DEPARTMENT OF GEOLOGY AND ENVIRONMENTAL SCIENCE

Bachelor of Arts in Environmental Studies

Advisor: Danielle M. Andrews, Ph.D.

Last Updated: 6/29/20
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 sustainability, 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, sustainability, 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-requirements provide the necessary prerequisites for later study; (3) electives in the natural and social sciences and humanities 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).
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):

*Take each of the following:*

(at least 34 credits)

- **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]
- **GEOL 1900**  Internship (3) [Fall, Spring]
- **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)*
  (Ask advisor for substitution courses)
- Environmental Science Field Course (≥ 2)
  (Suggested options: Pymatuning Courses (BIOSC Dept); GEOL 1300 (Pitt in South Africa); GEOL 1930 (Yellowstone); GEOL 1950 (Wyoming))

### CO-REQUIREMENTS (check each as completed):

*Take each of the following:*

(11/12 credits)

- **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):

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 0225 Food in Societies (3)
___ANTH 0445 Diversity in the US (3)
___ANTH 0582 Introduction to Archeology (3)
___ANTH 0620 Biocultural Anthropology (3)
___ANTH 0680 Introduction to Physical Anthropology (3)
___ANTH 0681 Introduction to Human Ecology (3)
___ANTH 0780 Intro to Cultural Anthropology (3)
___ANTH 1220 Climate Change Human Challenge (3)
___ANTH 1304 Ecological Anthropology (3)
___ANTH 1541 Cultural Resource Management (3)
___ANTH 1600 Human Evolution and Variation (3)
___ANTH 1724 The Anthropology of Science: Global Perspectives (3)
___ANTH 1728 Gender and Globalization (3)
___ANTH 1752 Anthropology of Food (3)
___ANTH 1760 Anthropology of Law (3)
___ANTH 1762 Human Ecology (3)
___ANTH 1763 Field Methods (3)

Department of Communication

___COMMRC 1102 Organizational Communication (3)
___COMMRC 1149 Environmental Rhetoric (3)
___COMMRC 1161 Communication Ethics (3)

Department of Economics

___ECON 0360 Intro to Environmental and Resource Economics (3)*
___ECON 0410 Economics of Diversity (3)*
___ECON 0500 Intro to International Economics (3)*
___ECON 0530 Intro to Development Economics (3)*
___ECON 1360 Environmental Economics (3)*
___ECON 1700 Proseminar Methodology of Economics (Climate Change, Immigration topics) (3)*

Department of English

___ENGLIT 0612 Literature and Science (3)
___ENGLIT 0710 Contemporary Environmental Literature (3)
___ENGLIT 0800 Weather, Climate, Literature (3)
___ENGLIT 0812 Media/Ecology (3)
___ENGLIT 1005 Literature & the Environment (3)*
___ENGLIT 1170 Romantic Nature (3)

___ENGCMP [ask advisor]

Department of Gender, Sexuality and Women Studies

___GSWS 0400 Gender and Science (3)
___GSWS 1450 Gender and Sustainability (3)
Department of History of Art and Architecture

___HAA 046  Art in Public: Inclusion, Identity, and Activism (3)
___HAA 0940  Approaches to the Built Environment (3)

Department of History

___HIST 0700  World History (3)
___HIST 0705  An Environmental and Climate History of the World (3)
___HIST 0709  History of Global Health (3)
___HIST 0791  Health Controversies in History: Ethics, Publics, Interventions (3)
___HIST 1084  Food and History (3)
___HIST 1472  Water in Central Eurasia (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 0611  Principles of Scientific Reasoning (3)
___HPS 0618  Scientific Controversies (3)
___HPS 0620  Science and Religion (3)
___HPS 0621  Problem Solving: How Science Works (3)
___HPS 0630  Science and Pseudoscience (3)
___HPS 1653  Intro to the Philosophy of Science (3)

Department of Political Science

___PS 1203  Women in Politics (3)
___PS 1204  Ethnic and Religious Politics (3)
___PS 1232  Political Attitude & Public Opinion (3)
___PS 1235  Media & Politics (3)
___PS 1251  Urban Government (3)
___PS 1261  American Public Policy (3)
___PS 1262  Health Policy in the USA (3)
___PS 1267  Environmental Politics & Policy (3)*
___PS 1357  Politics of Food, Land, and Sustainability (3)*
___PS 1363  Globalization & Law (3)*
___PS 1374  Politics of Global Inequality (3)*
___PS 1375  Religion and Politics (3)*
___PS 1385/1542  Global Environmental Politics (3)
___PS 1543  Globalization & International Politics [Study Abroad]*

