NATURAL RESOURCES AND THE ENVIRONMENT

The Department of Natural Resources and the Environment integrates the applied social sciences and natural resources sciences, enabling a more holistic, integrated approach to education, research, and outreach about use and conservation of resources.

We offer a bachelor of science degree in the following areas:
- Community and Environmental Planning
- Environmental Conservation and Sustainability
- Environmental and Resource Economics
- Environmental Sciences
- Forestry (B.S.F.)
- Wildlife and Conservation Biology

We offer an associate of applied science degree in the following area:
- Forest Technology (A.A.S.)

https://colsa.unh.edu/natural-resources-environment

Programs

- Community and Environmental Planning (CEP) (http://catalog.unh.edu/undergraduate/life-sciences-agriculture/programs-study/community-environmental-planning)
- Environmental Conservation and Sustainability (http://catalog.unh.edu/undergraduate/life-sciences-agriculture/programs-study/environmental-conservation-sustainability)
- Environmental Sciences (http://catalog.unh.edu/undergraduate/life-sciences-agriculture/programs-study/environmental-sciences)
- Forestry (http://catalog.unh.edu/undergraduate/life-sciences-agriculture/programs-study/forestry)

Courses

Community & Environmental Planning (CEP)

CEP 415 - Community Development Perspectives
Credits: 4
Introduces students to a range of community development and environmental planning issues facing communities as they undergo social, economic, and environmental change. Through class discussion and examination of case studies, this course instills basic principles and processes of community development and environmental planning, formulation, and conflict resolution. Community and environmental planning topics covered in the course include land use conflict, urban/suburban sprawl, rural development, economic development, local food systems, community infrastructure, and environmental stewardship. Emphasis is placed on the roles and responsibilities of community development professionals, including land use planners, municipal administrators, and community leaders.
Attributes: Social Science (Discovery)
Equivalent(s): CD 415

CEP 508 - Applied Community Development
Credits: 4
Students work in an actual community, assisting individuals and groups to identify needs and problems, establish attainable and objective goals, assess requirements and resources, and formulate programs for development and methods of collection, analysis, and integration of pertinent primary and secondary economic, social, political, and physical data for community development. Prereq: CEP 415 or permission. Lab.
Equivalent(s): CD 508

CEP 614 - Fundamentals of Planning
Credits: 4
Community planning process in nonmetropolitan communities; practical application of planning techniques. Communities' components: housing, jobs, schools, recreation, transportation, community appearance, and the administrative structure for planning. Use of planning tools: data gathering and analysis, the master plan, zoning and subdivision regulations, community development programs. Prereq: EREC 411; CEP 415/ or permission. (Offered every other year.) Writing intensive.
Attributes: Writing Intensive Course

CEP 672 - Green Real Estate
Credits: 4
This course covers timely subjects in National and regional real estate, such as types of property ownership, easements, financing, contracts, appraisal, brokerage, property listings, commissions, fair housing, and property management. The goal of this class is to prepare students to pass the New Hampshire Real Estate Sales Agent License Exam and/or be knowledgeable real estate investors. Prereq: MATH 420 or higher.
Equivalent(s): CD 672, NR 672

CEP 673 - Green Real Estate
Credits: 4
This class covers issues related to existing and new real estate development with respect to history, law (state statutes and federal legislation), economics, and technology. The course looks at impacts of green development from an individual building level, and out to regional and global levels. We look at common problems and solutions, review case studies, and discuss emerging trends in "green development."
CEP 710 - Seminar
Credits: 2-4
Seminars arranged to students' needs and offered as demand warrants; in-depth treatment of area, including classic work. May be repeated.
Equivalent(s): CD 710

CEP 777 - Topics in Community Planning
Credits: 4
Advanced treatment of the concepts and tools required for effective local and regional planning to guide land use, capital investment in infrastructure, and organization for service delivery. Prereq: CEP 614 or permission. (Also listed as RAM 877.) (Offered every other year.) Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): CD 777, RAM 877

CEP 794 - Community and Environmental Planning Internship
Credits: 4-12
Fieldwork in a planning office for student's professional development. Student must be supervised by a qualified planner or faculty-approved supervisor throughout the internship and remain in consultation with a faculty advisor. A Memorandum of Understanding between the student, the internship supervisor, and the faculty advisor, as well as midterm and final written reports are required. May be taken for 4 credits with 150 hours of internship up to a maximum of 12 credits for 450 hours of internship. Cr/F.
Repeat Rule: May be repeated for a maximum of 12 credits.
Equivalent(s): CD 794

CEP 795 - Investigations
Credits: 2-4
Special assignments in readings, investigations, or field problems, or teaching experience. May be repeated. Prereq: permission.
Equivalent(s): CD 795, CD 795W, CEP 795W

CEP 795W - Investigations
Credits: 2-4
Special assignments in readings, investigations, or field problems, or teaching experience. May be repeated. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): CD 795, CD 795W, CEP 795

**Environmental & Resource Economics (EREC)**

**EREC 411 - Environmental and Resource Economics Perspectives**
Credits: 4
Microeconomic theory and analysis in resource management and use decisions. Survey of significant resource problems from an economic perspective and the application of economic analysis.
Attributes: Social Science (Discovery)
Mutual Exclusion: No credit for students who have taken ECN 412, ECN 412W, ECON 402, ECON 402A, ECON 402H.

**EREC 444 - The New Pirates of the Caribbean**
Credits: 4
Inquiry into many facets of tourism from the standpoint of tourists and tour destination. Economic and institutional factors affecting human well-being from the use of land and water resources; discussions of environmental impacts; ownership patterns and uses; cultural attributes; and local economies in small Caribbean island nations. Cruise ships, time-shares, all-inclusive resorts, hurricanes, casinos, bars, rum, sex, and drugs are investigated through extensive readings and web surfing.
Attributes: World Cultures(Discovery); Inquiry (Discovery); Writing Intensive Course

**EREC 525 - Statistical Methods and Applications**
Credits: 4
Applications of elementary statistical concepts and methods including probability, descriptive techniques, statistical inference and bivariate and multivariate statistical analysis. Orientation is toward analysis and interpretation of data commonly encountered in social science disciplines.
Attributes: Quantitative Reasoning(Disc)
Mutual Exclusion: No credit for students who have taken ADM 430, ADMN 420, BIOL 528, HHS 540, MATH 439, MATH 539, MATH 644, PSYC 402, PSYC 402H, SOC 402, SOC 402H, SOC 502, SOC 502H.

**EREC 535 - Being a Locavore**
Credits: 4
Explores the growth of the Locavore movement in the United States, starting with the evolution of the mainstream agricultural system. Topics such as the Agricultural Adjustment Act, farm subsidies, the development of mono-culture large scale farms, as well as the Magnuson-Stevens Act and the current state of fisheries. Ethical, economic, and social phenomenon will be discussed, followed by nutrition, and environmental impacts. Students will keep a food journal, which will be used as a basis to source, budget, and plan for years of eating local food. The class concludes with an investigation into the growing trend of local farmers' markets, CSAs, and on farm sales. How and why more and more people are going local and perhaps becoming "Locavores".
Attributes: Social Science (Discovery)

**EREC 572 - Introduction to Natural Resource Economics**
Credits: 4
Introduces theory, methods of analysis, and current literature of natural resource economics and policy. Topics include multiple use, taxation, optimal harvest scheduling, market failure, property rights, public goods, benefit-cost analysis, amenity values, non-market resource services and natural resource policy. Topics applied to forests and forestry, wildlife management, outdoor recreation, public lands, agriculture, fisheries, water, energy and mining/nonrenewable resources.

