The Major: Environmental Science and Management is a multi-disciplinary major, incorporating course work in water resources, wetland ecology, wildlife biology, soil science, forestry, and land use/environmental quality relationships with other disciplines. This is a comprehensive major that includes a solid background in the basic sciences and exposure to a broad array of subject matter relating to environmental science and management. This major provides solid preparation for more specialized study at the graduate level. There are three minor fields of study available within the Department of Natural Resources Science at URI that may serve as focus areas for students in the Environmental Science and Management major: GIS/Remote Sensing; Soil-Environmental Science; and Wildlife and Conservation Biology.

Careers: Graduates are employed by natural resources agencies at the state or federal level, nongovernmental conservation organizations, and environmental consulting firms. Examples of jobs include: environmental planner, environmental/wildlife researcher, wildlife biologist, cartographer, biology teacher, refuge manager, wetland biologist/ecologist, hydrologist, environmental scientist, soil conservationist and forest/park ranger. Good grades, hands-on experience, a strong technical background, and a firm commitment to sound environmental management are the key elements to being selected for challenging positions in natural resource fields.

Transfer out of UC: Must have completed at least 24 credits, minimum GPA of 2.00, and received permission from the University College Major Advisor.

The following is an example of the typical course schedule for the first 4 semesters for a student majoring in Environmental Science & Management. These are recommended course selections for ESM majors in University College; there will be variation based on course availability and schedule restraints. Some classes are not offered every semester. It is important to plan ahead and consult with your advisor to allow yourself time to enroll in the classes you wish to take.

<table>
<thead>
<tr>
<th>Semester I (Fall)</th>
<th>Semester II (Spring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRS 100 Natural Resource Conservation .3</td>
<td>NRS 223 Populations &amp; Ecosystems .3</td>
</tr>
<tr>
<td>NRS 101 Freshman in NRS .................. 1</td>
<td>BIO 102 Principles of Biology II .4</td>
</tr>
<tr>
<td>URI 101 Freshman at URI ................. 1</td>
<td>General Education (Cat. A, L, or F) .3</td>
</tr>
<tr>
<td>BIO 101 Principles of Biology I .......... 4</td>
<td>WRT 104, 105 or 106 Composition or</td>
</tr>
<tr>
<td>MTH 111 Precalculus or 131* Calculus .... 3</td>
<td>Calculus MTH 131 .............................. 3</td>
</tr>
<tr>
<td>COM 100 Communication Fundamentals . 3</td>
<td>CHM 101, 102 General Chemistry, Lab 4</td>
</tr>
<tr>
<td>Total credits: 15</td>
<td>Total credits: 17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester III (Fall)</th>
<th>Semester IV (Spring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRS 200 Seminar in NRS ................... 1</td>
<td>CHM124, 126 Organic Chemistry, Lab ..... 4</td>
</tr>
<tr>
<td>CHM 112, 114 General Chemistry, Lab .... 4</td>
<td>EEC 105 .............................. 3</td>
</tr>
<tr>
<td>GEO 103 Understanding the Earth ........ 4</td>
<td>PHY 109, 110** Intro to Physics, Lab ...... 3</td>
</tr>
<tr>
<td>NRS 212 Introduction to Soils ........... 3</td>
<td>NRS 305 Wildlife Ecology and Mgt .......... 4</td>
</tr>
<tr>
<td>General Education (Cat. A, L, or F) ...... 3</td>
<td>General Education (Cat. A, L, or F) ...... 3</td>
</tr>
<tr>
<td>Total credits: 15</td>
<td>Total credits: 17</td>
</tr>
</tbody>
</table>

*All students are required to take MTH 131; some students may need to take MTH 099 and/or MTH 111 first. A placement test is available in the math department.

**PHY 111, 185 and PHY 112, 186 sequence is highly recommended.
**Requirements:** 120 credits total, Bachelor of Science.

