of four courses for a total of 15-16 credits. At least one course must be at the 300-level.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ES 001</td>
<td>Introduction to Environmental Studies</td>
<td>4</td>
</tr>
</tbody>
</table>

One additional course from the core set of courses for the major

1. One course must be a 3-4 credit ES course.
2. Can include any required skills or content courses not taken in another part of the concentration or the core courses.
3. Requires ES 319 as prerequisite.
4. One course must be a 3-4 credit ES course.
5. Requires EES 025 or EES 028 as prerequisite.
6. Requires EES 152 as prerequisite.
7. Can include any required skills or content courses not taken in another part of the concentration or the core courses.
8. Requires CHM 030 as prerequisite.
9. Requires CEE 170 as prerequisite.
Two courses from the Environmental Studies elective listing. At least one course must be taken at the 300 level.

Total Credits 15-16

M.A. ENVIRONMENTAL POLICY

For more information visit Environmental Initiative

Right now is a pivotal time to be grappling with environmental issues and studying the policies and tools necessary to create the communities and world we want to see as the 21st century continues to unfold. The M.A. in Environmental Policy prepares students to act on the challenges presented by climate change and urbanization. The program’s interdisciplinary coursework covers the legal and political structures that do (or might) oversee, regulate, manage, subsidize, or otherwise affect environmental sustainability, environmental injustices, and environmental health. It also teaches about the social practices, moral authority and economic dynamics that affect interventions. Students gain further insights through independent research and community-based projects and internships.

Applicants for the MAEP will be placed into one of three tracks (Thesis, Internship or Community Fellows).

<table>
<thead>
<tr>
<th>Core Courses 1, 5</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 401</td>
<td>Philosophical-Policy &amp; Legal Design: Methods &amp; Applications</td>
</tr>
<tr>
<td>ES/EES 402</td>
<td>Scientific Foundations for Environmental Policy Design</td>
</tr>
<tr>
<td>ES 404</td>
<td>Socio-cultural Foundations of Environmental Policy</td>
</tr>
</tbody>
</table>

Skills/Methods Course Requirement 3-6

| CEE 471 | Environmental Risk Assessment |
| EDUC 405 | Qualitative Research Methods |
| EES 318 | Geographic Analysis in EES |
| EES 325 | Remote Sensing of Terrestrial and Aquatic Environments |
| ES/TLT 368 | Teaching and Learning with Geospatial Tools |
| ES/POLS 419 | Mapping Data for Policymaking |
| POLS 321 | Research Methods |
| POLS 363 | Public Opinion Research |
| POLS 402 | Methods Of Policy Analysis |
| POLS 421 | Research Methods |

Elective Courses 5

| ANTH/AAS/GS 324 | Globalization and Development in Africa |
| ECO 303 | Economic Development |
| ES/POLS 405 | Residential Segregation: Policies and Practices |
| ES 410 | Foundations of Sustainable Development Practice |
| ES/POLS 411 | Environmental Valuation for Policy Design |
| ES/POLS 412 | Urban Environmental Policy Workshop |
| ES/POLS 414 | Urban Agriculture Policy, Planning and Practice |
| ES/POLS 420/ HMS 320 | Food Justice in Urban Environments |
| ES 431 | U.S. Environmental Law I: Pollution and Risk Abatement |
| ES 433 | International Environmental Law & Philosophical-Policy Design |
| ES 435 | Environmental Valuation for Policy Design & Legal Analysis |
| ES 442 | International Law & Philosophical-Policy Design |
| ES 443 | Comparative Environmental Law & Philosophical-Policy Design |
| ES 453 | Ethnobotany: People and Plants |
| ES/POLS 455 | Environmental Justice: From Theory to Practice |
| ES/POLS 460 | Public Administration |
| ES/POLS 466 | Advanced Environmental Policy |
| ES/POLS 475 | Seminar: Green Polity |
| EES 446 | Human-Climate Interactions |
| POLS/ENTP 310 | Social Entrepreneurship: How to Change the World |
| POLS/GS/WGSS 342 | Gender and Third World Development |
| POLS 348 | Land Use, Growth Management, and the Politics of Sprawl |
| POLS 416 | American Environmental Policy |
| POLS 468 | Political Economy |
| SDEV/ENTP 307 | International Social Entrepreneurship |
| SOC/GS 319 | The Political Economy of Globalization |
| SOC/GS/HMS 322 | Global Health Issues |
| SOC/HMS/WGSS 341 | Gender and Health |
| SOC/HMS 343 | Racism and Health Inequities |