**EREC 595 - Problems in Natural and Agricultural Resources**
Credits: 2-4
Students pursue field, laboratory, or library problems in natural and environmental resources that are not covered by other courses. Faculty consultant and study topic must be chosen before registration. In consultation with the faculty adviser, students select the problem area, create a bibliography for reflection, and pursue the topic. A professionally written paper is expected at termination of the study. May be repeated once for credit. Prereq: permission.
Repeat Rule: May be repeated up to 1 time.
Equivalent(s): EREC 595W, RECO 595
EREC 595W - Problems in Natural and Agricultural Resources
Credits: 2-4
Students pursue field, laboratory, or library problems in natural and environmental resources that are not covered by other courses. Faculty consultant and study topic must be chosen before registration. In consultation with the faculty adviser, students select the problem area, create a bibliography for reflection, and pursue the topic. A professionally written paper is expected at termination of the study. May be repeated once for credit. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to 1 time.
Equivalent(s): EREC 595, RECO 595

EREC 596 - Problems in Natural and Agricultural Resources
Credits: 2-4
Students pursue field, laboratory, or library problems in natural and environmental resources that are not covered by other courses. Faculty consultant and study topic must be chosen before registration. In consultation with the faculty adviser, students select the problem area, create a bibliography for reflection, and pursue the topic. A professionally written paper is expected at termination of the study. May be repeated once for credit. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to 1 time.
Equivalent(s): EREC 596W, RECO 596

EREC 596W - Problems in Natural and Agricultural Resources
Credits: 2-4
Students pursue field, laboratory, or library problems in natural and environmental resources that are not covered by other courses. Faculty consultant and study topic must be chosen before registration. In consultation with the faculty adviser, students select the problem area, create a bibliography for reflection, and pursue the topic. A professionally written paper is expected at termination of the study. May be repeated once for credit. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to 1 time.
Equivalent(s): EREC 596W, RECO 596

EREC 600 - Field Experience
Credits: 1-4
A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. Prereq: permission. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): EREC 600W, RECO 600

EREC 601 - Agribusiness Economics and Management
Credits: 4
Applications of economic and management principles in production, marketing, finance, and other operational decisions facing small agribusiness firms. Prereq: EREC 411 or ECON 402 or equivalent.

EREC 606 - Land Economics Perspectives: Uses, Policies, and Taxes
Credits: 4
Economic and institutional perspectives affecting human use of land resources; discussion of land ownership patterns and uses; land rent, location, and resource use; institutional constraints; partial ownership policies; and local planning for more efficient use of land. Real estate markets, transfers, valuation, and taxation. Prereq: EREC 411 or equivalent or permission.
Equivalent(s): RECO 606

EREC #608 - Environmental Economics for Non-Economists
Credits: 4
This course will examine different aspects of natural resource allocation and protection of environmental quality from an economic standpoint. The course will examine the economic factors which lead to environmental problems such as air and water pollution, the common property problem, and other areas where existing markets do a less than satisfactory job of resource allocation. Economic incentives for alleviating these environmental problems will also be surveyed. Specific topics covered will include benefit cost analysis, valuation of "nonmarket" goods, policy tools which have economic bases, and sustainable development. Where possible, guest lecturers from other disciplines and selected films will be used to present alternative viewpoints and stimulate discussion. Class participation is encouraged and expected. Students completing this course will gain an overview of key issues in environmental economics, and how economics can be used as an aid in policy decisions regarding natural resources. Prereq: EREC 411, ECON 401 or their equivalents or permission. Does not count toward major requirements for EREC electives.

EREC 627 - Community Economics
Credits: 4
Economic factors affecting community and local government decisions. Emphasizes use of economic theory for decision making and community problem solving. Prereq: EREC 411 or equivalent.
Equivalent(s): CD 627, RECO 627

EREC 680 - Agricultural and Food Policy
Credits: 4
Analysis of issues that led to government involvement in the agricultural and food sector. Application of economic concepts and tools to the evaluation of public policies affecting agriculture and food. Prereq: EREC 411 or equivalent.
Equivalent(s): EREC 704

EREC 708 - Environmental Economics
Credits: 4
Environmental pollution, the market economy, and optimal resource allocation; alternative control procedures; levels of environmental protection and public policy; property right issues. Prereq: ECON 605 or equivalent.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to 1 time.
Equivalent(s): EREC 608, RECO 596

EREC 710 - Seminar
Credits: 2-4
Equivalent(s): RECO 708

EREC #711 - Marine Resource Economics
Credits: 4
Economic overview of the marine environment; interactions/conflicts surrounding this multiple-use resource. Economics of fisheries; marine recreation; aquaculture; endangered species; non-market ecosystem services. Prereq: EREC 411, ECON 401 or ECON 402 or equivalent or permission. (Offered every other semester.)
Equivalent(s): EREC 611
EREC 756 - Rural and Regional Economic Development
Credits: 4
Attributes: Writing Intensive Course
Equivalent(s): RECO 756

EREC 760 - Ecological-Economic Modeling for Decision Making
Credits: 4
In this course, students will develop ecological-economic models and use them to inform economic decision making related to the management of natural resources. These models range from analytical models using algebra and calculus, to computational models using coding and simulations. The course will focus on spatial-dynamic computational bio-economic models because of their ability to capture economic decision making and ecological processes over time and space. Prereq: ECON 605 or equivalent; MATH 420, or equivalent.

EREC 775 - Research Methods
Credits: 4
Study of the process, methods, and techniques of conducting scientific research in the social sciences. Includes problem identification, data collection and management, qualitative quantitative data analyses, and communicating scientific research. Prereq: EREC 411 or equivalent; EREC 525 or equivalent; junior/senior standing.
Equivalent(s): EREC 666

EREC 795 - Investigations
Credits: 2-4
Special assignments in readings, investigations, or field problems. Topics may include agricultural marketing, agricultural production and farm management, community development, economics of human resources, economics of population and food, land economics, marine economics, rural economic development, regional economics, water economics, or teaching experience. Prereq: permission. May be repeated.
Equivalent(s): EREC 795W, RECO 795

EREC 795W - Investigations
Credits: 2-4
Special assignments in readings, investigations, or field problems. Topics may include agricultural marketing, agricultural production and farm management, community development, economics of human resources, economics of population and food, land economics, marine economics, rural economic development, regional economics, water economics, or teaching experience. Prereq: permission. May be repeated. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): EREC 795, RECO 795

EREC 799 - Honors Senior Thesis
Credits: 1-4
Honors/thesis students conduct an independent research project, relevant to the student's area of specialization in the major, under the direction of a faculty sponsor. Students submit a research proposal, write a final report, and provide an oral presentation. One or two semester sequence. Restricted to Senior/Natural Resource Majors. Permission required.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): RECO 799

Natural Resources (NR)

NR 400 - Professional Perspectives in Natural Resources
Credits: 1
Lectures by departmental faculty provide an informal look at the various natural resource disciplines and professions represented by the Department of Natural Resources. These presentations acquaint students with our faculty and inform them of some of the exciting research being undertaken in the department. Students also learn of opportunities for professional involvement. Required for all first-semester Natural Resources majors. Cr/F.

