DEPARTMENT OF GEOLOGY AND ENVIRONMENTAL SCIENCE

Bachelor of Arts in Environmental Studies

Advisor: Danielle M. Andrews, Ph.D.

Last Updated: 3/29/17
DEPARTMENT OF GEOLOGY & ENVIRONMENTAL SCIENCE
UNIVERSITY OF PITTSBURGH

BACHELOR OF ARTS IN ENVIRONMENTAL STUDIES
ACADEMIC YEAR 2017-2018

BACKGROUND

Rapid growth in human population and development has led to complex environmental problems, both locally and globally. The way in which we address these issues will have a profound effect on our society and planet. Enlightened solutions require a strong component of scientific knowledge and an awareness of the relevant societal issues.

The Bachelor of Arts in Environmental Studies equips students with an understanding of earth systems and the environment, including the effect of geologic processes on human activity, and the impact of humans on the biosphere, atmosphere, hydrosphere, and global climate. Courses in the natural and social sciences supplement a traditional liberal arts curriculum to provide a comprehensive, interdisciplinary background in the scientific, economic, political, and social aspects of human interaction with the environment.

The Environmental Studies degree provides a strong, balanced background for students who seek careers in fields such as resource development and management, environmental policy and regulation, risk assessment, land use planning, public policy, and education. Potential employers include local, state or federal governments, non-profit organizations, consulting firms, or companies affected by environmental issues or regulations. Graduates of the Environmental Studies program can also pursue postgraduate study in fields such as business, law, medicine, public policy, education, international relations, urban and regional planning, environmental management, Geographical Information Systems (GIS), and public health.

The Environmental Studies Program combines four components: (1) core courses provide a fundamental understanding of environmental processes, issues and policy, including an internship; (2) co-requisites provide the necessary prerequisites for later study; (3) electives in the natural and social sciences allow the student to explore environmental issues with greater depth; and (4) field study experience. Students are strongly encouraged to undertake an independent research project as well courses in public policy and environmental issues, management, health and safety, and sustainability (See Geology classes numbered 1330 through 1342).
BACHELOR OF ARTS IN ENVIRONMENTAL STUDIES
DEPARTMENT OF GEOLOGY AND ENVIRONMENTAL SCIENCE
WWW.GEOLOGY.PITT.EDU 69 credits minimum Updated 2/22/2017

Visit the Department web page and click on “Undergrad Programs” for a complete range of advising information plus the comprehensive guide for Environmental Studies requirements and the latest available information. To graduate with a B.A. in Environmental Studies, you must have a 2.0 grade point average in your GEOL core courses counting towards your major, a 2.0 average for your co-requisites, and 2.0 average overall. Note: * denotes that pre-requisites may be required.

CORE COURSES (check each as completed): (at least 34 credits)
Take each of the following:

____ GEOL 0055      Geology Laboratory (2) [Fall, Spring] This is a prerequisite for many GEOL courses!
____ GEOL 0840      Intro to Environmental Science (3) [Fall] This is a prerequisite for many GEOL courses!
____ GEOL 1030      The Atmosphere, Oceans and Climate (3) [Fall, Spring]
____ GEOL 1055      Environmental Ethics, Science, and Public Policy (3) (Capstone Class) [Fall, Spring]
____ GEOL 1313      Communications for Environmental Professionals; W-class (3) [Fall, Spring]
____ GEOL 1333      Sustainability (3) [Fall, Spring]
____ GEOL 1445      GIS, GPS, and Computer Methods (3) [Fall]
____ ECON 0110      Intro to Macroeconomic Theory (3) (may substitute ECON 0100 OR ECON 0800)*
____ LEGLST 1320    Law and Environment (3) (May substitute GEOL 1312 Environmental Law and Policy)
____ EOH 2180 & 2181 Introduction to Risk Sciences (1) & Risk Assessment Practicum (2)*
                    (May substitute HPS 0611 Principles of Scientific Reasoning)
____ Environmental Science Field Course (≥ 2)
                    (Suggested options: BIOSC 0740 (Yellowstone); HONORS 1540 (Wyoming))

CO-REQUIREMENTS (check each as completed): (11/12 credits)
Take each of the following:

____ CHEM 0110      General Chemistry 1 (4)
____ STAT 0200      Basic Applied Statistics (4) (may substitute STAT 1000 OR STAT 1100)*