Tracks 3-6

<table>
<thead>
<tr>
<th>Thesis track 2, 5</th>
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<tr>
<td>ES 490</td>
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<table>
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<tr>
<th>Internship Track 3, 5</th>
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<tr>
<td>ES 480</td>
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<table>
<thead>
<tr>
<th>Community Fellows Track 4, 5</th>
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<tbody>
<tr>
<td>a one year Master’s Program in which students work for 15 hours a week in a non-profit organization as part of their academic experience. Please see the program website at <a href="http://www.lehigh.edu/communityfellows">www.lehigh.edu/communityfellows</a>.</td>
</tr>
<tr>
<td>POLS 464</td>
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<td>POLS 465</td>
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</table>

1 Electives selected from approved list may include one additional course (up to a total of 6 credit hours) from the Skills/Methods category of required courses. Students are urged to select electives which allow for concentrated study in a particular area of academic interest.

2 Required courses (12 credits) + Elective courses (12-15 credits) + ES 490 Thesis (3-6 credits) = Total 27-33 credits

3 Required courses (12 credits) + Elective courses (15 credits) + ES 480 Internship in Environmental Policy (3-6 credits) = Total 30-33 credits

4 Required courses (12 credits) + Elective courses (12 credits) + POLS 464 Community Fellowship I (3 credits) + POLS 465 Community Fellowship II (3 credits) = 30 credits

5 The subject code for all ES courses is being changed to EVST. This program will be modified in the future to reflect that change when it is implemented in Banner.

CONCENTRATIONS WITHIN EP

The EP program provides students the opportunity to explore and focus on a variety of areas of academic and/or professional interest. In the table below are examples of five possible concentrations that are especially suited to faculty expertise and program resources.

A total of 12-15 credits of electives comprise each concentration, plus a related internship experience or thesis topic. Students are also eligible to receive a “Graduate Certificate” in any of these concentration areas (see certificate program below).
Concentration in Urban Environmental Policy and Planning

- ES/POLS 405 Residential Segregation: Policies and Practices
- ES/POLS 412 Urban Environmental Policy Workshop
- ES/POLS 414 Urban Agriculture Policy, Planning and Practice
- ES/POLS 455 Environmental Justice: From Theory to Practice
- ES/POLS 466 Advanced Environmental Policy
- POLS 348 Land Use, Growth Management, and the Politics of Sprawl
- POLS 416 American Environmental Policy

Concentration in Environmental Law and Policy (Domestic and International)

- ES/POLS 411 Environmental Valuation for Policy Design
- ES/POLS 431 U.S. Environmental Law I: Pollution and Risk Abatement
- ES 443 International Environmental Law & Philosophical-Policy Design
- ES 442 International Law & Philosophical-Policy Design
- ES/POLS 455 Environmental Justice: From Theory to Practice
- ES/POLS 466 Advanced Environmental Policy
- ES/POLS 475 Seminar: Green Polity
- POLS 416 American Environmental Policy
- POLS 468 Political Economy

Concentration in Sustainable Development

- ANTH 324 Globalization and Development in Africa
- ECO 303 Economic Development
- ES 410 Foundations of Sustainable Development Practice
- ES/POLS 414 Urban Agriculture Policy, Planning and Practice
- ES 453 Ethnobotany: People and Plants
- POLS/ENTP 310 Social Entrepreneurship: How to Change the World
- POLS/GS/WGSS 342 Gender and Third World Development
- POLS 348 Land Use, Growth Management, and the Politics of Sprawl
- SDEV/ENTP 307 International Social Entrepreneurship
- SOC/GS 319 The Political Economy of Globalization
- SOC/GS/HMS 322 Global Health Issues
- ES 419 Mapping Data for Policymaking

