# ENVIRONMENTAL CONSERVATION AND SUSTAINABILITY MAJOR (B.S.)

https://colsa.unh.edu/natural-resources-environment/program/bs/environmental-conservation-sustainability-major

## Description

The ECS major curriculum is comprised of core requirements providing integrative courses in both environmental conservation and sustainability, along with a foundation in biology, ecology, physical and social science, and the basic tools and skills applied to problem solving. These core requirements are typically fulfilled in the first two years. Beginning in their junior year, ECS students, in consultation with their advisers, create a course focus area based on an ecological system or natural resource of their choosing. The focus area provides advanced study in ecology and natural resources; social sciences; tools, skills, and/or natural history and should reflect the student’s interests and future goals. Additionally, each ECS student completes a practicum experience and a capstone option.

The ECS major provides the opportunity for students to gain a common foundation of knowledge and skills emphasizing integration and critical thinking, while allowing for sufficient flexibility to pursue their interests and passions within a large and complex field of study. The design of the curriculum will allow each student at least four, and as many as six, free electives, which they may fulfill as they choose. Many students pursue international experiences, such as the UNH EcoQuest program in New Zealand, add a minor or dual degree (such as the dual degree in global environmental management), and/or pursue research opportunities with our faculty or through another of UNH’s undergraduate research opportunity programs.

## Requirements

### Degree Requirements

- **Minimum Credit Requirement**: 128 credits
- **Minimum Residency Requirement**: 32 credits must be taken at UNH
- **Minimum GPA**: 2.0 required for conferral*

### Core Curriculum Required: Discovery & Writing Program Requirements

- Foreign Language Requirement: No

All Major, Option and Elective Requirements as indicated.

*Major GPA requirements as indicated.

### Major Requirements

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td><strong>Core Requirements</strong></td>
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<td></td>
<td><strong>Foundational Courses:</strong></td>
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<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness</td>
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<tr>
<td>NR 437</td>
<td>Principles of Sustainability</td>
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<td></td>
<td><strong>Natural Science:</strong></td>
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<td><strong>Biology</strong></td>
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<td></td>
<td><strong>Economics</strong></td>
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<td></td>
<td><strong>Geography</strong></td>
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<td></td>
<td><strong>Geology</strong></td>
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</table>

### Social Science:

- **Resource Economics**
- **Environmental Ethics and Values**

### Essential Tools and Skills:

- **Field Methods**
- **Statistics**

### Geospatial Analysis:

- **Writing Skills**
- **Presentation Skills**

### Field Area:

Select seven total courses to create a focus area addressing an environmental issue, ecological system, or natural resource (see below) 1

### Ecology and Natural Resources:

Select one to four courses; no more than one course may be at the 400 or 500 level. Additional courses must be at the 600 or 700 levels.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>NR 433</td>
<td>Wildlife Ecology</td>
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<td>NR 501</td>
<td>Studio Soils</td>
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<tr>
<td>NR 502</td>
<td>Forest Ecosystems and Environmental Change</td>
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<td>NR 504</td>
<td>Freshwater Resources</td>
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<td>NR 603</td>
<td>Landscape Ecology</td>
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<td>NR 625</td>
<td>Physiological Ecology</td>
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<td>NR 640</td>
<td>Wildlife Population Ecology</td>
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<td>NR 642</td>
<td>Introduction to Biogeography</td>
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<tr>
<td>NR 660</td>
<td>Principles of Conservation Biology</td>
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<tr>
<td>NR 660</td>
<td>Ecology and Biogeography of New Zealand</td>
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<td>NR 661</td>
<td>Restoration Ecology and Ecosystem Management in New Zealand</td>
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<td>NR 663</td>
<td>Applied Directed Research In New Zealand</td>
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<td>NR 664</td>
<td>Conservation Genetics and Applied Evolution</td>
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<td>NR 706</td>
<td>Soil Ecology</td>
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<tr>
<td>NR 730</td>
<td>Terrestrial Ecosystems</td>
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<td>NR 734</td>
<td>Tropical Ecology</td>
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<tr>
<td>NR 743</td>
<td>Addressing Arctic Challenges</td>
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<tr>
<td>NR 744</td>
<td>Biogeochemistry</td>
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<tr>
<td>NR 751</td>
<td>Aquatic Ecosystems</td>
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<tr>
<td>NR 761</td>
<td>Environmental Soil Chemistry</td>
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<tr>
<td>NR 765</td>
<td>Community Ecology</td>
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</tbody>
</table>
Environmental Conservation and Sustainability Major (B.S.)

