

# THE UNIVERSITY OF RHODE ISLAND

## Environmental Science & Management

### EL\_ESMG\_BS

120 Earned Credits Total

[web.uri.edu/nrs/](http://web.uri.edu/nrs/)

Student: \_\_\_\_\_

Student ID: \_\_\_\_\_

Advisor: \_\_\_\_\_

**Environmental Science & Management:** 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 background in the basic sciences and exposure to a broad array of subject matter relating to environmental science and management. This major provides preparation for more specialized study at the graduate level. There are several 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; Wildlife and Conservation Biology, Global Water Resources (interdepartmental minor), International Development (interdepartmental minor), and Restoration Science and Management (interdepartmental minor).

**General Education Guidelines:** General education requires 40 credits. Each of the twelve outcomes (A1-D1) must be met by at least 3 credits. A single course may meet more than one outcome, but cannot be double counted towards the 40 credit total. At least one course must be a Grand Challenge (G). No more than twelve credits can have the same course code (note- HPR courses may have more than 12 credits). General education courses may also be used to meet requirements of the major or minor when appropriate.

#### LIST COURSES THAT MEET GENERAL EDUCATION:

| General Education Credit Count   |        |       |  |        |        |       |
|--|--------|-------|--|--------|--------|-------|
| At least 40 credits, no more than 12 credits with the same course code |        |       |  |        |        |       |
| Course   | Credit | Grade |  | Course | Credit | Grade |
| *GEO103  | 4      |       |  |        |        |       |
| *NRS100  | 3      |       |  |        |        |       |
| *BIO101  | 3      |       |  |        |        |       |
| *BIO103  | 1      |       |  |        |        |       |
| *BIO102  | 3      |       |  |        |        |       |
| *BIO104  | 1      |       |  |        |        |       |
| *CHM101  | 3      |       |  |        |        |       |
| *MTH131  | 3      |       |  |        |        |       |
| *EEC105  | 3      |       |  |        |        |       |
|  |        |       |  |        |        |       |
|  |        |       |  |        |        |       |
|  |        |       |  |        |        |       |
|  |        |       |  |        |        |       |
| Total Gen Ed Credits   |        |       |  |        |        |       |

**NOTE: BECAUSE MOST COURSES MEET MORE THAN ONE OUTCOME, YOUR OUTCOME AUDIT MIGHT BE COMPLETED BEFORE YOU REACH YOUR 40 CREDITS. HOWEVER, YOU MUST STILL COMPLETE 40 CREDITS OF GENERAL EDUCATION**

\*course fulfills general education and a major requirement

#### LIST COURSE AS EACH OUTCOME IS MET:

| General Education Outcome Audit   |         |
|---|---------|
|   | Course  |
| <b>KNOWLEDGE</b>  |         |
| <b>A1. STEM</b>   | *NRS100 |
| <b>A2. Social &amp; Behavioral Sciences</b>                                   | *EEC105 |
| <b>A3. Humanities</b>   |         |
| <b>A4. Arts &amp; Design</b>  |         |
| <b>COMPETENCIES</b>   |         |
| <b>B1. Write effectively</b>  |         |
| <b>B2. Communicate effectively</b>  |         |
| <b>B3. Mathematical, statistical, or computational strategies</b>             | *MTH131 |
| <b>B4. Information literacy</b>   | *GEO103 |
| <b>RESPONSIBILITIES</b>   |         |
| <b>C1. Civic knowledge &amp; responsibilities</b>                             |         |
| <b>C2. Global responsibilities</b>  |         |
| <b>C3. Diversity &amp; Inclusion</b>  |         |
| <b>INTEGRATE &amp; APPLY</b>  |         |
| <b>D1. Ability to synthesize</b>  |         |
| <b>GRAND CHALLENGE</b>  |         |
| <b>G. At least one course of your 40 credits is an approved "G" course</b>    |         |
| *Note: NRS450G/452G fulfills D1,G; NRS330G fulfills C2,G; NRS234G fulfills G; |         |

**Transfer out of University College for Academic Success Requirement:** Must have completed at least 24 credits with a minimum cumulative 2.0 GPA, and received permission from the University College major advisor.

