Environmental Science & Management
College of the Environment and Life Sciences (CELS)  
Revised April 2014

Department: Natural Resources Science, 401-874-2495, http://www.nrs.uri.edu
University College Advisor: Dr. Laura Meyerson, Laura_Meyerson@uri.edu, 401-874-7058
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.

<table>
<thead>
<tr>
<th>Semester I (Fall)</th>
<th>Semester II (Spring)</th>
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<tbody>
<tr>
<td>NRS 100 Natural Resource Conservation</td>
<td>NRS 223 Conservation Biology</td>
</tr>
<tr>
<td>NRS 101 Freshman in NRS</td>
<td>BIO 102, 104 Principles of Biology II</td>
</tr>
<tr>
<td>URI 101 Freshman at URI</td>
<td>General Education (Cat. A, L, or F)</td>
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<tr>
<td>BIO 101, 103 Principles of Biology I</td>
<td>WRT104, 105 or 106 Composition or</td>
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<tr>
<td>MTH 111 Precalculus or 131* Calculus</td>
<td>Calculus MTH 131</td>
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<tr>
<td>COM 100 Communication Fundamentals</td>
<td>CHM 101,102 General Chemistry, Lab</td>
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<td>Total credits: 15</td>
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<tr>
<td>Semester III (Fall)</td>
<td>Semester IV (Spring)</td>
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<tr>
<td>NRS 200 Seminar in NRS</td>
<td>NRS Concentration</td>
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<tr>
<td>NRS 212 Introduction to Soils</td>
<td>CHM124, 126 Organic Chemistry, Lab</td>
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<tr>
<td>CHM 112, 114 or MIC 211 or BCM 311</td>
<td>EEC 105 Environmental Economics</td>
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<tr>
<td>GEO 103 Understanding the Earth</td>
<td>NRS Supporting Elective or</td>
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<tr>
<td>General Education (Cat. A, L, or F)</td>
<td>STA 308 Intro Stats</td>
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<td></td>
<td>General Education (Cat. A, L, or F)</td>
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<td>Total credits: 16</td>
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</table>
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) _____ (3)
Arts (A): _____ (3) _____ (3)
Foreign Lang (FC): _____ (3) _____ (3)
(Note: You need 15 cr. from L, A and FC;)

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 (25-26 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)
CHM 124, 126 _____ (4)
MTH 131 _____ (3)
STA 308 _____ (3) 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 (18 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

Free Electives (6)

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.

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 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 190 Issues in Biotechnology (3)
- 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 Ecophysiology (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 320 Earth Materials (4)
- GEO 370 Structure of the Earth (4)
- GEO 450 Intro To Sedimentary Geology (4)
- GEO 465 Intro to Geophysics (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 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
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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>URI 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>
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<td>COM 100 Communication Fundamentals</td>
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<th>Sophomore, Fall (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>NRS Concentration</td>
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