Select at least one course at the 600 or 700 levels. Select two to five courses: no more than one course may be at the 400 or 500 level. Additional courses must be:

- BIOL 752
- NR 785
- NR 757
- NR 749
- NR 713
- NR 707
- NR 703
- NR #655
- NR 425
- TOUr 400
- SOC 730
- SOC 601

### Social Sciences
Select two to five courses: no more than one course may be at the 400 or 500 level. Additional courses must be:

- CEP 415
- CEP 508
- ENGL 401 or Discovery Course
- EREC 411
- NR 437
- BIOL 412
- Fall
- NR 707
- NR 712
- NR 713
- NR 729
- NR 745
- NR 749
- NR 757
- NR 759
- NR 760
- NR 785
- Biol 752
- EREC 756
- EREC 708
- EREC 680
- EREC 708
- EREC 716
- EREC 756
- EREC 673
- EREC 673
- SOC 665
- SOC 665
- TOUR 400
- TOUR 400

### Advanced Tools & Skills and Natural History
Select at least one course:

- NR 425
- NR #655
- NR 703
- NR 707
- NR 712
- NR 713
- NR 729
- NR 745
- NR 749
- NR 757
- NR 759
- NR 760
- NR 785
- BIOl 752
- EREC 777
- ENGL 760
- SOC 601

### Work Experience
Senior Capstone Options
The ECS major capstone experience may be filled by any one (1) of the following options:

**Option 1:**
- NR 786 Leadership for Sustainability
  - Option 2: Both seminars must be scheduled. At least one must be taken in the senior year.
- NR 753 Critical Issues in Sustainability: Sustainability as an Abundance Paradigm & NR 764 Critical Issues in Sustainability: Sense of Place
  - Option 3:
- NR 663 Applied Directed Research in New Zealand (NZ directed projects, if taken in the senior year)
  - Option 4:

Directed projects fulfilling one of the following: NR 790, McNair Research Theses, Hamel Center Programs (ROP, SURF USA, SURF Abroad, etc.) may be applied in consultation with the adviser and ECS program coordinator.

### Degree Plan

#### Sample Course Sequence

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology (Inquiry, Disc BS)</td>
<td>4</td>
</tr>
<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness (Disc ETS)</td>
<td>4</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives (or Discovery Course, not SS or ETS)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401 or Discovery Course</td>
<td></td>
<td>4</td>
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<tr>
<td></td>
<td></td>
<td><strong>Total Credits</strong> 60</td>
</tr>
</tbody>
</table>

### Credits

1 The focus area is based upon at least one course in the ecology and natural resources category, along with a combination of courses in the social sciences; tools, skills, and natural history categories; and any additional courses from the ecology and natural resources category reflecting the student's interests and future direction. Focus areas should be designed in close consultation with the adviser. Courses used to fulfill core requirements may not be used in the focus area.

2 If NR 663 Applied Directed Research in New Zealand is taken in the junior year or earlier, then one Critical Issues seminar (2cr) or Leadership for Sustainability must be taken in the senior year to fulfill the capstone requirement.

3 Each ECS major will engage in a practical experience reflecting their interests and goals. The choice of the experience will be made in conjunction with the adviser and may occur any time beginning with the sophomore year.
### Second Year

#### Fall
- **NR 415** Natural Resources Field Methods 2
- Ecological Principles 1 4
- Physical Science (Disc PS) 2 4
- Presentation Skills (possible Disc FPA) 2 4
- Practicum 3 0
- Elective 4

**Credits** 18

#### Spring
- Statistics (Disc QR) 2 4
- Writing Skills (Univ. writing req.) 2 4
- **NR 658** Introduction to Geographic Information Systems 4
- **NR 602 or Discovery Course** 4

**Credits** 16

### Third Year

#### Fall
- **NR 602 or Discovery Course** 4
- Ethics/Values Requirement 4
- Focus Area Courses 8
  - OR Electives
  - OR any remaining Discovery or WI requirement
  - OR Capstone 4

**Credits** 16

#### Spring
- Focus Area Courses 5 16
  - OR Electives
  - OR any remaining Discovery or WI requirements
  - OR Capstone 4

**Credits** 16

### Fourth Year

#### Fall
- Capstone Requirement 5 2-4
- Focus Area Courses 12
  - OR Electives
  - OR any remaining Discovery of WI requirements

**Credits** 14-16

#### Spring
- Capstone Requirement 5 2-4
- Focus Area Courses 12
  - OR Electives
  - OR any remaining Discovery of WI requirements

**Credits** 14-16

**Total Credits** 126-130

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1. All choices for the Ecological Principles requirement except for SAFS 502 are fall courses.
2. The Statistics, Physical Science, Writing Skills and Presentation Skills requirements may be taken in either the Fall or Spring Semester of the second year.
3. Work experience, internship, etc may be scheduled any time beginning in the second year.
4. One of the 2 credit capstone seminars may be taken in either the fall or spring of the junior year.
5. One 2 credit seminar may be taken in each of the Fall and Spring semesters of the Senior Year OR **NR 786** may be taken in the Fall semester of the Senior Year.

### Student Learning Outcomes

Students will be able to:

- Describe and explain the interactions among physical, biological, chemical, and human components of the environment;
- Formulate tests of environmental questions, acquire data, and apply scientific methods to answer these questions;
- Describe and explain the ecological and societal value of biodiversity, sustainability, and environmental stewardship;
- Use principles of ecology, economics, sustainability, and policy science to solve real-world environmental problems;
- Communicate effectively to peers within the environmental community and with audiences outside of the discipline.