Concentration in Environmental Health

- ES/HMS/JOUR 323 Health and Environmental Controversies
- ES/POLS 414 Urban Agriculture Policy, Planning and Practice
- ES/POLS 455 Environmental Justice: From Theory to Practice
- ES/POLS 475 Seminar: Green Polity
- POLS 473 Globalization and Social Well-Being

Concentration in Environmental Justice

- ES/POLS 405 Residential Segregation: Policies and Practices
- ES/POLS 411 Environmental Valuation for Policy Design
- ES/POLS 455 Environmental Justice: From Theory to Practice
- ES/POLS 475 Seminar: Green Polity
- POLS/AAS 230 Social Movements From the 1960s to Present
- POLS/ENTP 310 Social Entrepreneurship: How to Change the World
- POLS 358 Interest Groups, Power, and Democracy in American Politics
- POLS 416 American Environmental Policy
- POLS 426 Organizing For Democracy
- POLS 473 Globalization and Social Well-Being

GRADUATE CERTIFICATE PROGRAMS

Each graduate certificate requires a minimum of 12 credit hours (4 courses) from the list of EP core and elective courses specific to each area of study. A graduate of the EP program is only eligible to receive ONE of the following certificates. Certificate courses can be counted towards the master’s, as appropriate and must be completed in a maximum of 3 years.

ENVIRONMENTAL LAW AND POLICY

Core Course 3
- ES 401 Philosophical-Policy & Legal Design: Methods & Applications
- or ES 404 Socio-cultural Foundations of Environmental Policy

Elective Courses 1
- Select any three of the following:
  - ES/POLS 411 Environmental Valuation for Policy Design
  - ES/POLS 431 Public Administration
  - ES 433/333 International Environmental Law & Philosophical-Policy Design
  - ES 442 International Law & Philosophical-Policy Design
  - ES 443 Comparative Environmental Law & Philosophical-Policy Design
  - ES/POLS 455 Environmental Justice: From Theory to Practice
  - ES/POLS 466 Advanced Environmental Policy
  - ES/POLS 475 Seminar: Green Polity
  - EES 446 Human-Climate Interactions
  - POLS 416 American Environmental Policy
  - POLS 468 Political Economy

Total Credits 12

1 Additional courses selected in consultation with the program adviser may fulfill program requirements. No more than 6 credits can be taken at the 300 level.

URBAN ENVIRONMENTAL POLICY AND PLANNING

Core Course 3
- ES 404 Socio-cultural Foundations of Environmental Policy

Elective Courses 1
- Select any three of the following:
  - ES/POLS 412 Urban Environmental Policy Workshop
  - ES/POLS 414 Urban Agriculture Policy, Planning and Practice
  - ES/POLS 455 Environmental Justice: From Theory to Practice
  - EES 446 Human-Climate Interactions
  - POLS 348 Land Use, Growth Management, and the Politics of Sprawl
  - POLS 416 American Environmental Policy
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<tr>
<td>ES 410</td>
<td>Foundations of Sustainable Development Practice</td>
<td>3</td>
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<tr>
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<td>Globalization and Development in Africa</td>
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<td>Global Health Issues</td>
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<td>SOC/GS 319</td>
<td>The Political Economy of Globalization</td>
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**SUSTAINABLE DEVELOPMENT**

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**Environmental Justice**

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</thead>
<tbody>
<tr>
<td>ES 401</td>
<td>Philosophical-Policy &amp; Legal Design: Methods &amp; Applications and Environmental Justice: From Theory to Practice</td>
<td>6</td>
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<tr>
<td>ES 455</td>
<td>Environmental Justice: Methods &amp; Applications and Environmental Justice: From Theory to Practice</td>
<td>6</td>
</tr>
<tr>
<td>POLS/AAS 230</td>
<td>Social Movements From the 1960s to Present</td>
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**Environmental Health**

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<td>3</td>
</tr>
<tr>
<td>Elective Courses</td>
<td>9</td>
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</tr>
<tr>
<td>ES/POLS/JOUR 323</td>
<td>Health and Environmental Controversies</td>
<td>3</td>
</tr>
<tr>
<td>ES/POLS 414</td>
<td>Urban Agriculture Policy, Planning and Practice</td>
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<td>Food Justice in Urban Environments</td>
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<td>ES/POLS 475</td>
<td>Seminar: Green Polity</td>
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<td>Human-Climate Interactions</td>
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<td>POLS 473</td>
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</table>

**Total Credits**

1 Additional courses selected in consultation with the program adviser may fulfill program requirements. No more than 6 credits can be taken at the 300 level.