NR #401 - Introduction to Natural Resources
Credits: 4
Overview of the history, politics, economics, ethics, and ecology involved with the conservation and management of living and non-living natural resources. Sets the stage for subsequent natural resource courses by introducing the scientific basis for natural resource conservation and management. Labs build confidence in map and compass work and provide hands on field experience within the various natural resource disciplines. Debates and discussions of natural resource related hot topics provide opportunities to practice public speaking, problem solving, and critical thinking skills. Restricted to NR majors or by Permission. Lab. Special fee.
Attributes: Inquiry (Discovery)
Equivalent(s): FORS 401

NR 403 - Introduction to Environmental Science
Credits: 4
A multi-disciplinary introduction to Environmental Sciences, presenting basic concepts and controversies in geology, meteorology/hydrology, global biology and biogeochemistry, integrated through the study of the Earth as system. Intended primarily for declared or perspective majors in Environmental Sciences and related programs. Combines lecture and discussion with discovery and presentation experiences to address the history of ideas, and major questions and controversies, both settled and active.
Attributes: Inquiry (Discovery)

NR #410 - Insects and Society
Credits: 4
Insects have had a major impact on human culture throughout the centuries as source of food, an inspiration in literature and art, and a driving force behind social change. We study basic insect biology and ecology with a focus on their relationships to humans. Special fee. Lab.
Attributes: Biological Science(Discovery); Discovery Lab Course
Equivalent(s): ENTO 400

NR 415 - Natural Resources Field Methods
Credits: 2
This course is intended to serve first or second year students in Forestry, Wildlife and Conservation Biology, and Environmental Conservation and Sustainability. After taking this course, students are able to navigate successfully in wild terrain using pacing, map, compass, GPS; can conduct a simple planar survey including cartography; and can sample a forest in order to characterize the abundance and quality of forest resources. Moreover, students know the fundamental principles of navigation, surveying, and field sampling.
NR 417 - Sophomore Seminar: Wildlife and Conservation Biology
Credits: 2
This course provides a professional foundation and orientation for second-year Wildlife & Conservation Biology (WCB) students. Through readings, seminars, guest speakers, and conservation, students will explore the range of what it means to be a professional Wildlife & Conservation Biologist. After taking this course, students will be better able to navigate and critique the scientific literature, synthesize and communicate information, and understand and articulate the diverse field of Wildlife & Conservation Biology.

NR 425 - Field Dendrology
Credits: 4
Students study forest trees in natural communities and urban settings. Identification and nomenclature of important North American trees and shrubs is emphasized. Environmental factors influencing tree growth, combined with study of disturbance history, provide the context for understanding why tree species grow where they do. Students are introduced to the major forest regions of North America. Restricted to NR majors; others by permission. Special fee.
Equivalent(s): EC 410, FOR 425, NR 420

NR 433 - Wildlife Ecology
Credits: 4
Historical, biological, ecological, and sociological factors influencing the wildlife resource and its management. Concepts in populations, communities, habitat, and contemporary wildlife issues. Special fee. Lab.
Attributes: Biological Science(Discovery); Discovery Lab Course
Equivalent(s): WILD 433

NR 435 - Contemporary Conservation Issues and Environmental Awareness
Credits: 4
Explores the impacts of technology and human activity on our environment and natural resources. Key conservation issues are used as examples of past and present biological, social, and environmental conflicts.
Attributes: Environment,TechSociety(Disc)
Equivalent(s): EC 435, NR 435H, NR 435W, NR 535

NR 435H - Honors/Contemporary Conservation Issues and Environmental Awareness
Credits: 4
Explores the impacts of technology and human activity on our environment and natural resources. Key conservation issues are used as examples of past and present biological, social, and environmental conflicts.
Attributes: Environment,TechSociety(Disc)
Equivalent(s): NR 435

NR 437 - Principles of Sustainability
Credits: 4
In this course, we investigate the foundational principles of the concept of sustainability. Our objectives include: understanding the many integrated dimensions of sustainability; examining illustrations of unsustainable human-environment relations; recognizing the complexity of sustainability problems and the challenges to finding solutions; comprehending that human-environment relations are a multi-level, complex and dynamic system, and appreciating that the sustainability of ecosystems is necessarily embedded in social, cultural and historical trends.

NR 439 - Environmental Biology
Credits: 4
Environmental biology focuses on the origins, functions, and interactions of populations, communities, species and ecosystems in relation to dynamic environmental processes. The main course objective is to provide a basic understanding of ecosystem function and the ecological, evolutionary, and genetic principles necessary to understand biological diversity and its distribution. Special fee.

NR 444B - The Real Dirt
Credits: 4
Explores sustainable agriculture, regional and local food supply and systems, land ethics and agrarian thought as a natural resource and environmental conservation issue. Focusing on northern and central New England, the course uses the teaching of Aldo Leopold and includes hands-on study of UNH's new initiatives in sustainable and organic agriculture and the on-campus food system. A visit to University farms is included. Writing intensive.
Attributes: Environment,TechSociety(Disc); Inquiry (Discovery); Writing Intensive Course

NR 444E - Eye of Newt and Toe of Frog: The World of Poisonous Animals
Credits: 4
Course examines a variety of animal poisons and venoms in different contexts. Historical, cultural, physiological, pharmacological, and evolutionary viewpoints are explored. Readings, guest lectures, and peer blog entries are used to refine critical thinking skills and form the basis of in-class discussions.
Attributes: Biological Science(Discovery); Inquiry (Discovery)

NR 444F - Does Extinction Matter
Credits: 4
This course examines the causes and potential consequences of biodiversity loss. By considering ecological, economic, and ethical perspectives students will be asked to develop an informed personal answer to the question Does extinction matter? Development of critical thinking as well as written and oral communication skills will be stressed through a variety of in-class and outside class activities.
Attributes: Humanities(Disc); Inquiry (Discovery)

NR 458 - The Science of Where
Credits: 4
This online course introduces the principles and practices of spatial thinking through lectures, readings, discussions, and hands-on laboratory exercises. Students learn not only to think spatially, but also how to apply this knowledge in their own fields of study.
Attributes: Discovery Lab Course; Physical Science(Discovery)