**Advising Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**THE UNIVERSITY OF RHODE ISLAND**

**Environmental Science and Management**

**EL\_ESMG\_BS**

120 Earned Credits Total

Student: \_\_\_\_\_

Student ID: \_\_\_\_\_

Advisor: \_\_\_\_\_

| <b>Intro to URI &amp; NRS (2 credits)</b> |          |         |       |
|---|----------|---------|-------|
| Course                                    | Semester | Credits | Grade |
| URI 101                                   |          | 1       |       |
| NRS 101                                   |          | 1       |       |

| <b>Intro. Professional Courses (19 credits)</b> |          |         |       |
|---|----------|---------|-------|
| Course  | Semester | Credits | Grade |
| *EEC 105  |          | 3       |       |
| *GEO 103  |          | 4       |       |
| *NRS 100  |          | 3       |       |
| NRS 200   |          | 1       |       |
| NRS 212   |          | 4       |       |
| NRS 223   |          | 4       |       |

| <b>Basic Sciences (25-27 credits)</b>                                |          |         |       |
|--|----------|---------|-------|
| Course   | Semester | Credits | Grade |
| *BIO 101, *103   |          | 4       |       |
| *BIO 102, *104   |          | 4       |       |
| *CHM 101, 102  |          | 4       |       |
| CHM 112, 114 (4); <b>Or</b><br>CMB 211 (4); <b>Or</b><br>CMB 311 (3) |          | 3-4     |       |
| CHM 124, 126   |          | 4       |       |
| *MTH 131   |          | 3       |       |
| STA 308 (4); <b>Or</b><br>STA 409 (3)                                |          | 3-4     |       |

**Notes regarding math & chemistry:**

- 1) The prereq. for MTH131 is MTH103 or 111. Students interested in taking MTH141 (w/advisor approval) should take MTH111 prereq. instead of 103.
- 2) CHM112/114 recommended. Students opting to take CMB211 or 311 (prereq is 2 semesters of CHM), must first complete CHM124/126.

| <b>Free Electives</b>   |          |         |       |
|---|----------|---------|-------|
| Courses taken beyond the requirements of the major and general education. A total of 120 earned credits is required for graduation. |          |         |       |
| Course  | Semester | Credits | Grade |
|   |          |         |       |
|   |          |         |       |
|   |          |         |       |
|   |          |         |       |

| <b>Experiential Learning Courses</b>  |  |  |        |
|---|--|--|--------|
| Up to 15 credits of Experiential Learning Courses may be taken. A max. of 6 crs. 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    |
| NRS 397 Internship  |  |  | 1-6    |
| <i>NRS 491/492 Special Projects</i>   |  |  | 1-3    |
| NRS 495 Advanced Apprenticeship   |  |  | 3 or 6 |
| <i>NRS 497 Cooperative Internship</i>   |  |  | 6-12   |
| NRS 498 Teaching Practicum  |  |  | 1-3    |
| <i>NRS 499 Senior Thesis</i>  |  |  | 6      |

\*Courses approved for general education.

| <b>Concentration Courses (24 credits)</b>   |  |  |  |
|---|--|--|--|
| Select at least 3 credits from each of the five categories below. To reach 24 credits, select remaining concentration credits from any of the five categories below, or from Letter Grade Experiential Learning Courses (up to 6 credits). See box below for Letter Grade (e.g. not S/U) Experiential Learning Courses. |  |  |  |

| <b>1. Biological or Ecological Sciences (minimum 3 credits)</b> |          |         |       |
|---|----------|---------|-------|
| Course  | Semester | Credits | Grade |
| NRS 401   |          | 4       |       |
| NRS 417   |          | 4       |       |
| NRS 423, 425  |          | 4, 1    |       |
| BIO 455, 457  |          | 3, 1    |       |

| <b>2. Watersheds &amp; Environmental Quality (minimum 3 credits)</b> |          |         |       |
|--|----------|---------|-------|
| Course   | Semester | Credits | Grade |
| NRS 412  |          | 3       |       |
| NRS 426  |          | 3       |       |
| NRS 461  |          | 4       |       |

