The environmental science minor:

- provides a scientific background to those students interested in environmental law, environmental economics and environmental sustainability.
- broadens the student’s understanding of how sciences are linked to environmental questions.
- complements any major by focusing on courses related to environmental issues.

The minimum requirement for a minor in environmental science is 24 credit hours taken from the four categories outlined below.

Students wishing to complete more than one of the environmental minors (environmental management, environmental science and environmental studies) may receive dual credit for the capstone course (ENVT 400), but may not receive dual credit for any other courses that might be shared by the minors.

A score of four or greater in AP Environmental Science substitutes for GGEOL 115 or ISAT 112.

### Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGEOL 102</td>
<td>Environment: Earth</td>
<td>3</td>
</tr>
<tr>
<td>GGEOL 115</td>
<td>Earth Systems and Climate Change</td>
<td>3</td>
</tr>
<tr>
<td>GGEOL 112</td>
<td>Environmental Issues in Science and Technology</td>
<td>4</td>
</tr>
<tr>
<td>ISAT 200</td>
<td>Environmental Systems Theory</td>
<td>3</td>
</tr>
<tr>
<td>ISAT 400</td>
<td>Capstone Seminar</td>
<td>3</td>
</tr>
</tbody>
</table>

Fifteen credit hours from the following:

- BIO 124. Ecology and Evolution 4
- BIO 451. Ecological Systems 4
- BIO 452. Population Ecology 4
- BIO 453. Microbial Ecology 4
- BIO 485. Environmental Toxicology 4
- BIO 466. Ecotoxicology Seminar 3
- CHEM 354. Environmental Chemistry Field Camp 3
- CHEM 450. Nuclear and Radiation Chemistry 3
- ENVT 200. Environmental Systems Theory 3
- ENVT 400. Capstone Seminar 3
- ISAT 420. Environmental Analysis and Modeling 3
- ISAT 423. Environmental Remediation 3
- ISAT 425. Environmental Hydrology 3
- ISAT 427. Industrial Hygiene 3
- ISAT 428. Industrial Ecology 3
- MATH 321. Analysis of Variance and Experimental Design 3
- MATH 322. Applied Linear Regression 3
- MATH 324. Applied Nonparametric Statistics 3
- MATH 328. Time Series Analysis 3
- MATH/BIO 345E. Biometry 4
- MATH 421. Applied Multivariate Statistics 3
- PHYS 215. Energy and the Environment 3
- GENG 385. Principles of Remote Sensing 3
- GEOG 366. Communication, Environment and Environmentalism 3
- GEOG 365. Cartography & Geospatial Visualization 3
- GEOG 390. Human Interaction with the Physical Environment 3
- GEOG 340. Biogeography 3
- GEOG 365. Cartography & Geospatial Visualization 3
- GEOG 366. Introduction to GIS 3
- GEOG 365. Principles of Remote Sensing 3
- GEOL 211. Introduction to Oceanography 3
- GEOL 310. Management of Marine Resources 3
- GEOL 320. Meteorology 3
- GEOL 340. Soils and Land Use 3
- GEOL 355. Geochemistry of Natural Waters 3
- GEOL 377. Earth Surface Processes 3
- GEOL 395. Geomorphology 3
- GEOL 410. Engineering Geology 3
- GEOL 460. Hydrogeology 3
- ISAT 320. Fundamentals of Environmental Science & Technology I 3
- ISAT 321. Fundamentals of Environmental Science & Technology II 3
- ISAT 420. Environmental Analysis and Modeling 3

### Environmental Studies

**Dr. Pete Bsumek, Coordinator**

Phone: (540) 568-3386  
E-mail: bsumekpk@jmu.edu  
Web site: [http://www.jmu.edu/environment/studies.shtml](http://www.jmu.edu/environment/studies.shtml)

The environmental studies minor provides an interdisciplinary education engaging socio-cultural, scientific and technical issues raised by the oft-conflicting needs and desires of globally interacting societies. Designed to complement any major, the goals of the environmental studies minor include:

- to help undergraduates develop an awareness of the cultural, political and scientific aspects of the world's environmental problems.
- to better prepare students for further study at the graduate or professional school level and careers in the expanding field of environmental professions.

The minimum requirement for a minor in environmental studies is 24 credit hours taken from the four categories outlined. No more than three courses from a single subject (e.g., GEOG, GEOL, ANTH, ENG, etc.) may count toward completion of the environmental studies minor. Students wishing to complete more than one of the environment minors (environmental management, environmental science and environmental studies) may receive dual credit for the capstone course (ENVT 400), but may not receive dual credit for any other courses that might be shared by the minors.

### Introduction to Environmental Literacy

Minimum of three credit hours; can be double-counted with GenEd credits.

#### Courses

<table>
<thead>
<tr>
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<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GANTH 196</td>
<td>Biological Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>GANTH 197</td>
<td>Contemporary Biology</td>
<td>3</td>
</tr>
<tr>
<td>ENVT 200</td>
<td>Environmental Systems Theory</td>
<td>3</td>
</tr>
<tr>
<td>GENG 385</td>
<td>Earth Systems and Climate Change</td>
<td>3</td>
</tr>
</tbody>
</table>
The minor encourages students to make connections between their major field and family studies, thereby adding value to the major.

The family studies minor requires a minimum of 18 credit hours with no more than six credit hours in the student’s major.

One introductory course is required from the following: FAM 133, The Contemporary Family, or SOCI 276, Sociology of the Family.

One course must be selected from each of these areas: families in society, family and intimate relationships, and human development in the family. An additional course must be selected from any of the three areas or from family studies electives. A capstone course, FAM 400, Family Issues and Applications, is also required. At least four courses in the minor, including the introductory course, must have been completed prior to enrolling in FAM 400.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVT 400 Capstone Seminar</td>
<td>3</td>
</tr>
</tbody>
</table>

Family Studies

R. Ann Myers, Minor Adviser

Phone: (540) 568-6980
E-mail: myersra@jmu.edu
Web site: http://www.jmu.edu/socwork/academics/familystudies.html

The interdisciplinary minor in family studies is designed for undergraduates seeking enhancement of their major, desiring to increase understanding of self and relationships, and seeking to make a positive contribution to society. A substantial knowledge of family-related issues, family processes, policies, laws, services and the interrelationship of families and societies will enhance majors in many fields including anthropology, early and middle education, health sciences, management, nursing, psychology, social work and sociology.