NR 501 - Studio Soils
Credits: 4
An overview of physical, chemical, and biological properties of soil. Sub-disciplines of soil chemistry, soil physics, soil microbiology, soil genesis, and classification. Special fee. Lab.
Equivalent(s): SOIL 501
NR 502 - Forest Ecosystems and Environmental Change
Credits: 4
Forest ecosystems cover a large fraction of the Earth's land surface and account for most of its terrestrial biological productivity. This course introduces forest ecosystems around the world and explores both the natural processes that regulate them and the environmental factors that cause change over time. Topics include tree growth strategies, successional change, nutrient cycling, and human-induced stressors such as air pollution and climate change. Special fee.
Attributes: Environment, TechSociety (Disc)
Equivalent(s): FOR 502, NR 502W

NR 504 - Freshwater Resources
Credits: 4
Major determinants of freshwater resources including hydrologic cycle and water balance, precipitation, stream-flow measurement, pollution, water supply and sewage treatment, water resource management and regulation. Special fee. Lab/field trips.
Attributes: Discovery Lab Course; Physical Science (Discovery)
Equivalent(s): WARM 504

NR 506 - Forest Entomology
Credits: 4
Insects are among the most diverse and abundant organisms on the planet and play a crucial role in forest ecosystems. Insects from the base of the consumer food web in forests and are key drivers of nutrient cycling, pollination, etc. This course surveys common and important insect orders, families, and species found in forest systems and provides the tools for basic identification and biological study of these fascinating creatures. Special fee.
Equivalent(s): FOR 506

NR 507 - Introduction to our Energy System and Sustainable Energy
Credits: 4
This course introduces students to our domestic energy system and the expanding efforts to develop our use and acceptance of sustainable energy. It provides a historical context of our system that explains where we are today in terms of the grid, technologies, energy use and production and energy markets, primarily for electricity and building use. The course examines how our current impedes and enhances opportunities for innovation in renewable technologies and financing.
Attributes: Environment, TechSociety (Disc)

NR 527 - Forest Ecology
Credits: 4
Introduces basic and applied ecology of forests, with emphasis on ecosystem processes, including water, energy, and nutrient cycles; biological interactions, including biodiversity and plant-plant, plant-animal, and plant-microbe relationships; and human impacts, including forest management, land-use/land cover-change, and changes in atmospheric chemistry. Prereq: BIOL 409 or BIOL 411. Restricted to NR majors or by Permission. Special fee. Lab.
Equivalent(s): FORT 527

NR #542 - Forestland Measurement and Mapping
Credits: 1
Elementary measuring equipment and techniques; preparation of maps; public land survey; court-house deed search. (Forestry and Wildlife majors only.) Special fee.
Equivalent(s): ESCI 534, FOR 542

NR 561 - Chemistry of the Environment
Credits: 4
The course is designed for students who desire a deeper understanding of chemical principles in environmental- and ecology-related disciplines. This course will focus on understanding key principles that underline many of the important chemical processes that influence the functioning and health of environmental systems. These include reaction rates, oxidation-reduction, kinetics and enzyme dynamics, pH and acid-base equilibria, organic transformations, colloids and particulate behavior, and analytical approaches to understanding environmental chemistry. Prereq: CHEM 403, CHEM 405 or CHEM 411.

NR 600 - Work Experience
Credits: 0
As part of their degree program, students are expected to engage in a work experience or internship under professional supervision and approved by natural resources faculty. This experience may occur at any time during their sophomore through senior years. Students are responsible for arranging their own experience in consultation with their advisor and NREN faculty members. Permission. Cr/F.
Equivalent(s): NR 599

NR 601 - Environmental Conservation and Sustainable Living Internship
Credits: 4
Practical internship and field experience in a location removed from the University milieu to give the environmental conservation student a dimension and insight into sustainable resource management systems not available in the campus experience. Prereq: permission. Cr/F.
Equivalent(s): EC 601

NR 602 - Natural Resources and Environmental Policy
Credits: 4
Contemporary natural resource and environmental policy problems/ issues are addressed from a policy sciences perspective with emphasis on domestic policy solutions. Critical assessment of major policy initiatives and their implementation toward sustainable resource use and a healthy environment. Public policies are analyzed to determine the extent to which their implementation strategies have succeeded, and to assess their adequacy within a bioregional or ecosystem approach, and/or capacity to integrate economic and environmental decisions. Cases include national and local policies in their global context. Students apply public policy analysis and decision tools in laboratory sessions. Prereq: junior/senior; Restricted to NR majors or by Permission. Special fee. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): EC 702

NR 603 - Landscape Ecology
Credits: 4
This course focuses on the relationships between scale, spatial patterns and ecological processes. Through lecture, discussion and lab exercises students learn about scale and scaling techniques, the abiotic and biotic processes creating landscape patterns, how landscape patterns are characterized, and the application of landscape ecology theory to contemporary issues in conservation and management. Emphasis placed on landscape perspectives and practices as they relate to understanding and managing populations and communities. Prereq: BIOL 541, NR 527 or permission of instructor.
NR 606 - International Energy Topics  
**Credits:** 4  
This course introduces students to international energy topics. Students will be exposed to a historical context and current status of several energy-related issues from an international perspective. Topics range from energy poverty, energy and climate change and global fossil fuel subsidies. Studies of specific technologies will be delivered through the context of international leaders, Iceland and geothermal, the UK and offshore wind and solar in Germany.

NR 615 - Wildlife Habitats  
**Credits:** 4  
Introduces animal-habitat associations, including an examination of spatial and temporal features of wildlife habitat, the evolution of habitat selection, and how habitat suitability/productivity is evaluated. Prereq: woody plant identification; limited to wildlife management majors and minors. Permission. Special fee. Writing intensive.  
**Attributes:** Writing Intensive Course  
**Equivalent(s):** WILD 615

NR 620 - Farm to Table: A Case Study in the Northern Beauce Region of France  
**Credits:** 4  
Course provides students a unique study abroad experience that blends the study of agroecology with an on-farm stay that allows them to see how food moves from the field to table. Students participate in lectures, field trips, readings, and discussions on topics including agricultural sustainability, agriculture and environmental health (soil/water quality, biodiversity), the influence of agriculture on the local ecology, and the relationship between French agriculture and the current local food movement in the U.S. They also get practical, on-farm experience by assisting with the harvest and transport of vegetables and edible flowers for the Paris market. Permission required. Special fee.

NR #621 - Field Description of Soils  
**Credits:** 3  
Description of soils in the field. Application of soils properties to forestry, plant science, and community planning. Strong orientation to fieldwork. Special fee. Lab.  
**Equivalent(s):** SOIL 601

NR 625 - Physiological Ecology  
**Credits:** 4  
Course examines the physiological mechanisms and adaptive responses of organisms that facilitate their survival in changing natural environments. Following an introduction to homeostasis and general physiological principles, topics focus on adaptations to the marine and freshwater environments, to estuarine challenges, and the specific requirements of terrestrial and aerial environments. Additional topics center on adaptations to extreme habitats and to parasitic life styles. Furthermore, the physiological bases of migrations, sleep, and mating/life history strategies are also explored. Examples are drawn from invertebrates, vertebrates, and plants. Prereq: one year college level biology.

