ENVIRONMENTAL CONSERVATION AND SUSTAINABILITY MAJOR (B.S.)

https://colsa.unh.edu/nren/ecs/environmental-conservation-and-sustainability-bs

Description

ECS Major Curriculum

The ECS major is comprised of 14 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 seven 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 international studies), and/or pursue research opportunities with our faculty or through another of UNH’s undergraduate research opportunity programs.

Requirements

ECS Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td>Degree Core Requirements</td>
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<tr>
<td></td>
<td>Foundational Courses:</td>
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</tr>
<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness</td>
<td>4</td>
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<tr>
<td>NR 437</td>
<td>Principles of Sustainability</td>
<td>4</td>
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<td></td>
<td>Natural Science:</td>
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<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
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<tr>
<td>NR 439</td>
<td>Environmental Biology</td>
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<td>Ecological Principles: Select one of the following</td>
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<tr>
<td>BIOL 541</td>
<td>General Ecology</td>
<td>4</td>
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<td>NR 527</td>
<td>Forest Ecology</td>
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<td>Physical Science: Select one of the following</td>
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<td></td>
<td>Environmental Ethics and Values: Select one of the following</td>
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<td>Social Science:</td>
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<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
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<td>Resource Economics:</td>
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<td>EREC 525</td>
<td>Statistical Methods and Applications</td>
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<td></td>
<td>Geospatial Analysis:</td>
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<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
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<td>Writing Skills:</td>
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<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
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<td>ENGL 503</td>
<td>Persuasive Writing</td>
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<td>ENGL 521</td>
<td>Nature Writers</td>
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<td>Presentation Skills:</td>
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<td>CMN 500</td>
<td>Public Speaking</td>
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<td>THDA 520</td>
<td>Creative Drama</td>
<td>4</td>
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<td>THDA 583</td>
<td>Introduction to Puppetry</td>
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<tr>
<td>THDA 522</td>
<td>Storytelling, Story Theatre, and Involvement Dramatics</td>
<td>4</td>
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<td>THDA 624</td>
<td>Theatre for Young Audiences</td>
<td>4</td>
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<td>Focus Area</td>
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<td>Select seven total courses to create a focus area addressing an environmental issue, ecological system, or natural resource (see below)</td>
<td>28</td>
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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.

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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>ESCI 405</td>
<td>Global Environmental Change</td>
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<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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<td>NR 502</td>
<td>Forest Ecosystems and Environmental Change</td>
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<tr>
<td>NR 504</td>
<td>Freshwater Resources</td>
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</tbody>
</table>
NR 603 Landscape Ecology
NR 625 Physiological Ecology
NR 640 Wildlife Population Ecology
NR 642 Introduction to Biogeography
NR 650 Principles of Conservation Biology
NR 660 Ecology and Biogeography of New Zealand
NR 661 Restoration Ecology and Ecosystem Management in New Zealand
NR 663 Applied Directed Research in New Zealand
NR 664 Conservation Genetics
NR 706 Soil Ecology
NR 711 Wetland Ecology and Management
NR 729 Silviculture
NR 730 Terrestrial Ecosystems
NR 734 Tropical Ecology
NR 744 Biogeochemistry
NR 751 Aquatic Ecosystems
NR 761 Environmental Soil Chemistry
NR 765 Community Ecology
NR 782 Forest Health in a Changing World
NR 783 Forest Communities of New Hampshire
MEFB 717 Lake Ecology
MEFB 725 Marine Ecology
MEFB 747 Aquatic Plants in Restoration/Management
SAFS 760 Insect Pest Management
ZOOl 628 Marine Invertebrate Evolution and Ecology
ESCI 750 Biological Oceanography
ZOOl 772 Fisheries Biology
MEFB 674 Ecology and Marine Environment
MEFB 702 Sustainable Marine Fisheries

Social Sciences
Select two to five courses: no more than one course may be at the 400 or 500 level. Additional courses must be at the 600 or 700 levels.
CEP 415 Community Development Perspectives
NR 507 Introduction to our Energy System and Sustainable Energy
NR 606 International Energy Topics
NR 643 Economics of Forestry
NR 662 Environmental Policy, Planning and Sustainability in New Zealand
NR 701 Ecological Sustainability and Values
NR 720 International Environmental Politics and Policies for the 21st Century
NR 724 Resolving Environmental Conflicts
NR 784 Sustainable Living - Global Perspectives
NR 787 Advanced Topics in Sustainable Energy
ANTH 680 Globalization, Development, and Poverty
ANTH 695 Globalization and Global Population Health
CEP 508 Applied Community Development
CEP 614 Fundamentals of Planning
CEP 673 Green Real Estate
TOUR 767 Social Impact Assessment
ECON 605 Intermediate Microeconomic Analysis
ECON 645 International Economics
ECON 668 Economic Development
ECON 669 Women and Economic Development
ECON 706 Economics of Climate Change
EREC 627 Community Economics
EREC 680 Agricultural and Food Policy
EREC 708 Environmental Economics
EREC 756 Rural and Regional Economic Development
GEOG 673 Political Ecology
HIST 618 American Environmental History
POLT 751 Comparative Environmental Politics and Policy
POLT 780 International Environmental Politics, Policy, and Law
SOC 665 Environmental Sociology
SOC 730 Communities and the Environment

Advanced Tools & Skills and Natural History
Select at least one course
NR 425 Field Dendrology
NR 655 Vertebrate Biology
NR 703 Watershed Water Quality Management
NR 707 Environmental Modeling
NR 712 Mammalogy
NR 713 Quantitative Ecology
NR 745 Forest Management
NR 749 Forest Inventory and Modeling
NR 757 Remote Sensing of the Environment
NR 759 Digital Image Processing for Natural Resources
NR 760 Geographic Information Systems in Natural Resources
NR 785 Systems Thinking for Sustainable Solutions
SOC 601 Methods of Social Research
MEFB 719 Field Studies in Lake Ecology
MEFB 732 Lake Management
ZOOl 542 Ornithology
BIOL 752 Mycology
ZOOl 745 Biology and Diversity of Insects

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 754 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: McNair Research Theses, Hamel Center Programs (IROP, SURF USA, SURF Abroad, etc.) may be applied in consultation with the adviser and ECS program coordinator.
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.

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.

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.