Plus at least ONE of the following:
____ MATH 0220      Analytical Geometry and Calculus 1 (4)*
____ MATH 0120      Business Calculus (4)*
____ MATH 0125 & 0126 Calculus for Business (4)*
____ PUBSRV 1110    Financial Management for the Public Sector (3)
____ PUBSRV 1210    Financial Management for Nonprofit Org (3)
ELECTIVES (suggested options): (at least 24 credits)

Take at least 12 credits in Social Science/Humanities and at least 12 credits in Natural Sciences from the suggested elective list. Elective credits may also be earned in independent study projects, study abroad or additional internships and applied to either category. SEE ADVISOR ABOUT ADDITIONAL ELECTIVES.

SOCIAL SCIENCES & HUMANITIES ELECTIVES (at least 12 credits)

Department of Anthropology
- ANTH 0582 Introduction to Archeology (3)
- ANTH 0601 Physical Anthropology: An Overview (3)
- ANTH 0680 Introduction to Physical Anthropology (3)
- ANTH 0681 Introduction to Human Ecology (3)
- ANTH 0780 Intro to Cultural Anthropology (3)
- ANTH 1524 Chinese Archeology (3)
- ANTH 1528 South American Archeology (3)
- ANTH 1541 Cultural Resource Management (3)
- ANTH 1762 Human Ecology (3)
- ANTH 1763 Field Methods (3)

Department of Communication
- COMMRC 1149 Environmental Rhetoric (3)

Department of Economics
- ECON 0360 Intro to Environmental and Resource Economics (3)*
- ECON 0500 Intro to International Economics (3)*
- ECON 0530 Intro to Development Economics (3)*
- ECON 1360 Environmental Economics (3)*

Department of English
- ENGLIT 0710 Contemporary Environmental Literature (3)
- ENGLIT 0812 Media/Ecology (3)
- ENGLIT 1005 Literature & the Environment (3)*

Department of History of Art and Architecture
- HAA 0940 Approaches to the Built Environment (3)

Department of History
- HIST 0700 World History (3)
- HIST 1668 History of Pittsburgh (3)
- HIST 1669 History of Black Pittsburgh (3)
- HIST 1695 Environmental History (3)

Department of History of Art and Philosophy of Science
- HPS 0608 Philosophy & Science (3)
- HPS 0610 Causal Reasoning (3)
- HPS 0620 Science and Religion (3)
- HPS 0621 Problem Solving: How Science Works (3)
- HPS 1653 Intro to the Philosophy of Science (3)
Department of Political Science
___ PS 1232 Political Attitude & Public Opinion (3)
___ PS 1235 Media & Politics (3)
___ PS 1261 American Public Policy (3)
___ PS 1267 Environmental Politics & Policy (3)*
___ PS 1374 Politics of Global Inequality (3)
___ PS 1538 Politics of Oil & Natural Resources (3)
___ PS 1542 Global Environmental Politics (3)
___ PS 1543 Globalization & International Politics [Study Abroad]*

Department of Religious Studies
___ RELGST 1518 Religion & Ecology (3)
___ RELGST 1519 Religion, Nature, Environment (3)
___ RELGST 1770 Science & Religion (3)

Department of Sociology
___ SOC 0230 Social Research Methods (3)
___ SOC 0312 Science & Society (3)
___ SOC 1440 Experiencing Globalization (3)
___ SOC 1445 Society & Environment (3)

College of Business Administration
___ BUSENV 1701 Ethical Leadership Fundamentals (1) [Leadership & Ethics Certificate]
___ BUSENV 1765 Leadership Social Environment (1) [Leadership & Ethics Certificate]

Public Service
___ PUBSRV 1230 Fundraising for Nonprofit Org (3)
___ PUBSRV 1300 Legal Issues in Public Service (3)
___ PUBSRV 1310 Diversity Issues in Public Service (3)
___ PUBSRV 1320 GIS in the Public Service (3)
___ PUBSRV 1455 Law, Ethics and Public Policy in Mass Media (3)

Urban Studies Program
___ URBNST 0080 Introduction to Urban Studies (3)
___ URBNST 1102 Introduction to GIS (3)
___ URBNST 1104 Applied GIS (3)
___ URBNST 1300 Urban Studies Research & Presentation Skills Seminar (3)
___ URBNST 1614 Urban Sustainability (3)
___ URBNST 1700 International Urbanism Seminar (3)*