NR 637 - Practicum in Environmental Conservation  
**Credits:** 4  
Independent participation in an environmental conservation activity in the area of the student’s specialization. Individual or group projects may be developed under the supervision of any faculty member within or outside natural resources or with supervisors in public and private agencies, upon approval of the course instructor. Research projects not acceptable. Prereq: senior standing in the environmental conservation program. Cr/F.  
**Equivalent(s):** EC 637, NR 637H

NR 640 - Wildlife Population Ecology  
**Credits:** 4  
An overview of the mechanisms that influence the characteristics of terrestrial wildlife populations. Lecture covers concepts and theory, with a central focus on population growth, how it is influenced by demographic rates of survival, recruitment, immigration/emigration, with additional consideration given to predation and competition, and how population status is monitored for wildlife, including occupancy, abundance, and viability. Lab provides hands-on exercises, often using computer software, with analysis and interpretation of data from local case studies. Prereq: BIOL 412, BIOL 541 or NR 527.

NR 642 - Introduction to Biogeography  
**Credits:** 4  
Biogeography is an integrative field of inquiry that unites concepts and information from evolutionary biology, ecology, systematics, geology, and physical geography. Students are introduced to the distribution patterns of wild animals and plants and to the factors that determine these patterns. In this course, the emphasis is on evolutionary aspects of biogeography, biodiversity, and implications for conservation issues.

NR 643 - Economics of Forestry  
**Credits:** 4  
Intermediate-level analysis of supply and demand for forest-based goods and services, managerial economics, taxation, capital investments. Prereq: EREC 411 or ECON 402.  
**Equivalent(s):** FOR 643

NR 650 - Principles of Conservation Biology  
**Credits:** 4  
Examines the major issues relevant to conservation of biodiversity from the genetic to the ecosystem level. In addition to addressing ecological and biological principles, the interdisciplinary nature and challenges of managing for conservation biology, including the role of economic and social factors are examined. Prereq: one semester of biology, botany, or zoology. Special fee.  
**Equivalent(s):** EC 502

NR 655 - Vertebrate Biology  
**Credits:** 4  
Introduces the diversity and evolution of vertebrates. Topics span the morphological, physiological, behavioral, and ecological diversity among the major vertebrate taxa. Labs stress identification of vertebrate taxa based on specimens and morphological structures. Permission. Prereq: BIOL 411 and BIOL 412; or equivalent. Special fee. Lab.  
**Equivalent(s):** NR 655H, WILD 655, WILD 655H

NR 658 - Introduction to Geographic Information Systems  
**Credits:** 4  
Introduces the use of geographic information systems (GIS) for natural resources and related fields. Data models/structures, map projections, data input/output/storage, data analysis/modeling, interpolation, and data quality/standards. Hands-on lab using ArcGIS software. Restricted to NR majors or permission. (Also offered as GEOG 658.)  
**Equivalent(s):** GEOG 658
NR 660 - Ecology and Biogeography of New Zealand
Credits: 5
Covers the principles of ecology and biogeography, with a distinct focus on New Zealand. Students investigate the processes that have shaped the New Zealand landmass and its biota. Impact of human settlement on New Zealand’s ecosystems is explored in-depth. Methods and techniques of scientific research are incorporated in this course. Field exercises focus on topical case studies in a variety of ecosystems and are designed to strengthen students’ conceptual knowledge, enable students to apply this knowledge, as well as develop field skills including classification systems, mapping, habitat assessment, field identification, and sampling techniques. Prereq: junior/senior; permission. Coreq: NR 661, NR 662, and NR 663. Special fee.
Co-requisite: INCO 588, NR 661, NR 662, NR 663
Equivalent(s): EC 660

NR 661 - Restoration Ecology and Ecosystem Management in New Zealand
Credits: 4
Current restoration projects and strategies for management of natural resources in New Zealand form the framework for this course. Solving problems related to introduced species, changes in habitat, the preservation of ecological processes and watershed management are the major foci of this course. Management of resources for multiple uses, as well as primary and extractive industries is included. Field exercises focus on topical case studies in a variety of terrestrial and coastal-marine ecosystems and include the identification of habitats and communities, stresses on the environment, and risk analysis. Prereq: junior/senior; permission. Coreq: NR 660, NR 662, and NR 663.
Co-requisite: NR 660, NR 662, NR 663
Equivalent(s): EC 661

NR 662 - Environmental Policy, Planning and Sustainability in New Zealand
Credits: 3
Introduces students to politics in New Zealand. Investigating policy pathways and planning forms part of the curriculum. Students assess scope of legislation, including the Resource Management Act (1991), for the economic and socio-political environment in New Zealand. Government obligations to the Treaty of Waitangi, and customary uses of resources are included as part of this course. Students are exposed to diverse perspectives of local authority planners and policy makers, local iwi (tribes), the Department of Conservation, and community groups. Students examine case studies involving the resource consent process at several levels of decision-making. Case studies provide a comprehensive overview of the interactions between the environment and people and their cultural and socio-economic needs. Prereq: junior/senior; permission. Coreq: NR 660, NR 661, and NR 663.
Co-requisite: NR 660, NR 661, NR 663
Equivalent(s): EC 662

NR 663 - Applied Directed Research in New Zealand
Credits: 4
Working closely with faculty, student teams investigate selected ecological, resource management or policy issues. All projects have scientific and societal relevance, and contribute to ongoing/existing projects in the region. Students use the scientific method to design and carry out their projects. Development of rigorous field investigations, experimental design, data analysis, and scientific writing are emphasized. Students prepare a research report and present their findings in a seminar that includes stakeholders and people from the local community. Prereq: junior/senior; permission. Coreq: NR 660, NR 661, and NR 662. Writing intensive.
Co-requisite: NR 660, NR 661, NR 662
Attributes: Writing Intensive Course
Equivalent(s): EC 663

NR 664 - Conservation Genetics
Credits: 4
Conservation genetics is the application of genetics to preserve species as dynamic entities capable of coping with environmental change. Includes genetic management of small populations, resolution of taxonomic uncertainties, defining management units within species, and the use of molecular genetic analyses to forensics and the understanding of the biology of species. Topics include methods of measuring genetic diversity in populations, identification of the units of biodiversity to which conservation efforts are directed, genetics of population fragmentation, genetic management of wild and captive populations, reintroduction of organisms back into the wild, and the role of forensics in enforcement and development of species recovery plans. Recitation. No credit if credit received for GEN 705 or ZOOL 705.
Equivalent(s): GEN 705, ZOOL 665, ZOOL 705

NR 701 - Ecological Sustainability and Values
Credits: 4
Deeper more fundamental philosophical questions, including spiritual values questions, are being asked concerning the ecological/environmental challenge of our time; its causes and resolution. Aspects of this challenge–environmental education, energy, food, agriculture, and natural resources–analyzed with ethics and values approaches. Students develop ways of responding to problem identification and resolution. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): EC 702

NR 702 - Workshops
Credits: 1-4
Short-term courses (generally a few days to two weeks) offered off campus, covering a broad variety of environmental and natural resource topics. May be repeated. Special fee required depending on topic. Prereq: permission required.