| <b>3. Methods in Environmental Science (minimum 3 credits)</b> |          |         |       |
|--|----------|---------|-------|
| Course   | Semester | Credits | Grade |
| NRS 409  |          | 4       |       |
| NRS 410  |          | 3       |       |
| NRS 415  |          | 3       |       |
| NRS 471  |          | 4       |       |

| <b>4. Natural Resources Management (minimum 3 credits)</b> |          |         |       |
|--|----------|---------|-------|
| Course   | Semester | Credits | Grade |
| NRS 305  |          | 3       |       |
| *NRS 330G  |          | 3       |       |
| NRS 406  |          | 4       |       |
| NRS 407  |          | 3       |       |

| <b>5. Land Use Management (minimum 3 credits)</b> |          |         |       |
|---|----------|---------|-------|
| Course  | Semester | Credits | Grade |
| NRS 301   |          | 3       |       |
| NRS 445   |          | 4       |       |
| *NRS 450G, 452G                                   |          | 3, 1    |       |

| <b>List below any Exp. Learning Concentration Courses (max 6 cr)</b> |          |         |       |
|--|----------|---------|-------|
| Course   | Semester | Credits | Grade |
|  |          |         |       |
|  |          |         |       |
|  |          |         |       |

| <b>Supporting Electives (18 credits)</b>  |          |         |       |
|---|----------|---------|-------|
| <b>At least 9 credits must be NRS courses.</b> Courses may be chosen from: a) the supporting elective list - attached; b) Concentration courses not used for Concentration; or c) up to 9 cr. of Letter Grade or S/U Experiential Learning Courses-see box. <b>NRS 480 Sr. Colloquium (2 cr) is strongly recommended.</b> |          |         |       |
| Course  | Semester | Credits | Grade |
|   |          |         |       |
|   |          |         |       |
|   |          |         |       |
|   |          |         |       |
|   |          |         |       |
|   |          |         |       |
|   |          |         |       |
|   |          |         |       |

Minimum 2.0 GPA required in major for graduation.

Minimum 2.0 cumulative GPA required for graduation.

