MASTER OF SCIENCE IN ENVIRONMENTAL STUDIES

PROGRAM DIRECTOR

Felicia Armstrong
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PROGRAM DESCRIPTION

The environmental studies program offers a multidisciplinary, interdepartmental graduate program leading to a Master of Science degree. The program office is housed in Moser Hall and is administered by the Department of Geological and Environmental Sciences (GES). This program is intended for individuals who have undergraduate degrees in environmental studies/science, other natural or social sciences, engineering, or health professions. It is designed to meet the needs of students and working professionals preparing for supervisory roles in environmental science (research and management), with emphasis on a risk-based approach to the solving of environmental problems. The curriculum requires students to broaden their knowledge with core courses in environmental studies, to deepen their expertise with elective courses, and to demonstrate their abilities to prepare a scholarly thesis. This degree will benefit students who are planning careers with regulatory agencies, regulatory compliance and management, research facilities, and consulting firms providing state-of-the-art assessment, management, and remediation.

FACULTY RESEARCH INTERESTS

Isam E. Amin, Ph.D., Associate Professor
Ground water contamination and remediation; characterization and remediation of Mahoning River banks; sediment transport in rivers and streams; intra-state water conflicts

Felicia Armstrong, Ph.D., Associate Professor
Environmental chemistry of soils; water quality; ecotoxicology; soil remediation

Raymond Emil Beiersdorfer, Ph.D., Professor
Environmental geochemistry

Jeffrey C. Dick, Ph.D., Professor
Groundwater contamination; water quality characterization/baseline investigations and petroleum geology

Alan M. Jacobs, Ph.D., Professor
Site characterization; health risk assessment; project management; groundwater contamination

Colleen E. McLean, Ph.D., Assistant Professor
Aqueous and environmental geochemistry; paleolimnology; biogeochemistry

C. Robin Mattheus, Ph.D., Assistant Professor
Sedimentology and stratigraphy; geomorphology

ASSOCIATED FACULTY RESEARCH INTERESTS

Dawna L. Cerney, Ph.D., Associate Professor
Physical geography; mountain geography; biogeography; field methods; landscape level change and conservation

Carl G. Johnston, Ph.D., Associate Professor of Biological Sciences
Environmental microbiology; microbial ecology; bioremediation using indigenous microbes and fungi

Douglas M. Price, Ph.D., Associate Professor of Civil and Environmental Engineering
Carbon dioxide capture; evaluation of point-source carbon dioxide footprint at manufacturing facilities; biofuel production by fermentation; membrane separation of gases
Ian Renne, Ph.D., Assistant Professor of Biological Sciences  
Plant community ecology and invasive plant species; avian ecology; ecological and evolutionary dynamics of allelopathic systems  

Bradley Shellito, Ph.D., Associate Professor of Geography  
Applications of geospatial technology (Geographic Information Science, remote sensing, global positioning systems, and 3D Modeling)  

Josef B. Simeonsson, Ph.D., Associate Professor of Chemistry  
Analytical chemistry including atomic and molecular spectrometry methods; trace and ultratrace analysis; analytical laser spectroscopy methods-fluorescence; ionization and Raman; environmental analysis and clinical analysis; biogeochemical cycling of trace species; environmental remediation; biological trace element research  

Admission Requirements  

- One year of college-level general chemistry with lab  
- One semester of calculus  
- A minimum of 15 semester hours of additional science courses with two of these additional courses containing a lab component (chemistry, biology, environmental science, geology, environmental engineering and/or physical geography).  
- An cumulative undergraduate minimum grade point average of 3.0 (on a 4.0 scale) is required for admission. Students with a GPA of under 3.0 could be considered for provisional admission.  
- Satisfactory performance on Graduate Record Examination (general test)  
- Three letters of recommendation.  

Applicants not satisfying the minimum admission requirements may be accepted provisionally at the discretion of the Department Graduate Committee. In those cases where the undergraduate preparation is deficient in three or fewer courses, students must satisfy the deficiencies by completing the equivalent undergraduate courses with a grade of B or better within the first year of study as a provisional graduate student.  

Any student admitted with provisional status will be reviewed for regular graduate admission to the program at the completion of 9 semester hours of degree-credit coursework. Students with an undergraduate course deficiency greater than three courses must remove the deficiency as a post baccalaureate, undergraduate student.  