NR 703 - Watershed Water Quality Management
Credits: 4
Principles of land use as they relate to water quality and quantity. Lectures focus on biogeochemical cycles and the watershed approach to land and water resource management. Labs and field trips focus on methods of water sampling and analysis. One year of chemistry is recommended. Prereq: NR 504 or NR 604 or permission. Special fee. Lab/field trips.
Equivalent(s): WARM 703
NR 706 - Soil Ecology
Credits: 4
Examines the ecological relationships between soil microorganisms and their biotic and abiotic environment, with emphasis on the role of soil microorganisms in biogeochemical cycling. Specific objectives are to examine the biodiversity present in soil systems, factors controlling microbial community composition and diversity, and linkages between soil microbial communities, soil physical properties, and soil organic matter and nutrient cycling dynamics. Prereq: BIOL 412 or BIOL 409, CHEM 403, or equivalent, or permission. Special fee. Lab. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): SOIL 706

NR 707 - Environmental Modeling
Credits: 4
Environmental Modeling introduces students to a range of key mathematical and computer modeling concepts and the ways they can be used to address important scientific questions. The course is divided into four topical sections: Population and Community Ecology, Hydrology, Biogeochemistry, and Ecosystems. In each section, modeling concepts and skills are presented together with environmental information to emphasize the linkage between quantitative methods and relevant scientific results. Prereq: MATH 425.

NR 710 - Endangered Species Seminar
Credits: 2
Provides students with an interactive class of student presentations and guest lectures by endangered-species biologists. Emphasizes on biological, sociological, economic, and political factors that influence endangered-species policy. Prereq: basic ecology/biology; permission. Special fee.
Equivalent(s): WILD 710

NR 711 - Wetland Ecology and Management
Credits: 4
Analysis of the natural resources of coastal and inland wetlands and environmental problems caused by human use and misuse of these ecosystems. Groups collect field data to summarize the structure and function of four wetland types within a management context. Special fee. Lab. Prereq: BIOL 541, or NR 703, or permission. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): FORS 711, FORS 711, WARM 711

NR 712 - Mammalogy
Credits: 4
Evolution, ecology, behavior, physiology and diversity of mammals. The focus of the course is on conceptual issues, such as the relation of structure, function, physiology and ecology of species; reproductive physiology and life history strategies; and the evolution of mating systems and social structure. Familiarity of mammalian groups to the family level and identification of local fauna to species will be required. Prereq: BIOL 411 and BIOL 412 or equivalent. Lab. (Not offered every year.) Special fee.

NR 713 - Quantitative Ecology
Credits: 4
Basic quantitative concepts applied to ecological systems including: population and community dynamics, experimental design, spatial patterns, species abundance and diversity, community organization, metapopulations, and landscapes. Prereq: intro. courses in statistics, and ecology.
Equivalent(s): FORS 713

NR 718 - Law of Natural Resources and Environment
Credits: 3
Federal and state environment statutory and administrative law, its application, strengths and weaknesses, and options for future amendment.
Equivalent(s): EC 718

NR #719 - Wetlands Restoration and Mitigation
Credits: 3
Assesses the problems of wetlands loss and learning how to repair the damage. Asks what steps can be taken. Does restoration work, can habitat value be replaced, what constitutes equivalent mitigation? Field experience and theoretical background in restoring marine and freshwater environments. First half of course involves field trips to visit and sample mitigation and restoration sites. Second half focuses on student projects using the scientific method to address wetlands issues. Prereq: NR 711 or permission. Special fee. Lab/field trips. (Not offered every year.)
Equivalent(s): WARM 719

NR 720 - International Environmental Politics and Policies for the 21st Century
Credits: 4
Students examine policies for managing human activities to sustain the health of regional ecosystems and planetary life-support systems. Selected problems of the international commons (oceans, marine resources, atmosphere, migratory species); global and regional carrying capacity (population, resource consumption), internationally shared ecosystems (transboundary watersheds and waterbodies, tropical forests); and the relevant international institutions and politics for policy formation, conflict resolution, and implementation. Using a policy-analytic framework, students develop case studies to assess international policies and institutional arrangements to achieve the objectives of Agenda 21–Earth Summit Strategy to Save the Planet. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): EC 720

NR 724 - Resolving Environmental Conflicts
Credits: 4
Theories and practices of environmental dispute settlement. Roles of public, non-governmental and governmental organizations. Effectiveness of public participation initiatives in influencing public policy decisions and/or resolving environmental conflicts. Alternative approaches to consensus (policy dialogues, joint problem solving; strategic planning; negotiation, mediation) as well as litigation. Specific cases are critiqued and evaluated; conflict resolution skills are developed. Students observe and/or participate in ongoing local decision processes. Prereq: second-semester juniors, seniors; permission. Lab. Special fee. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): EC 724

NR 729 - Silviculture
Credits: 4
The science and art of establishing, growing, and tending forests to meet multiple objectives. Basics of forest stand dynamics applied to the problems of timber management, wildlife habitat, water quality, and carbon sequestration. Prereq: NR 425 and NR 527 or permission. Special fee.
NR 730 - Terrestrial Ecosystems
Credits: 4
Processes controlling the energy, water, and nutrient dynamics of terrestrial ecosystems; concepts of study at the ecosystem level, controls on primary production, transpiration, decomposition, herbivory; links to earth-system science, acid deposition, agriculture. Prereq: NR 527 and BIOL 409 or BIOL 411, or permission.
Equivalent(s): EOS 730, FOR 730, FORS 730

NR 734 - Tropical Ecology
Credits: 4
This course introduces students to the ecology of different tropical ecosystems, and involves students in analyzing and interpreting ecological field data and remotely sensed data. An important emphasis is to understand patterns and processes across scales - from individual plants to ecosystems and landscapes. The course also addresses important global issues in the tropics, including climate change, land use change, diverse ecosystem services, and sustainable resource management. Prereq: NR 527, BIOL 541, or equivalent.
Equivalent(s): FOR 734

NR #735 - Land Conservation Principles and Practices
Credits: 4
Students gain practical knowledge, understanding and experience in land conservation planning and implementation of options for land protection based on current practice in New Hampshire. By interacting with practitioners, students learn what it takes to implement successful land conservation projects, and conservation stewardship requirements and practices. Prereq: senior standing in the Department of Natural Resources and permission. Special fee. Lab. Writing intensive.
Attributes: Writing Intensive Course

NR 736 - Tropical Ecology and Conservation
Credits: 4
This intensive field course in Costa Rica introduces students to the science and practice of tropical ecology and conservation. The course includes visits to major tropical biomes, including cloud forest, rainforest, dry forest, and diverse agroecosystems. A focus in on understanding how ecological information is scaled from trees to ecosystems and landscapes, and the impact of climate change and land management. Students conduct a project on a topic of interest, involving data collection, analysis, and interpretation. Special fee.