**Effective: 2018 - 2019**

**B.S. Environmental Science and Management - Effective Fall 2018**  
*College of the Environment and Life Sciences*

| <b>Environmental Science and Management Supporting Electives</b>   |  |
|--|--|
| Environmental Science and Management students are required to select 18 credits of Supporting Electives. <b>At least 9 credits must be NRS courses.</b> Courses may be chosen from: a) the following list; b) Concentration courses not used for concentration credit; or c) any NRS Experiential Learning Courses. Additional courses at or above the 300 level from CELS, Engineering, GSO, and A&S may qualify as supporting electives with advisor permission. |  |
| <i>Natural Science Electives</i>   |  |
| *NRS/GEO/EEC 234G Intro. to Water Resources (3) <i>A1, G</i>   | NRS 567 Soil Genesis and Classification (3)        |
| NRS 304 Field Ornithology (3)  | NRS 568 Recent Advances in NRS (3)                 |
| NRS 309 Wildlife Mgmt Techniques Lab. (3)  | BES 532 Advanced Conservation Biology (3)          |
| NRS 324 Mammalogy (4)  | BIO 262 Introductory Ecology (4)                   |
| NRS 351 Soil Morphology Practicum (2)  | BIO 321 Plant Diversity (4)                        |
| NRS 402 Quantitative Wildlife Ecology (3)  | BIO 323 Field Botany and Taxonomy (4)              |
| NRS 403 Quantitative Wildlife Ecology Field Investigations (1)   | BIO 354 Invertebrate Zoology (4)                   |
| NRS 480 Colloquium (2)   | BIO 366 Vertebrate Biology (3)                     |
| NRS 482 Innovative Subsurface Remed. Tech. (4)   | BIO 467 Animal Behavior (3)                        |
| NRS 484 Environmental Hydrogeology (4)   | ENT 385 Introductory Entomology (3)                |
| NRS 485: Salt Marsh Ecology (4)  | *GEO 204 Earth History (4) <i>A1, B1</i>           |
| NRS 496 International Development Seminar (3)  | GEO 210 Landforms: Origin and Evolution (4)        |
| NRS 505 Biol & Mgmt of Migratory Birds (2)   | GEO 272 Intro Evolution (4)                        |
| NRS 516 Remote Sensing in Nat Res Mapping (3)  | GEO 305 Global Climate Change (4)                  |
| NRS 518 Ecohydrology (3)   | GEO 450 Intro To Sedimentary Geology (4)           |
| NRS 522 Adv. GIS Analysis of Environ. Data (3)   | GEO 482 Innovative Subsurface Rem Policy (4)       |
| NRS 524 Application of Adv. Spatial Analysis (1)   | GEO 483 Hydrogeology (4)                           |
| NRS 526 Microbial Ecol of Soils & Sediments (3)  | GEO/NRS 484 Environmental Hydrogeology (4)         |
| NRS 533 Landscape Pattern and Change (3)   | MAF 465 GIS Appl. Coastal & Marine Mgmt. (3)       |
| NRS 534 Ecology of Fragmented Landscapes (2)   | PLS 306 Landscape Mgmt and Arboriculture (4)       |
| NRS 538 Physiolog Ecol Terrestrial Vert (3)  | PLS/NRS 375 Soil Fertility and Plant Nutrition (3) |
| NRS 555 Applied Coastal Ecology (2)  |  |
| <i>Social Science Electives</i>  |  |
| *NRS 300 Intro. Global Issues Sustainable Devel. (3) <i>A2, C2</i>   | MAF 312 Politics of the Ocean (3)                  |
| NRS 487 International Development Internship (1-6)   | MAF 415 Marine Pollution Policy (3)                |
| EEC 205 Environmental Economics and Policy (3)   | MAF 461 Coastal Zone Management (3)                |
| EEC 310 Economics of Nat Res Mgmt & Policy (3)   | MAF 465 GIS Applications in Coastal Mgmt (3)       |
| EEC 410 Fish and Wildlife Economics (3)  | MAF 484 Environ Analysis Policy Coastal Mgmt (3)   |
| EEC 432 Environmental Economics and Policy (3) <i>B4, D1</i>   | PSC 402 Environmental Policy and Politics (4)      |
| EEC 440 Benefit-Cost Analysis (3)  | PSC 403 Global Ecopolitics (4)                     |
| CPL/LAR 434 Intro to Environmental Law (3)   | WRT 303 Public Writing (4)                         |
| CPL 410 Fund of Community Planning Practice (3)  | WRT 304 Writing for Comm. Service (4)              |
| CPL 483 Land Development (3)   | *WRT 332 Technical Writing (3) <i>B1, B2</i>       |
| CPL 485 Environmental Planning (3)   | *WRT 334 Science Writing (3) <i>B1, B2</i>         |

\*Courses approved for general education.

**B.S. Environmental Science and Management - Effective Fall 2018**

*College of the Environment and Life Sciences*

**SAMPLE Four-Year Plan**

**Freshman Year *Fall* Semester**

| Course Code               | Description   | Cr           |
|---------------------------|---|--------------|
| *NRS 100                  | Natural Resource Conservation   | 3            |
| NRS 101                   | Freshman Inquiry into NRS   | 1            |
| URI 101                   | Planning for Academic Success   | 1            |
| *BIO 101/103              | Principles of Biology I/ Lab  | 4            |
| *MTH103, *111,<br>or *131 | Applied Precalculus, Precalculus, or<br>Applied Calculus (based on placement) | 3            |
|                           | *General Education Course   | 3-4          |
|                           |   | <b>15-17</b> |

**Freshman Year *Spring* Semester**

| Course Code                  | Description                                      | Cr           |
|------------------------------|--|--------------|
| NRS 223                      | Conservation Biology                             | 4            |
| *BIO 102/104                 | Principles of Biology II/ Lab                    | 4            |
| *CHM 101/102                 | General Chemistry I/Lab                          | 4            |
| *MTH 131, or<br>*General Ed. | Applied Calculus, or<br>General Education Course | 3-4          |
|                              |  |              |
|                              |  | <b>15-16</b> |

Note: MTH131 Applied Calculus is required for ESM majors. A placement exam determines if a prerequisite is needed (i.e. MTH103 or 111). Students interested in taking MTH141 Calculus I (with advisor approval) should take MTH111 instead of 103 for the prerequisite.