Department of Religious Studies

___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 0317  Globalization (3)
___SOC 0352  Social Movements (3)
___SOC 0473  Sociology of Globalization and Health (3)
___SOC 1440  Experiencing Globalization (3)
___SOC 1445  Society & Environment (3)
Public Service

- PUBSRV 1200 Practices of Nonprofit Management (3)
- PUBSRV 1230 Fundraising for Nonprofit Org (3)
- PUBSRV 1300 Legal Issues in Public Service (3)
- PUBSRV 1310 Diversity Issues in Public Service (3)
- PUBSRV 1315 Managing Projects and Contracts (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 1210 Neighborhood, Gentrification, Belonging and the City (3)
- URBNST 1300 Urban Studies Research & Presentation Skills Seminar (3)
- URBNST 1610 Remaking Cities through Policy and Practice (3)
- URBNST 1614 Urban Sustainability (3)
- URBNST 1700 International Urbanism Seminar (3)*

Graduate School of Public and International Affairs [Permission of instructor usually required, ask advisor]

- PIA 2103 Managing People in the Public and Non-Profit Sector (3)
- 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 2204 Grant Writing & Fundraising (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)
- PIA 2719 Applied GIS in the Local Government Context (3)

NATURAL SCIENCES & ENGINEERING ELECTIVES (at least 12 credits)

Department of Biological Sciences*

- BIOSC 0050 Foundations in Biology Laboratory 1 (1)
- BIOSC 0067 Foundations in Biology Research Laboratory 2 (1)*
- BIOSC 0150 Foundations in Biology 1 (3)
- BIOSC 0160 Foundations in Biology 2 (3)*
- BIOSC 0350 Genetics (1)*
- BIOSC 0370 Ecology (3)*
- BIOSC 0390 Ecology Laboratory 2 (1)*

*NOTE: Students are encouraged to take BIOSC 0050, 0150, 0067, & 0160 as they are pre-requisites for other courses including Pymatuning field courses

Department of Chemistry

- CHEM 0120 General Chemistry 2 (4)*
- CHEM 0250 Intro Analytical Chemistry (3)*
- CHEM 0310 Organic Chemistry 1 (3)*
- CHEM 0350 Principles of Organic Chemistry (3)*
Department of Computer Science

- **CS 0090** Sustainability & Computing (3)
- **CS 0134** Web Site Design & Development (3)
- **CS 0334** Intermediate Web Site Design & Development (3)*
- **CS 0590** Social Implications of Computing Technology (3)*

Department of Geology and Environmental Science

- **GEOL 0060** History of the Earth (4)*
- **GEOL 1001** Mineralogy (4)*
- **GEOL 1015** Geology Colloquium (1)
- **GEOL 1020** Sedimentology/Stratigraphy (4)*
- **GEOL 1051** Groundwater Geology (4)*
- **GEOL 1052** Paleoclimatology (4)*
- **GEOL 1060** Geomorphology (4)*
- **GEOL 1100** Structural Geology (4)*
- **GEOL 1200** Paleontology: History of Life (4)*
- **GEOL 1201** Marine Paleoenology (3)*
- **GEOL 1309** Physicochemical Geologic Limnology (3)
- **GEOL 1330** Sustainability Flash Lab (3)
- **GEOL 1331** Health and Safety/HAZWOPER (3)
- **GEOL 1332** Management of Environmental and Non-Profit Organizations (3)
- **GEOL 1335** Environmental Issues: Air Quality (3) [W-class: GEOL 1336]
- **GEOL 1337** Environmental Issues: Water Quality (3) [W-class: GEOL 1338]
- **GEOL 1339** Environmental Issues: Mining and Gas Drilling (3) [W-class: GEOL 1340]
- **GEOL 1341** Environmental Issues: Parks & Forests (3) [W-class: GEOL 1342]
- **GEOL 1446** Advanced Geographical Information Systems (3)*
- **GEOL 1460** Introduction to Remote Sensing (3)
- **GEOL 1510** Aquatic/Sedimentary Geochemistry (3)*
- **GEOL 1515** Environmental Geochemistry (3)*
- **GEOL 1640** Geologic and Environmental Hazards (3)*
- **GEOL 1641** Ecosystem Ecology (4)*
- **GEOL 1701** Geology of the Planets (3)*

*Note: Bolded classes are highly recommended and can be used for either social science electives or natural science electives in the ES major. Also, 19xx 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 (only 8 credits of overlap between major and certificates /minors allowed)

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.