NR #738 - Wildlife Policy and Management
Credits: 4
Local, regional, and national issues and strategies in policy and administration. Contemporary issues including land management, commercialization of wildlife, overpopulation, endangered species, wildlife diseases, and professionalism. Prereq: senior wildlife majors or permission. Special fee. Lab. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): WILD 738

NR 740 - Inventory and Monitoring of Ecological Communities
Credits: 4
Provides an introduction to the major concepts associated with monitoring change in ecological communities. Students develop an appreciation for such issues as: identification of appropriate baselines for comparison; use of indicator species; the tools used to inventory common, rare, and secretive species; how trend data are analyzed; and the implications of failing to detect an indicator species. Restricted to senior wildlife majors others by permission. Special fee. Lab.
Attributes: Writing Intensive Course

NR 744 - Biogeochemistry
Credits: 4
Examines the influence of biological and physical processes on elemental cycling and geochemical transformations from the molecular to the global scale, involving microorganisms, higher plants and animals and whole ecosystems; factors that regulate element cycles including soils, climate, disturbance and human activities; interactions among the biosphere, hydrosphere, lithosphere, and atmosphere; transformations of C, N, S, and trace elements. Prereq: one semester biology and two semesters of chemistry or permission.

NR 745 - Forest Management
Credits: 4
Forest land ownership, management objectives, forest inventory regulation and policy, forest administration, professional responsibilities and opportunities. Restricted to Natural Resources majors. Lab. Special fee.
Attributes: Writing Intensive Course
Equivalent(s): FOR 745

NR 749 - Forest Inventory and Modeling
Credits: 4
Applied sampling and statistical techniques for assessing current forest conditions and predicting future growth, yield, and structure. Topics include plot and point sampling, ecological inventory, and evaluation of site quality and stand density. Prereq: MATH 420 and BIOL 528. Special fee.

NR 750 - Sustaining Biological Diversity
Credits: 4
This course examines the approaches to recover and restore declining populations and at-risk communities. Major concepts addressed include: population viability analysis; use of simulation models to explore conservation alternatives; integrating the political, economic, and social realities that affect natural resource management; the adaptive nature of any restoration of rare organisms and communities; and preparing for the challenges associated with invasive organisms and climate change. Prereq: NR 650 and BIOL 528. Only open to Wildlife & Conservation Biology majors.

NR 751 - Aquatic Ecosystems
Credits: 4
Energy flow and nutrient cycling in streams, rivers and lakes, with an emphasis on understanding the control of primary productivity, decomposition and community structure by both hydrologic and biotic drivers. Role of aquatic ecosystems in carbon and nitrogen budgets at watershed, regional, and global scales. Impacts of environmental changes such as global climate change and urbanization on aquatic ecosystems. Prereq: General Ecology. Lab. Special fee.
NR 753 - Critical Issues in Sustainability: Sustainability as an Abundance Paradigm
Credits: 2
After 30 years in common parlance, the success of “Sustainability” still seems far from its goal. In part, this is because sustainability is typically applied as another way to manage scarcity, a paradigm informing economic and social policy for well over a century. Underlying this dominant view of sustainability, an increasing number of approaches to sustainability projects, some of longstanding, are entering the mainstream as pieces of an identifiable, and distinctly novel, paradigm based on the assumption of abundance, rather than scarcity. These include ideas of the Natural Step and Natural Capital, as well as Cradle to Cradle and Biomimicry. The goals of this seminar are (1) to survey and discuss this growing literature and its application to the solution of sustainability problems; and (2) research and analysis towards transforming scarcity-based to abundance-based solutions. To be considered as a capstone option for majors in Environmental and Conservation Sustainability, students must also register for NR 754 in the Spring semester.

NR 754 - Critical Issues in Sustainability: Sense of Place
Credits: 2
Costa Rica is the happiest country on Earth. Bhutan is a living laboratory for education. Bolivia has a Law of Mother Earth in its constitution. Cities and towns in the US create local solutions to problems of resource sustainability while the national dialogue stagnates. What drives some places to lay the foundations for sustainable futures, while others do not? Sense of Place is a powerful lends though which to view the relative achievements of places and organizations toward creating a sustainable future. The goals of this seminar are (1) to survey the Sense of Place literature and to analyze case studies of the role of Sense of Place in the success of sustainability efforts nationally and internationally; and (2) to research the role of Sense of Place in our local community environment and to relate it to stated goals in existing sustainability plans. To be considered as a capstone option for majors in Environmental and Conservation Sustainability, students must also register for NR 753 in the Fall semester.

NR 757 - Remote Sensing of the Environment
Credits: 4
Practical and conceptual presentation of the use of remote sensing and other geospatial technologies for mapping and monitoring the environment. This course begins with the use of aerial photographs (photogrammetry, and photo interpretation) and includes measures of photo scale and area, parallax and stereo viewing, object heights, flight planning, photo geometry, the electromagnetic spectrum, camera systems and vegetation/land cover mapping. The course concludes with an introduction to other geospatial technologies including digital image analysis, global positioning (GPS), and geographic information systems (GIS). Conceptual lectures are augmented with practical homework assignments and hands-on lab exercises. Prereq: algebra. Special fee. Lab. (Also offered as GEOG 757.)
Equivalent(s): FOR 757, FORS 757, GEOG 757

NR 759 - Digital Image Processing for Natural Resources
Credits: 4
Introduces digital remote sensing including multispectral scanners (Landsat and SPOT) radar, and thermal imagery. Hands-on image processing including filtering, image display, ratios, classification, registration, and accuracy assessment. GIS as it applies to image processing. Discussion of practical applications. Use of ERDAS image-processing software. Knowledge of PCs required. Prereq: NR 757 or equivalent and permission. (Also offered as GEOG 759.)
Equivalent(s): FOR 759, FORS 759, GEOG 759

NR 760 - Geographic Information Systems in Natural Resources
Credits: 4
This course in geographic information systems (GIS), covers advanced theory, concepts, and applications of GIS for natural resource and related disciplines. Discussion of database structures, data sources, spatial data manipulation/analysis/modeling, data quality and assessment. Students conduct a project of their design exploring aspects of GIS most useful to them. Lecture emphasizes concepts and applications through a text and selected peer-reviewed articles. Lab uses the latest version of ArcGIS software and provides hands-on experience. Prereq: introductory GIS course. Permission required.
Equivalent(s): FOR 760, FORS 760, GEO 760

NR 761 - Environmental Soil Chemistry
Credits: 4
Chemical transformations in soils are the basis for soil fertility and plant productivity in natural and managed ecosystems, and also influence key ecosystem processes including soil organic matter turnover and soil-atmosphere exchange of trace gases. This class will explore soil chemistry processes and transformations related to soil nutrient cycling, plant nutrient acquisition, and other critical environmental services. Prereq: a course in soil science or instructor permission.

NR 765 - Community Ecology
Credits: 4
Properties of biotic communities, especially biodiversity. Effects of physical stress, disturbance, competition, predation, positive interactions, and dispersal on community properties. Community dynamics, including succession and stability. Prereq: applied biostatistics and general ecology. Lecture and discussion.

