Environmental Science & Management
College of the Environment and Life Sciences (CELS) Effective Fall 2015

Department: Natural Resources Science, 401-874-2495, http://www.nrs.uri.edu
Credits: 120

The Major: Environmental Science and Management incorporates course work in water resources, geospatial technologies, wetland ecology, wildlife biology, soil science, forestry, and land use/environmental quality relationships. Coursework emphasizes the field techniques that underpin environmental assessment and restoration. 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 scientist, GIS specialist, pollution assessment and abatement, biology teacher, restoration ecologist, water quality management, refuge manager, wetland ecologist, hydrologist, soil scientist, natural resource conservationist, environmental planner 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.

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<tr>
<th>Semester I (Fall)</th>
<th>Semester II (Spring)</th>
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<tbody>
<tr>
<td>NRS 100 Natural Resource Conservation .3</td>
<td>NRS 223 Conservation Biology........4</td>
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<tr>
<td>NRS 101 Freshman in NRS ...............1</td>
<td>BIO 102, 104 Principles of Biology II ...4</td>
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<tr>
<td>URI 101 Freshman at URI ..............1</td>
<td>General Education (Cat. A, L, or F) ....3</td>
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<tr>
<td>BIO 101, 103 Principles of Biology I ....4</td>
<td>WRT104, 105 or 106 Composition or</td>
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<tr>
<td>MTH 111 Precalculus or 131* Calculus ....3</td>
<td>Calculus MTH 131..........................3</td>
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<tr>
<td>COM 100 Communication Fundamentals. 3</td>
<td>CHM 101,102 General Chemistry, Lab 4</td>
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Total credits: 15

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<tr>
<th>Semester III (Fall)</th>
<th>Semester IV (Spring)</th>
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<tr>
<td>NRS 200 Seminar in NRS .............1</td>
<td>NRS Concentration .....................3</td>
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<tr>
<td>NRS 212 Introduction to Soils ..........4</td>
<td>CHM124, 126 Organic Chemistry, Lab ....4</td>
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<tr>
<td>CHM 112, 114 or MIC 211 or BCM 311 .4</td>
<td>EEC 105 Environmental Economics ..........3</td>
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<tr>
<td>GEO 103 Understanding the Earth .......4</td>
<td>NRS Supporting Elective or</td>
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<tr>
<td>General Education (Cat. A, L, or F) ......3</td>
<td>STA 308 Intro Stats ..................3</td>
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Total credits: 16

*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.
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Effective Fall 2015

STUDENT ____________________ STUDENT ID __________________ ADVISOR ____________________

**Intro. to URI and NRS** (2 credits)  
URI 101 (1) NRS 101 (1)

**Intro. Professional Courses** (19; with 3 credits applicable to General Ed (S) requirements)  
NRS 100 (3) NRS 212 (4)  
NRS 223 (4) NRS 200 (1)  
EEC 105 (3) GEO 103 (4)

**Basic Sciences** (25-27 credits; 9 credits applicable to General Ed (N, MQ) requirements)*  
BIO 101, 103 (4)  
BIO 102, 104 (4)  
CHM 101,102 (4)  
CHM 112,114 (4) or MIC211 (4)  
or BCH311 (4)  
CHM 124, 126 (4)  
MTH 131 (3)  
STA 308 (4) or STA 409 (3)

*Six credits apply to Division N and three credits apply to Division MQ

**Concentration** (24 credits)  
At least 3 credits must be taken from each of the following categories. Remaining concentration credits may be selected from any of the categories or from Experiential Learning Courses. Up to 6 credits of Letter Grade Experiential Learning Courses may be taken as Concentration Courses (see box)  

1. **Biological or Ecological Science:**  
   NRS 401 (4) NRS 423,425 (4,1)  
   BIO 455,457 (3,1) NRS 417 (4)

2. **Watersheds and Environmental Quality:**  
   NRS 461 (4) NRS 412 (3)  
   NRS 426 (3)

3. **Methods in Environmental Science:**  
   NRS 409 (4) NRS 410 (3)  
   NRS 415 (3) NRS 471 (4)