Graduate School of Public and International Affairs [Permission of instructor usually required]
___ PIA 2115 Environmental Economics; Managing Natural Resources (3)
___ PIA 2140 Financial Practices for Economics & Environmental Sustainability (3)
___ PIA 2164 Natural Resources Governance & Management (3)
___ PIA 2388 International Law & Policy (3)
___ PIA 2502 Global Environmental Policy (3)
___ PIA 2510 Economics of Development (3)
___ PIA 2520 Food Security: Agriculture & Rural Development (3)
___ PIA 2522 Global Energy (3)
___ PIA 2715 GIS for Public Policy (3)
**NATURAL SCIENCES & ENGINEERING ELECTIVES (at least 12 credits)**

**Department of Biological Sciences**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOSC 0050</td>
<td>Foundations in Biology Laboratory 1</td>
<td>1</td>
</tr>
<tr>
<td>BIOSC 0067</td>
<td>Foundations in Biology Research Laboratory 2</td>
<td>1*</td>
</tr>
<tr>
<td>BIOSC 0150</td>
<td>Foundations in Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOSC 0160</td>
<td>Foundations in Biology Research Laboratory 2*</td>
<td></td>
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<tr>
<td>BIOSC 0350</td>
<td>Genetics</td>
<td>1*</td>
</tr>
<tr>
<td>BIOSC 0370</td>
<td>Ecology</td>
<td>3*</td>
</tr>
<tr>
<td>BIOSC 0390</td>
<td>Ecology Laboratory 2</td>
<td>1*</td>
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*NOTE: Students are encouraged to take BIOSC 0050, 0150, 0067, & 0160 as they are prerequisites for other courses including Pymatuning field courses

**Department of Chemistry**

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<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 0120</td>
<td>General Chemistry 2</td>
<td>4*</td>
</tr>
<tr>
<td>CHEM 0250</td>
<td>Intro Analytical Chemistry</td>
<td>3*</td>
</tr>
<tr>
<td>CHEM 0310</td>
<td>Organic Chemistry 1</td>
<td>3*</td>
</tr>
<tr>
<td>CHEM 0350</td>
<td>Principles of Organic Chemistry</td>
<td>3*</td>
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**Department of Computer Science**

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<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>CS 0090</td>
<td>Sustainability &amp; Computing</td>
<td>3</td>
</tr>
<tr>
<td>CS 0134</td>
<td>Web Site Design &amp; Development</td>
<td>3</td>
</tr>
<tr>
<td>CS 0334</td>
<td>Intermediate Web Site Design &amp; Development</td>
<td>3*</td>
</tr>
<tr>
<td>CS 0590</td>
<td>Social Implications of Computing Technology</td>
<td>3*</td>
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**Department of Geology and Environmental Science**