NR 782 - Forest Health in a Changing World
Credits: 4
Forests cover over 30% of the land surface of the Earth and are incredibly important ecologically, economically, and to the health of the planet. While forests show great capacity to withstand disturbance, these ecosystems are increasingly threatened worldwide by climate change, native and introduced insects and disease, poor management practices, land clearing, drought, fire, and pollution. This course offers an overview of the dominant threats to forests, their causes and consequences, and options for monitoring, management, and mitigation. Special fee.

NR #783 - Forest Communities of New Hampshire
Credits: 4
A hands-on field course designed to introduce students to the diverse forest community types of New Hampshire. Topics include 1) field identification of forest types using different classification systems and keys; 2) identification of characteristic plant and animal species; 3) the roles of climate, geology, soils, natural disturbance, forest management, and biotic factors in determining forest community type; 4) primary and secondary succession, including old-growth. Prereq: one course in ecology or environmental biology or permission. Special fee.
NR 784 - Sustainable Living - Global Perspectives  
Credits: 4  
The pursuit of sustainable solutions to living in our contemporary world is a global endeavor. In this course, the concept of living sustainably is explored from a broad international perspective. Global scale issues impacting sustainable resource use are considered, including population growth, economic globalization and development, social equity, and cultural values. We will expand our awareness of alternatives to those current practices that impede the sustainability of human societies as part of the earth's natural systems. We will also pursue an understanding of the interrelated socio-economic conditions, combined with social and personal ethics and values necessary to move toward a more sustainable future. And each of us will come to value what sustainable living means for our own lives. Prereq: NR 437 or NR 435.  
Equivalent(s): EC 784

NR 785 - Systems Thinking for Sustainable Solutions  
Credits: 4  
This course applies systems thinking as a problem-solving approach aimed at exploring possibilities for creating a future based on sustainable relationships between healthy human societies and their natural environments. Types of systems and systems tools are utilized to describe human-environment relationships and to emphasize their resiliency or vulnerability to future unsustainable events and/or practices. We explore how systems may be restructured to create more sustainable outcomes. Pre- or Coreq: NR 437 or NR 435.  
Equivalent(s): EC 785

NR 786 - Leadership for Sustainability  
Credits: 4  
In this course we review and evaluate current knowledge and practice regarding the attainment of sustainability in social and environmental relations. We particularly focus on the meaning and qualities of leadership for achieving a sustainable future. Along the way, we also reflect on our own leadership styles and qualities. Topics include the role of leaders and leadership practices in government, business, academia etc; concepts and theories for achieving social change; and case studies exemplifying a range of leaders and approaches toward sustainability. Prereq: NR 437 or NR 435. Writing intensive.  
Attributes: Writing Intensive Course

NR 787 - Advanced Topics in Sustainable Energy  
Credits: 4  
This course engages students in advanced topics in sustainable energy. Course reviews basic structures of our energy system, energy markets and economics, and the environmental, economic and technological of energy landscape. Focus is on electricity and building use with introductions to the transportation system. Students gain the knowledge to evaluate innovations in technology, policy and financing necessary to implement sustainable energy goals from conservation and efficiency to renewables and energy storage. Special fee.

NR 791 - Preparation for Capstone  
Credits: 1  
This class will require that students develop a proposal for their senior capstone experience, seek approval for that proposal from a faculty sponsor, and be prepared to complete the capstone senior year. Students will also work on resume development, on writing text introducing themselves to prospective employers, and on interviewing strategies. Cr/ F.

NR 795 - Investigations  
Credits: 1-4  
Investigations in Natural Resources may include topics in environmental conservation, forestry, soil and watershed management, ecosystems, and wildlife management. Permission required. Special fee on some topics.

NR 795W - Investigations  
Credits: 1-4  
Investigations in Natural Resources may include topics in environmental conservation, forestry, soil and watershed management, ecosystems, and wildlife management. Permission required. Writing intensive.  
Attributes: Writing Intensive Course

NR 797 - Special Topics  
Credits: 1-4  
An experimental course for the purpose of introducing a new course or teaching a special topic for a semester in an area of specialization in natural resources. Permission required. Special fee on some sections.

NR 799 - Honors Senior Thesis  
Credits: 1-4  
Honor/thesis students conduct an independent research project, relevant to the student’s area of specialization in the major, under the direction of a faculty sponsor. Students submit a research proposal, write a final report, and provide an oral presentation. One or two semester sequence. Restricted to Senior/Natural Resource Majors. Permission required.  
Attributes: Writing Intensive Course

Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): EC 799, FOR 799, WARM 795, WILD 799

Tourism Planning & Development (TOUR)  

TOUR 400 - Introduction to Tourism  
Credits: 4  
Provides an informational foundation in tourism and gives a more extensive knowledge of the tourism industry. Examines historical perspectives, tourism organization, and supply and demand of the tourism industry. Discusses the dynamic and pluralistic nature of the tourism industry.  
Equivalent(s): RECO 400

TOUR 510 - Tourism and Global Understanding  
Credits: 4  
Introduces ways in which tourism can act as a vehicle to understanding foreign cultures. Responsible tourism, has the potential to help bridge cultural and psychological distances that separate people of different races, religions, and socio-economic classes. Through responsible tourism we can learn to appreciate, trust, and respect the human diversity that our world has to offer. Helps students gain an informed acquaintance with other cultures and customs, and to understand the central role of tourism in international and cross-cultural understanding. Cr/F option.

TOUR #615 - Tourism Planning and Development  
Credits: 4  
The planning and development of tourist resources and programs within a geographic region. Planning models are reviewed and analyzed. The relationship among tourists, tourist developments, and the planning of tourist attractions and services is examined. A strategic planning process is applied to the development of a regional tourism plan in New Hampshire. Prereq: TOUR 400.
TOUR #705 - Ecotourism: Managing for the Environment  
Credits: 4  
Ecotourism embraces both the environment and economics. Provides a comprehensive framework for planning and managing ecotourism in order to both maximize potential benefits and minimize potential costs for people and the environment. Seminar format. Case studies used to assess the role of ecotourism in the sustainable development of natural resources. Prereq: TOUR 400, juniors or seniors only.

TOUR 767 - Social Impact Assessment  
Credits: 4  
Provides a cross-disciplinary perspective on the issues, problems, and methods of Social Impact Assessment (SIA). Provides analytic approach and theoretical framework for the assessment of diverse events, including changes in the natural environment, the local economy, or dominant technology. SIA is required of most U.S. and Canadian federal- and state-sponsored projects that come under the National Environmental Protection Act, as well as all projects funded by international donor agencies. (Juniors and seniors only.) Writing intensive.  
Attributes: Writing Intensive Course

TOUR 798 - Independent Study  
Credits: 1-4  
Special assignments in readings, investigations, field problems. May include teaching experience. Prereq: permission.  
Equivalent(s): TOUR 798W

TOUR 798W - Independent Study  
Credits: 1-4  
Special assignments in readings, investigations, field problems. May include teaching experience. Prereq: permission. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): TOUR 798

Faculty

https://colsa.unh.edu/natural-resources-environment/people