4. **Natural Resources Management:**  
   NRS 305 (3) NRS 406 (4)  
   NRS 407 (3)

5. **Land Use Management:**  
   NRS 301 (3) NRS 450 (3)  
   NRS 445 (4) NRS 452 (1)

**Supporting Electives** (17 to 19 credits)  
At least 9 credits must be NRS courses. These courses may be chosen from: a) the following list (see back); b) courses in the Concentration Course list that were not used for Concentration; or c) up to 9 credits of Letter Grade or S/U Experiential Learning Courses (see box) **Senior Colloquium (NRS 480, 2 cr.) strongly recommended**

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**General Education** (36-37 credits)  
Communications: COM 100 (3) or COM 110 (4)

Writing: WRT 104, 105 or 106 (3)

Math (MQ): (3 cr. from Basic Sciences below)

Nat Sci (N): (6 cr. from Basic Sciences below)

Social Sci (S): (3)

Letters (L): (3)

Arts (A): (3)

Foreign Lang (FC): (3)

(Note: You need 15 cr. from L, A and FC)

**Free Electives** (6)

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**Note:** Concentration and Supporting Electives must total > 42 credits. Credits for graduation must equal at least 120.

**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; both Letter Grade courses (in italics below) and S/U courses may be used as Supporting Electives.

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NRS 395 Research Apprenticeship (1-3 credits/ea.)
NRS 397 Internship (1-6 credits)
NRS 491/492 Special Projects (1-3 credits/ea.)
NRS 495 Advanced Apprenticeship (3 or 6 credits)
NRS 497 Cooperative Internship (6-12 credits)
NRS 498 Teaching Practicum (1-3 credits)
NRS 499 Senior Thesis (6 credits)
ENVIRONMENTAL SCIENCE AND MANAGEMENT SUPPORTING ELECTIVES

Environmental Science and Management students are required to select 18 to 20 credits of Supporting Electives. At least 9 credits must be NRS courses. Courses may be chosen from: a) the following list; b) courses in the Concentration Courses list not used for Concentration; or c) any NRS Experiential Learning Courses (see front).

**Natural Science Electives**
- NRS 304 Field Ornithology (4)
- NRS 309 Wildlife Manage. Techniques Lab. (3)
- NRS 324 Biology of Mammals (3)
- NRS 351 Soil Morphology Practicum (2)
- NRS 402 Wildlife Biometrics (3)
- NRS 403 Wildlife Biometrics Field Invest. (1)
- NRS 480 Colloquium (2)
- NRS 482 Innovative Subsurface Remed. Tech. (4)
- NRS 484 Environmental Hydrogeology (4)
- NRS 485: Salt Marsh Ecology (4)
- NRS 496 International Development Seminar (3)
- NRS 505 Biol & Mgmt of Migratory Birds (2)
- NRS 516 Remote Sensing in Nat Res Mapping (3)
- NRS 518 Ecolohydrology (3)
- NRS 522 Adv. GIS Analysis Environ. Data (3)
- NRS 524 Application of Adv. Spatial Analysis (1)
- NRS 526 Microbial Ecol of Soils & Sediments (3)
- NRS 532 Conservation Bio and Res Econ (2)
- NRS 533 Landscape Pattern and Change (3)
- NRS 534 Ecology of Fragmented Landscapes (2)
- NRS 538 Physiolog Ecol Terrestrial Vert (3)
- NRS 555 Applied Coastal Ecology (2)
- NRS 567 Soil Genesis and Classification (3)
- NRS 568 Recent Advances in NRS (3)
- BIO 262 Ecology (4)
- BIO 321 Plant Diversity (4)
- BIO 323 Field Botany and Taxonomy (4)
- BIO 354 Invertebrate Zoology (4)
- BIO 366 Vertebrate Biology (3)
- BIO 467 Animal Behavior (3)
- ENT 385 Introductory Entomology (3)
- ENT 386 Introductory Entomology Laboratory (1)
- GEO 204 Earth History (4)
- GEO 210 Landforms: Origin and Evolution (4)
- GEO 272 Intro Evolution (4)
- GEO 305 Global Climate Change (4)
- GEO 450 Intro To Sedimentary Geology (4)
- GEO 468 Groundwater Chemistry (4)
- GEO 482 Innovative Subsurface Rem Policy (4)
- GEO 483 Hydrogeology (4)
- GEO/NRS 484 Environmental Hydrogeology
- GEO 515 Glacial Geology (3)
- MAF 465 GIS Appl. Coastal & Marine Mgmt. (3)
- WRT 304 Writing for Comm. Service (4)
- WRT 333 Scientific and Technical Writing (3)