**Environmenal Justice**

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<td>ES 455</td>
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<td>POLS/AAS 230</td>
<td>Social Movements From the 1960s to Present</td>
<td>6</td>
</tr>
</tbody>
</table>

**Total Credits**

1 Additional courses selected in consultation with the program adviser may fulfill program requirements. No more than 6 credits can be taken at the 300 level.

**Courses**

- **ES 001 Introduction to Environmental Studies 4 Credits**
  This course surveys the dominant environmental issues confronting humanity and the natural world on a local, national, and global basis with an emphasis on critical thinking skills. Topics include humankind's role in environmental change; cultural perceptions and economic valuation of nature; resource availability and social equity; sustainability and consumerism; environmental justice and ethics; and environmental regulation, law, 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, EVST 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, EVST 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; humanity and the natural world on a local, national, and global basis. Topics include humankind’s role in environmental change; cultural perceptions and economic valuation of nature; resource availability and social equity; sustainability and consumerism; environmental justice and ethics; and environmental regulation, law, 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 104 (EVST 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 (EVST 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 119 (ETH 119, PHIL 119) Environmental Ethics 4 Credits
Evaluates the ethical and moral dimensions of humanity’s relationship to nature as well as our individual and collective moral duties to confront urgent environmental challenges. Topics may include the intersection of climate and social justice; responsibilities to future generations, distant others, and nonhuman animals; the limitations of traditional ethical, political, and economic frameworks for accommodating our obligations and commitments to justice; and possible legal and public policy responses.
Attribute/Distribution: HU

ES 121 (ANTH 121, EVST 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 122 (EVST 122) Sustainable Development: Costa Rican Experience 3 Credits
Case studies in agriculture, bio-prospecting, ecotourism, energy, and land use are used to conceptualize sustainable development in Costa Rica. Theories of sustainable development and consumption frame the Costa Rican experience and include the influences of history, ecology, and political, social, and economic systems. This course is offered through Lehigh Study Abroad and requires travel to Costa Rica during the winter session. Additional fees are required by Lehigh Study Abroad.
Attribute/Distribution: SS

ES 123 Sustainability in Action 1-4 Credits
Experiential learning for students to engage with sustainability in both general theory and applied practice. Consent of program director 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-Rep’s 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 127 (EVST 127) Urban Permaculture 1-4 Credits
Students combine social, political, economic, engineering, and ecological modes of thinking in the design, construction, and evaluation of permaculture food gardens to serve as living laboratories and interactive classrooms to teach about sustainable urban living. Open to students from any major and college. Instructor permission required.
Attribute/Distribution: SS
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
This course can be 1) directed readings on an environmental topic, 2) environmental research involving primary data collection and analysis, or 3) a project-based experience that puts students' understanding of environmental justice, environmental health, or environmental planning into practice. Consent of program director required.
Repeat Status: Course may be repeated.
Attribute/Distribution: HU, SS

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, ETH 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

ES 294 (EVST 294) Practicum in Environmental Studies 1-4 Credits
Practical experience on or off campus in local, state or national environmental activities. Students must present a work plan that describes the activities included in the practicum, the activity's sponsor, expected outcomes and the number of credits requested. Must have program director's approval.
Repeat Status: Course may be repeated.
Prerequisites: (ES 001 or ES 002) and (ES 105 or ES 107 or ES 110 or ES 121 or ES 125)
Can be taken Concurrently: ES 001, ES 002, ES 105, ES 107, ES 110, ES 121, ES 125
Attribute/Distribution: HU, NS, SS

ES 301 (EVST 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 304 (ANTH 304) Socio-cultural Foundations of Environmental Policy 4 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: SS

ES 305 (AAS 305, EVST 305, POLS 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 310 (EVST 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 (EVST 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 greenening 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 319 (POLS 319) Mapping Data 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).
Attribute/Distribution: SS

ES 320 (HMS 320, POLS 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.
Attribute/Distribution: SS