**Year 1 Milestones:** Complete 30 credits with a cumulative gpa of 2.0 or higher. NRS100 & NRS223 (offered fall and spring). Transfer from UC to CELS. Consider a summer internship.

**Sophomore Year *Fall* Semester**

| Course Code   | Description                  | Cr           |
|---------------|------------------------------|--------------|
| NRS 200       | Seminar in Natural Resources | 1            |
| **CHM 112/114 | General Chemistry/ Lab       | 4            |
| *GEO 103      | Understanding the Earth      | 4            |
| NRS 212       | Introduction to Soil Science | 4            |
|               | *General Education Course    | 3-4          |
|               |                              | <b>15-17</b> |

**Sophomore Year *Spring* Semester**

| Course Code | Description                        | Cr           |
|-------------|------------------------------------|--------------|
| CHM124/126  | Intro. to Organic Chemistry/Lab    | 4            |
| STA 308     | Introduction to Statistics         | 4            |
| *EEC 105    | Introduction to Resource Economics | 3            |
|             | NRS Concentration                  | 3-4          |
|             | *General Education Course          | 3-4          |
|             |                                    | <b>15-17</b> |

\*\*CHM112/114 recommended. Students opting to take CMB211 or 311 instead (prereq is 2 sem. of CHM), must first complete CHM124/126.

**Year 2 Milestones:** Complete 60 credits with a cumulative gpa of 2.0 or higher. NRS 200 & NRS 212 (offered fall only). Meet with faculty advisor to plan junior year courses and discuss internship/research/study abroad opportunities.

**Junior Year *Fall* Semester**

| Course Code | Description               | Cr           |
|-------------|---------------------------|--------------|
|             | NRS Concentration         | 3-4          |
|             | NRS Concentration         | 3-4          |
|             | NRS Supporting Elective   | 3-4          |
|             | *General Education Course | 3-4          |
|             | Free Elective             | 3-4          |
|             |                           | <b>15-17</b> |

**Junior Year *Spring* Semester**

| Course Code | Description             | Cr           |
|-------------|-------------------------|--------------|
|             | NRS Concentration       | 3-4          |
|             | NRS Concentration       | 3-4          |
|             | NRS Supporting Elective | 3-4          |
|             | NRS Supporting Elective | 3-4          |
|             | Free Elective           | 3-4          |
|             |                         | <b>15-17</b> |

**Year 3 Milestones:** Complete 90 credits with a cumulative gpa of gpa 2.0 or higher. Meet with faculty advisor to plan senior year courses, discuss internship/research opportunities, and prepare Intent to Graduate Application for fall submission.

**Senior Year *Fall* Semester**

| Course Code | Description             | Cr           |
|-------------|-------------------------|--------------|
|             | NRS Concentration       | 3-4          |
|             | NRS Concentration       | 3-4          |
|             | NRS Supporting Elective | 3-4          |
|             | NRS Supporting Elective | 3-4          |
|             | Free Elective           | 3-4          |
|             |                         | <b>15-17</b> |

**Senior Year *Spring* Semester**

| Course Code | Description             | Cr           |
|-------------|-------------------------|--------------|
|             | NRS Concentration       | 3-4          |
|             | NRS Concentration       | 3-4          |
|             | NRS Supporting Elective | 3-4          |
|             | NRS Supporting Elective | 3-4          |
|             |                         | <b>15-17</b> |

**Total Credits to Graduate = 120**

**Year 4 Milestones:** Complete all remaining courses and requirements. Minimum of 120 earned credits with a cumulative gpa of 2.0 or higher; and minimum 2.0 gpa in major concentration courses.

NOTE: Visit <http://web.uri.edu/nrs/undergraduate-programs/> for a list of NRS fall & spring courses and confirm with your advisor.