**General Education (36 credits):** All Category MQ (Mathematical & Quantitative Reasoning), N (Natural Sciences), and S (Social Sciences) General Education requirements (12 cr.) are satisfied by courses taken as part of the major. Thus, to satisfy URI's General Education requirements, NRS students should take COM 100, WRT 104, 105 or 106; and then only select 15 credits of General Education courses from Category A (Fine Arts and Literature), L (Letters), and FC (Foreign Language/Culture). The URI Course Catalog (or www.uri.edu/catalog/cataloghtml/) has a listing of all General Education courses.

**Introductory Professional Courses (17 credits):**
- NRS 100  Natural Resource Conservation
- NRS 200  Seminar in Natural Resources
- NRS 212  Introduction to Soil Science
- NRS 223  Conservation of Populations and Ecosystems
- EEC 105  Introduction to Resource Economics
- GEO 103  Understanding the Earth

**Basic Sciences (29-30 credits):**
- BIO 101  Principles of Biology I
- BIO 102  Principles of Biology II
- CHM 101, 102 General Chemistry, Lab
- CHM 112, 114 Gen. Chemistry, Lab or MIC 211 Microbiol., or BCM 311 Intro. Biochemistry
- CHM 124, 126 Introductory Organic Chemistry, Lab,
- MTH 131  Basic Calculus I
- PHY 109, 110 Introductory Physics, Lab
- STA 308  Introductory Statistics or STA 409 Statistical Methods in Research I

**Experiential Learning Courses:** Up to 15 credits of Experiential Learning Courses may be taken (a maximum of 6 credits of Letter Grade courses may be taken for Concentration credit and a maximum of 9 credits of either Letter Grade (in italics below) or S/U courses may be used as Supporting Electives.

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRS 395</td>
<td>Research Apprenticeship</td>
<td>1-3 credits/ea.</td>
</tr>
<tr>
<td>NRS 397</td>
<td>Internship</td>
<td>1-6 credits</td>
</tr>
<tr>
<td>NRS 491/492</td>
<td>Special Projects</td>
<td>1-3 credits/ea.</td>
</tr>
<tr>
<td>NRS 495</td>
<td>Advanced Apprenticeship</td>
<td>3 or 6 credits</td>
</tr>
<tr>
<td>NRS 497</td>
<td>Cooperative Internship</td>
<td>6-12 credits</td>
</tr>
<tr>
<td>NRS 498</td>
<td>Teaching Practicum</td>
<td>1-3 credits</td>
</tr>
<tr>
<td>NRS 499</td>
<td>Senior Thesis</td>
<td>6 credits</td>
</tr>
</tbody>
</table>
Concentration (24 credits): At least 3 credits must be taken from each of the 5 categories. Remaining concentration credits may be selected from any of the categories or from letter grade experiential learning courses (see above for courses; 6 credit maximum).

1. Biological or Ecological Science:
   NRS 401 Restoration Ecology
   NRS 423 Wetland Ecology
   NRS 425 Wetland Field Investigations

2. Watersheds and Environmental Quality:
   NRS 361 Hydrology & Water Management
   NRS 412 Soil-Water Chemistry
   NRS 426 Soil Microbiology

3. Methods in Environmental Science:
   NRS 409 Introduction to GIS
   NRS 410 Fundamentals of GIS
   NRS 415 Remote Sensing of the Environment
   NRS 471 Soil Morphology and Mapping

4. Natural Resources Management
   NRS 305 Wildlife Management
   NRS 406 Wetland Wildlife Management
   NRS 407 Nongame and Endangered Species Management
   NRS 301 Introduction to Forest Science

5. Land Use Management
   NRS 445 Invasive Species
   NRS 424 Wetlands and Land Use
   NRS 450 Soil Conservation & Land Use
   NRS 452 Soil, Water, and Land Use Investigations

Supporting Electives (20-21 credits): Courses may be selected from the concentration categories above, from an approved list (see list on the back of this page), or experiential learning courses listed above. Supporting electives are carefully chosen with the advisor’s assistance to help the student achieve career objectives. We encourage students to take experiential learning courses in order to gain practical experience in addition to the extensive field and class work (see above for list of courses). Up to 9 credits of experiential learning courses may be taken. Both letter grade and S/U courses may be used as supporting electives. Senior Portfolio (NRS 480) is highly recommended as a supporting elective. We encourage students to take EEC and GEO courses for supporting electives.