ES 323 (HMS 323, JOUR 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 353 (ANTH 353, GS 353) Ethnobotany: People and Plants 4 Credits
This course explores the meanings and uses given to plants by diverse cultures in their unique ecological settings. Ethnobotany combines botany and cultural anthropology to study how people classify, use, and manage plants for medicine, food, and ritual. This course introduces the history, methods, theory, and practical applications of ethnobotany, including plant conservation, sustainable development, and cultural survival. Special emphasis will be placed on learning to do ethnobotany through student research projects.
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 357 (PSYC 357) Psychology of Environmental Issues 4 Credits
Environmental problems and solutions begin with the thoughts, feelings, and behaviors of individual people. We will examine Western ways of relating to nature and the beliefs people hold about it, how they reason about environmental issues, and how they perceive environmental risk and make decisions. We will also consider environmental communication and attitude and behavior change, exploring arenas ranging from patterns of consumption and recycling to climate change. Research methods for investigating these issues will be introduced.
Prerequisites: PSYC 001
Attribute/Distribution: SS

ES 366 (EVST 366, POLS 366) Advanced Environmental Policy 4 Credits
An introduction to the history of domestic environmental policy and contemporary policy trends, such as the rise of legal adversarialism and public participation in regulatory decisions. The role of market instruments in policy implementation, the emergence of rights-based approaches to environmental protection, and the role and value of distributional analysis will also be covered. Students will develop knowledge of a particular area of environmental policy at the federal, state, and/or level depending on their interests and current opportunities.
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.

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.

ES 370 (GS 370, SOC 370) Globalization and the Environment 4 Credits
This course investigates how globalization has influenced society-nature relationships, as well as how environmental conditions influence the globalization processes, focusing on the rapidly evolving global economic and political systems that characterize global development dynamics and 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 are 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 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 393 (EVST 393) Supervised Internship 1-4 Credits
Experiential learning opportunities supervised by ES faculty including real-world experience with environmental organizations or governmental agencies, field work or research experience, all related to environmental studies. Students should collaborate with the supervising ES faculty member to develop a work plan that describes the activities included in the internship, the expected outcomes and the number of credits requested. Permission of program director is required.
Repeat Status: Course may be repeated.
Prerequisites: ES 001 and ES 002 and (ES 105 or ES 107 or ES 110 or ES 121 or ES 125)
Attribute/Distribution: HU, NS, SS

ES 401 (EVST 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.

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: NS

ES 404 (SOC 404) Socio-cultural Foundations of Environmental Policy 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.
ES 405 (EVST 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 410 (EVST 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, adaption 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 (EVST 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 419 (POLS 419) Mapping Data 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 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 interacting 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.

ES 453 Ethnobotany: People and Plants 3 Credits
This course explores the meanings and uses given to plants by diverse cultures in their unique ecological settings. Ethnobotany combines botany and cultural anthropology to study how people classify, use, and manage plants for medicine, food, and ritual. This course introduces the history, methods, theory, and practical applications of ethnobotany, including plant conservation, sustainable development, and cultural survival. Special emphasis will be placed on learning to do ethnobotany through student research projects.
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 457 (PSYC 457) Psychology of Environmental Issues 3 Credits
Environmental problems and solutions begin with the thoughts, feelings, and behaviors of individual people. We will examine Western ways of relating to nature and the beliefs people hold about it, how they reason about environmental issues, and how they perceive environmental risk and make decisions. We will also consider environmental communication and attitude and behavior change, exploring arenas ranging from patterns of consumption and recycling to climate change. Research methods for investigating these issues will be introduced.

ES 460 (POLS 460) Public Administration 3 Credits
The nature of administration; problems of organization and management; public personnel policies; budgeting and budgetary system; forms of administrative responsibility.

ES 466 (EVST 466, POLS 466) Advanced Environmental Policy 3 Credits
An introduction to the history of domestic environmental policy and contemporary policy trends, such as the rise of legal adversarialism and public participation in regulatory decisions. The role of market instruments in policy implementation, the emergence of rights-based approaches to environmental protection, and the role and value of distributional analysis will also be covered. Students will develop knowledge of a particular area of environmental policy at the federal, state, and/or level depending on their interests and current opportunities.

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 (EVST 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.