**Social Science Electives**
- NRS 300 Intro. Global Issues Sustainable Devel. (3)
- EEC 205 Resource Manage and Conservation (3)
- EEC 310 Economics Environ Res Man Policy (3)
- EEC 410 Fish and Wildlife Economics (3)
- EEC 432 Environmental Economics and Policy (3)
- EEC 440 Benefit-Cost Analysis (3)
- CPL/MAF 434 Intro to Environmental Law (3)
- CPL 410 Fund of Community Planning Practice (3)
- NRS 487 International Development Internship (1-6)
- CPL 483 Land Development (3)
- CPL 485 Environmental Planning (3)
- MAF 312 Politics of the Ocean (3)
- MAF 415 Marine Pollution Policy (3)
- MAF 461 Coastal Zone Management (3)
- MAF 465 GIS Applications in Coastal Mgmt (3)
- MAF 484 Environ Analysis Policy Coastal Man (3)
- PSC 402 Environmental Policy and Politics (4)
- PSC 403 Global Ecopolitics (4)

**Students wishing to pursue graduate education**
For graduate studies in applied natural sciences, consider obtaining a strong grounding in physics, math and chemistry
These courses will also count as supporting electives:
- Physics 111, 185
- Physics 112, 186
- Math 132
- Organic Chemistry I CHM 227, 229 (replaces CHM 124, 126 in basic sciences)
- Organic Chemistry II CHM 228, 230
### Environmental Science and Management 4-Year Plan

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<tr>
<th>Freshman, Fall (15)</th>
<th>Freshman, Spring (18)</th>
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<tr>
<td>NRS 100: Natural Resource Conservation</td>
<td>NRS 223 Conservation Biology</td>
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<tr>
<td>NRS 101: Freshman Inquiry into NRS</td>
<td>BIO 102, 104 Principles of Biology II</td>
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<tr>
<td>URI 101: Traditions and Transformations: Freshman Seminar</td>
<td>WRT 104: Writing to Inform and Explain or WRT 105: Forms of College Writing or WRT 106: Intro to Research Writing or MTH 131: Applied Calculus</td>
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<tr>
<td>BIO 101, 103: Principles of Biology I</td>
<td>CHM 101, 102: General Chem Lecture I/ Lab</td>
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<td>MTH 111/131: Precalculus/ Applied Calculus</td>
<td>GEN ED (Cat. A, L, or FC)</td>
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<td>COM 100 Communication Fundamentals</td>
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<th>Sophomore, Fall (16)</th>
<th>Sophomore, Spring (16)</th>
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<tr>
<td>NRS 200: Seminar in Natural Resources</td>
<td>CHM 124,126: Introduction to Organic Chem/ Lab</td>
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<tr>
<td>CHM 112, 114: General Chemistry Lecture II/Lab or MIC 211 Microbiol., or BCM 311 Intro. Biochemistry</td>
<td>GEN ED (Cat. A, L, or FC)</td>
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<td>GEO 103: Understanding the Earth</td>
<td>NRS Concentration</td>
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<td>NRS 212: Intro to Soil Science</td>
<td>STA 308 Intro to Statistics</td>
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<td>GEN ED (A, L, or FC)</td>
<td>EEC 105: Intro to Resource Economics</td>
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<th>Junior, Fall (15)</th>
<th>Junior, Spring (14)</th>
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<td>Free Elective</td>
<td>NRS Concentration</td>
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<td>GEN ED (A, L, or FC)</td>
<td>NRS Concentration</td>
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<th>Senior, Fall (14)</th>
<th>Senior, Spring (12)</th>
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