Environmental Science & Management
College of the Environment and Life Sciences (CELS) Revised April 2013

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.

Semester I (Fall)
NRS 100 Natural Resource Conservation .3
NRS 101 Freshman in NRS .................... 1
URI 101 Freshman at URI.................. 1
BIO 101, 103 Principles of Biology I ........ 4
MTH 111 Precalculus or 131* Calculus .... 3
COM 100 Communication Fundamentals .3
Total credits: 15

Semester II (Spring)
NRS 223 Conservation Biology............... 4
BIO 102, 104 Principles of Biology II .... 4
General Education (Cat. A, L, or F)........... 3
WRT104, 105 or 106 Composition or
Calculus MTH 131................................. 3
CHM 101,102 General Chemistry, Lab 4
Total credits: 18

Semester III (Fall)
NRS 200 Seminar in NRS.................... 1
NRS 212 Introduction to Soils............... 4
CHM 112, 114 General Chemistry, Lab .... 4
GEO 103 Understanding the Earth ......... 4
General Education (Cat. A, L, or F)......... 3
Total credits: 16

Semester IV (Spring)
NRS 305 Wildlife Ecology and Mgt........... 3
CHM124, 126 Organic Chemistry, Lab .... 4
EEC 105 Environmental Economics ........ 3
STA 308 Intro Stats............................... 3
General Education (Cat. A, L, or F)........ 3
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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Requirements:  120 credits total, Bachelor of Science.

**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)
- Natural Sci (N): (6 cr. Basic Sciences below)
- Social Sci. (S): (3 cr. EEC 105 below), ______(3)
- Letters (L): _______ (3) _______ (3)
- Arts (A): ______ (3) ______ (3)
- Foreign Lang (FC): ______ (3) ______ (3)

(Note: You need 15 cr. from L, A and FC;  
See http://www.uri.edu/uc/pdf/2012-2013.pdf

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

**Intro. Professional Courses** (19)
- 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 Education requirements)*
- BIO 101, 103____(4)
- BIO 102, 104______ (4)
- CHM 101,102____ (4)
- CHM 112,114____(4) or MIC211_(4) or BCH311_ (3)
- CHM 124, 126_____ (4)
- MTH 131____(3)
- STA 308__ (3) or STA 409__ (3)

*N 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 or S/U 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_______(3)

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 20 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 Courses 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.) is strongly recommended, and we urge you to take EEC and GEO courses

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Free Electives (6)

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**Note:** Concentration and Supporting Electives must total at least 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)

least 42 credits. Credits for graduation must equal at least 120.
# 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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<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>
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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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<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>
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<td>GEN ED (A, L, or FC)</td>
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<th>Senior, Fall (14)</th>
<th>Senior, Spring (12)</th>
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<td>Free Elective</td>
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### 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 Investigations (1)
- NRS 480 Senior Portfolio (3)
- NRS 482 Innovative Subsurface Remed. Tech. (4)
- NRS 484 Environmental Hydrogeology (4)
- NRS 485: Salt Marsh Ecology (3)
- NRS 496 International Development Seminar (3)
- NRS 505 Biology & Management of Migr. Birds (2)
- NRS 516 Advanced Remote Sensing (3)
- NRS 518 Ecohydrology (3)
- NRS 522 Advanced GIS Analysis Environ. Data (3)
- NRS 524 Application of Advan. Spatial Analysis (1)
- NRS 526 Microbial Ecol. of Soils & Sediments (3)
- NRS 532 Conservation Bio. and Resource Econ. (2)
- NRS 533 Landscape Pattern and Change (3)
- NRS 534 Ecology of Fragmented Landscapes (2)
- NRS 538 Physiol. Ecol. Wild Terrestrial Vert. (3)
- NRS 555 Applied Coastal Ecology (2)
- NRS 567 Soil Genesis and Classification (3)
- NRS 568 Recent Advances in NRS (3)
- NRS 582 Seminar in Soil Ecology & Biochem. (1)
- BIO 262 Ecology
- 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 Appl. Coastal & Marine Manage. (3)
- 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 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 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 Environ Analysis Policy Coastal Man. (3)
- PSC 402 Environmental Policy and Politics (3)
- PSC 403 Global Ecopolitics (3)

#### 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