Free Electives (6 credits)
ENVIRONMENTAL SCIENCE & MANAGEMENT
College of the Environment and Life Sciences (CELS)

ENVIRONMENTAL SCIENCE AND MANAGEMENT SUPPORTING ELECTIVES

Natural Science Electives
NRS 302 Fundamentals of Forest Management (3)
NRS 304 Field Ornithology (4)
NRS 309 Wildlife Management Techniques (3)
NRS 324 Biology of Mammals (3)
NRS 351 Soil Morphology Practicum (2)
NRS 402 Wildlife Biometrics (3)
NRS 403 Wildlife Biometrics Field Investigations (1)
NRS 411 Population and Environmental Change (3)
NRS 414 Climate Change Science and Policy (3)
NRS 480 Senior Portfolio (3)
NRS 482 Innovative Subsurface Remediation (4)
NRS 496 International Development Seminar (3)
NRS 505 Biology and Management Migratory Birds (2)
NRS 516 Advanced Remote Sensing (3)
NRS 522 Adv. GIS Analysis of Environmental Data (3)
NRS 524 Application of Advanced Spatial Analysis (1)
NRS 526 Microbial Ecology of Soils and Sediments (3)
NRS 532 Conservation Biology and Resource Econ. (2)
NRS 533 Landscape Pattern and Change (3)
NRS 534 Ecology of Fragmented Landscapes (2)
NRS 538 Physiological Ecol. of Wild Terrestrial Vertebrates (3)
NRS 555 Applied Coastal Ecology (2)
NRS 567 Soil Genesis and Classification (3)
NRS 568 Recent Adv. in Natural Resources Science (3)
NRS 582 Seminar in Soil Ecology and Biochemistry (1)
BIO 323 Field Botany and Taxonomy (4)
BIO 354 Invertebrate Zoology (4)
BIO 366 Vertebrate Biology (3)
BIO 458 Freshwater Ecology (4)
BIO 467 Animal Behavior (3)
ENT 385 Introductory Entomology (3)
ENT 386 Introductory Entomology Laboratory (1)
GEO 204 Evolution of the Earth (4)
GEO 210 Landforms: Origin and Evolution (4)
GEO 305 Global Warming (4)
GEO 320 Earth Materials (4)
GEO 370 Structure of the Earth (4)
GEO 450 Intro. To Sedimentary Geology (4)
GEO 465 Intro to Geophysics (3)
GEO 468 Groundwater Chemistry (4)
GEO 482 Innovative Subsurface Rem Policy (4)
GEO 483 Hydrogeology (4)
GEO/NRS 484 Environmental Hydrogeology
GEO 485 Environmental Engineering Geophysics
GEO 515 Glacial Geology (3)
MAF 465 GIS Applications in Coastal and Marine Management (3)
WRT 333 Scientific and Technical Writing (3)

Social Science Electives
NRS 300 Intro. Global Issues in Sustainable Dev. (3)
CPL/MAF 434 Introduction to Environmental Law (3)
CPL 410 Fundamentals of Community Planning (3)
NRS 487 International Development Internship (1-6)
CPL 495 International Development Seminar (3)
CPL 511 Planning and Natural Environ. Systems (3)
MAF 312 The Politics of the Ocean (3)
MAF 415 Marine Pollution Policy (3)
MAF 461 Coastal Zone Management (3)
MAF 484 Environmental Analysis and Policy in Coastal Management (3)
PSC 402 Environmental Policy and Politics (3)
PSC 403 Global Ecopolitics (3)
EEC 205 Resource Management and Conservation (3)
EEC 310 Economics for Environmental Resource Management and Policy (3)
EEC 410 Fish and Wildlife Economics (3)
EEC 432 Environmental Economics and Policy (3)
EEC 440 Benefit-Cost Analysis (3)