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 studies), 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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<td>Contemporary Conservation Issues and Environmental Awareness</td>
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<td><strong>Natural Science:</strong></td>
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<td>Biology</td>
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Biol 412 Introductory Biology Evolution, Biodiversity and Ecology

NR 439 Environmental Biology

Ecological Principles: Select one of the following

Biol 547W Ecology

NR 527 Forest Ecology

SAFS 502 Agroecology

Physical Science: Select one of the following

NR 403 Introduction to Environmental Science

NR #468 The Science of Where

Chem 403 General Chemistry I

CHEB 410 Energy and Environment

ESCI 409 Geology and the Environment

CEE 520 Environmental Pollution and Protection: A Global Context

Phys 401 Introduction to Physics I

Social Science:

Resource Economics:

EREC 411 Environmental and Resource Economics Perspectives

Environmental Ethics and Values: Select one of the following

NR 784 Sustainable Living - Global Perspectives

Soc 565 Environment and Society

Natural Resources Policy: Select one of the following

NR 602 Natural Resources and Environmental Policy

NR 660 Environmental Policy, Planning and Sustainability in New Zealand

**Essential Tools and Skills:**

Field Methods:

NR 415 Natural Resources Field Methods

Statistics: Select one of the following

Biol 528 Applied Biostatistics I

EREC 525 Statistical Methods and Applications

Geospatial Analysis:

NR 658 Introduction to Geographic Information Systems

Writing Skills: Select one of the following

Engl 502 Professional and Technical Writing

Engl 503 Persuasive Writing

Engl 521 Nature Writers

Presentation Skills: Select one of the following

NR 508 Communicating Science

CMN 500 Public Speaking

THDA 522 Storytelling, Story Theatre, and Involvement Dramatics

THDA 583 Introduction to Puppetry

THDA 624 Theatre for Young Audiences

Focus 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.

NR 433 Wildlife Ecology

NR 501 Studio Soils

NR 502 Forest Ecosystems and Environmental Change

NR 504 Freshwater Resources

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 and Applied Evolution

NR 706 Soil Ecology

NR 730 Terrestrial Ecosystems

NR 734 Tropical Ecology

NR 743 Addressing Arctic Challenges

NR 744 Biogeochemistry

NR 751 Aquatic Ecosystems

NR 761 Environmental Soil Chemistry

NR #765 Community Ecology
Environmental Conservation and Sustainability Major (B.S.)

Advanced Tools & Skills and Natural History

Select at least one course

- NR 782 Forest Health in a Changing World
- ESCI 405 Global Environmental Change
- MEFB 628 Marine Invertebrate Evolution and Ecology
- MEFB 674 Ecology and Marine Environment
- MEFB 702 Sustainable Marine Fisheries
- MEFB 725 Marine Ecology
- MEFB 772 Fisheries Biology: Conservation and Management
- MEFB 747 Aquatic Plants in Restoration/Management
- MEFB 765 Biological Oceanography
- SAFS 671 Agroecology and Sustainable Land Management in Aotearoa New Zealand
- SAFS 760 Insect Pest Management
- ZOOL 708 Stream Ecology
- ZOOL 726 Conservation Behavior

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
- CEP 508 Applied Community Development
- 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 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 665 Globalization and Global Population Health
- CEP 614 Fundamentals of Planning
- CEP 673 Green Real Estate
- ECON 665 Intermediate Microeconomic Analysis
- ECON 645 International Economics
- ECON 668 Economic Development
- ECON 706 Economics of Climate Change
- EREC 572 Introduction to Natural Resource Economics
- EREC 606 Land Economics Perspectives: Uses, Policies, and Taxes
- 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
- MARI 705 Introduction to Marine Policy: Understanding US Ocean, Coastal and Great Lakes Policy
- POLS 751 Comparative Environmental Politics and Policy
- SAFS 672 Pathways to Sustainable Agriculture and Food Systems in Aotearoa New Zealand
- SAFS 673 Agricultural Production and Business Practice in Aotearoa New Zealand
- SOC 665 Environmental Sociology
- SOC 730 Communities and the Environment
- TOUR 400 Introduction to Tourism

Advanced Tools & Skills and Natural History

Select at least one course

- NR 425 Field Dendrology
- NR #565 Vertebrate Biology
- NR 703 Watershed Water Quality Management
- NR 707 Environmental Modeling
- NR 712 Mammalogy
- NR 713 Quantitative Ecology
- NR 729 Silviculture
- 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
- BIOL 752 New England Mushrooms: a Field and Lab Exploration
- CEP 777 Topics in Community Planning
- SAFS 670 Systems Thinking: Land Use Capability and Sustainability in Aotearoa New Zealand
- SOC 601 Methods of Social Research

Total Credits 60

Sample Course Sequence

Course Title Credits
First Year

Fall

- BIOL 412 Introductory Biology: Evolution, Biodiversity and Ecology (Inquiry, Disc BS) 4
- NR 435 Contemporary Conservation Issues and Environmental Awareness (Disc ETS) 4
- EREC 411 Environmental and Resource Economics Perspectives (or Discovery Course, not SS or ETS) 4
- ENGL 401 or Discovery Course 4

Credits 16

Spring

- NR 437 Principles of Sustainability 4
- NR 439 Environmental Biology 4
- EREC 411 Environmental and Resource Economics Perspectives (or Discovery Course, not SS or ETS) 4
- ENGL 401 or Discovery Course 4

Credits 16
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

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.