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<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>GEOL 0060</td>
<td>History of the Earth</td>
<td>4*</td>
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<tr>
<td>GEOL 1001</td>
<td>Mineralogy</td>
<td>4*</td>
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<tr>
<td>GEOL 1015</td>
<td>Geology Colloquium</td>
<td>1</td>
</tr>
<tr>
<td>GEOL 1020</td>
<td>Sedimentology/Stratigraphy</td>
<td>4*</td>
</tr>
<tr>
<td>GEOL 1051</td>
<td>Groundwater Geology</td>
<td>4*</td>
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<tr>
<td>GEOL 1052</td>
<td>Paleoclimatology</td>
<td>4*</td>
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<tr>
<td>GEOL 1060</td>
<td>Geomorphology</td>
<td>4*</td>
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<tr>
<td>GEOL 1100</td>
<td>Structural Geology</td>
<td>4*</td>
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<tr>
<td>GEOL 1200</td>
<td>Paleontology: History of Life</td>
<td>4*</td>
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<tr>
<td>GEOL 1201</td>
<td>Marine Paleoecology</td>
<td>3*</td>
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<tr>
<td>GEOL 1309</td>
<td>Physicochemical Geologic Limnology</td>
<td>3</td>
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<tr>
<td>GEOL 1330</td>
<td>Sustainability Flash Lab</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 1331</td>
<td>Health and Safety/HAZWOPER</td>
<td>3</td>
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<tr>
<td>GEOL 1332</td>
<td>Management of Environmental and Non-Profit Organizations</td>
<td>3</td>
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<tr>
<td>GEOL 1334</td>
<td>Environmental Policy</td>
<td>3</td>
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<tr>
<td>GEOL 1335</td>
<td>Environmental Issues: Air Quality [W-class: GEOL 1336]</td>
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<tr>
<td>GEOL 1337</td>
<td>Environmental Issues: Water Quality [W-class: GEOL 1338]</td>
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<tr>
<td>GEOL 1339</td>
<td>Environmental Issues: Mining and Gas Drilling [W-class: GEOL 1340]</td>
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<tr>
<td>GEOL 1341</td>
<td>Environmental Issues: Parks &amp; Forests [W-class: GEOL 1342]</td>
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<tr>
<td>GEOL 1410</td>
<td>Exploration Geophysics</td>
<td>3*</td>
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<tr>
<td>GEOL 1446</td>
<td>Advanced Geographical Information Systems</td>
<td>3*</td>
</tr>
<tr>
<td>GEOL 1460</td>
<td>Introduction to Remote Sensing</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 1510</td>
<td>Aquatic/Sedimentary Geochemistry</td>
<td>3*</td>
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<tr>
<td>GEOL 1515</td>
<td>Environmental Geochemistry</td>
<td>3*</td>
</tr>
<tr>
<td>GEOL 1640</td>
<td>Geologic and Environmental Hazards</td>
<td>3*</td>
</tr>
<tr>
<td>GEOL 1641</td>
<td>Ecosystem Ecology</td>
<td>4*</td>
</tr>
<tr>
<td>GEOL 1701</td>
<td>Geology of the Planets</td>
<td>3*</td>
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*Note: Bolded classes are highly recommended and can be used for either social science electives or natural science electives in the ES major. Also, D9xx upper level classes (GEOL 1900 or higher) may be approved by your advisor or the course instructor.
**Department of Physics**

- PHYS 0087 Physics & Society (3)*
- PHYS 0089 Physics & Science Fiction (3)*
- PHYS 0091 Conceptual Physics 1 (3)
- PHYS 0110 Introduction to Physics 1 (3)*
- PHYS 0174 Basic Physics for Science & Engineering (3)*

**School of Engineering: Civil and Environmental Department [Permission of instructor usually required]**

- CEE 1503 Introduction to Environmental Engineering (3)*
- CEE 1513 Environmental Engineering Processes (3)*
- CEE 1514 Environmental Impact Assessment (3)*
- CEE 2210/1210 Engineering and Sustainable Development (3)*

**OTHER REQUIREMENTS**

You must take at least one other W course. You may get both W’s completed within the department. See the list of electives above for other W options in the Geology department.

If you are interested in pursuing an Honors Thesis, please see your advisor!

**CERTIFICATES**

**GIS Certificate**

Environmental Studies majors may be interested in completing the GIS certificate which requires several courses which are already core courses or electives for the Environmental Studies major. The certificate requires 16 credits of coursework including two core courses:

- GEOL 1445 GIS, GPS, and Computer Methods (3)
- GEOL 1460 Introduction to Remote Sensing (3)

In addition, students must take six credits of electives (many of which may be required courses for the Environmental Studies major), and four credits of GEOL 1901 (Independent Study: a GIS or remote sensing project). More information on the Geographic Information Systems Certificate and possible electives can be found [here](#).

**Sustainability Certificate**

The Mascaro Center for Sustainable Innovation offers a Sustainability Certificate which integrates concepts from engineering, natural sciences, social sciences and humanities to sustainable systems, engineering practices, and society. The Certificate requires 18 credits of course work, including two core course across both the DSAS and SSOE tracks:

- ENGR 1905 Introduction to Sustainability (3)
- ENGR 1907 Sustainability Capstone Experience (3)

In addition, students must take either GEOL 1030 (DSAS track) OR CEE 1610 (SSOE track) and three electives (only one of which may be in the student’s major department). Information on the Sustainability Certificate and possible electives can be found [here](#).

For a list of other certificates and minors offered from departments in the Kenneth P. Dietrich School of Arts and Sciences, click [here](#).