Degree Requirements  

Environmental studies program requires courses that are designed to provide breadth in environmental science and understanding of environmental issues and regulations. Each student admitted to the program will meet with the coordinator to choose initial coursework and meet graduate faculty. It is highly recommended that new students enroll in ENST 6995 Introduction to Environmental Science Research. Each graduate student is required to select a thesis committee with the recommendation of his or her thesis advisor within the first year of full-time graduate study.  

All students in the environmental studies graduate program must have their course schedules approved by their thesis advisors every semester. A proposed course of study must be approved by the thesis committee. The course of study will be based on the student’s area of specialization, background, and career interests.  

The thesis committee will consist of three to five faculty members in appropriate fields of expertise and one non-faculty professional. The non-faculty member must qualify for appointment as an adjunct graduate faculty member at YSU. Research proposals and proposed course of study must be completed and approved by the thesis committee by the end of the second semester of full-time graduate study.  

The thesis shall advance knowledge in environmental science and be applicable to the solving of environmental problems. The thesis requirement includes a formal document and a draft article in journal format suitable for publication submittal. A draft of the thesis must be reviewed by the thesis advisor then submitted to the thesis committee two weeks before the thesis defense. The thesis defense will comprise an oral presentation before the thesis committee for final thesis approval.
Required Courses:  

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<thead>
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<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENST 6900</td>
<td>Advanced Environmental Studies</td>
<td>3 s.h.</td>
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<tr>
<td>STAT 5817</td>
<td>Applied Statistics or Biometry</td>
<td>3 s.h.</td>
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<tr>
<td>BIOL 5853</td>
<td>Biometry</td>
<td></td>
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<tr>
<td>ENST 6990</td>
<td>Thesis</td>
<td>1–6 s.h.</td>
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Select 2 of the following courses:  

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>ENST 5800</td>
<td>Environmental Impact Assessment</td>
<td>3 s.h.</td>
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<tr>
<td>ENST 5830</td>
<td>Risk Assessment</td>
<td>3 s.h.</td>
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<tr>
<td>ENST 5860</td>
<td>Environmental Regulations</td>
<td>3 s.h.</td>
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<tr>
<td>ENST 6901</td>
<td>Sources of Contamination</td>
<td>3 s.h.</td>
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<tr>
<td>ENST 6920</td>
<td>Environmental Compliance</td>
<td>3 s.h.</td>
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<tr>
<td>ENST 6921</td>
<td>Industry/Institutional Management for the Environmental Professional</td>
<td>3 s.h.</td>
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<tr>
<td>ENST 6931</td>
<td>Ecological Risk Assessment</td>
<td>3 s.h.</td>
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NOTE: Additional ENST courses may be taken as electives.

Recommended Courses:

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>ENST 6995</td>
<td>Introduction to Environmental Science Research</td>
<td>3 s.h.</td>
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<tr>
<td>ENST 5810</td>
<td>Environmental Safety</td>
<td>1 s.h.</td>
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Electives:  

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<th>Course</th>
<th>Title</th>
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An additional 15 semester hours of elective courses are required (a minimum total of 27 semester hours of coursework and 6 semester hours of thesis). Elective courses can come from Environmental Studies, Geology, Biology, Civil/Environmental Engineering, Geography, Chemistry or other disciplines recommended by the graduate committee.

All graduate students in environmental studies are required to successfully pass a graduate exam during the second year of their graduate program. Currently the Environmental Professional Intern (EPI) exam is being utilized. This exam covers topics in environmental science with respect to chemistry, biology, regulations, analysis, and other environmental issues.

No more than nine (9) semester hours from the 5800 level (swing course) may be counted towards the Master of Science degree. (Note: More courses at the 5800 level can be taken, but only 9 s.h. count towards the 27 s.h. required for the Master's degree). Additional background courses (undergraduate or graduate) may be required as prerequisites for some of the graduate courses.

Credits earned for the Graduate Certificate in Environmental Studies may be applied to the Master of Science degree to the extent allowed by the School of Graduate Studies (normally nine semester hours). Students in the certificate program, who intend to pursue the Master's degree, must apply to and meet all the requirements for the Environmental Studies Master of Science program.