FOREST AND WILDLIFE ECOLOGY (F&W ECOL)

F&W ECOL 1 — COOPERATIVE EDUCATION/CO-OP IN FOREST & WILDLIFE ECOLOGY
1 credit.

Full-time off-campus work experience which combines classroom theory with practical knowledge of operations to provide students with a background upon which to base a professional career. Students receive credit only for the term in which they are actively enrolled and working. The same work experience may not count towards credit in FW Ecol 399.

Requisites: So st, and consent of supervising instructor and academic advisor.

Repeatable for Credit: Yes, unlimited number of completions

F&W ECOL 100 — INTRODUCTION TO FORESTRY
2 credits.

Relationship of humans to forest resources. Roles of the forester in manipulating the forest environment to produce goods and services desired by contemporary society. Current issues in forest resource management and policy, with emphasis on the relation to environmental quality and natural resources.

Requisites: None

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Fall 2017

F&W ECOL 101 — ORIENTATION TO WILDLIFE ECOLOGY
1 credit.

Introduction to the Wildlife Ecology major and the profession of wildlife management/conservation. Emphasis on preparing students for a successful career.

Requisites: Declared in Wildlife Ecology major

Repeatable for Credit: No

Last Taught: Fall 2017

F&W ECOL 110 — LIVING WITH WILDLIFE - ANIMALS, HABITATS, AND HUMAN INTERACTIONS
3 credits.


Requisites: None

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Fall 2017

F&W ECOL 230 — INTRODUCTION TO RESOURCE BASED RECREATION
1 credit.

An overview of outdoor recreation definition; concepts; behaviors; motivation; and trends relative to agencies with responsibilities for the management of protected areas such as parks and public lands.

Requisites: None

Repeatable for Credit: No

Last Taught: Fall 2008

F&W ECOL/C&E SOC/SOC 248 — ENVIRONMENT, NATURAL RESOURCES, AND SOCIETY
3 credits.

Introduces the concerns and principles of sociology through examination of human interaction with the natural environment. Places environmental issues such as resource depletion, population growth, food production, environmental regulation, and sustainability in national and global perspectives.

Requisites: None

Course Designation: Breadth - Social Science
Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

F&W ECOL 289 — HONORS INDEPENDENT STUDY
1-2 credits.

Inter-Ag 288

Requisites: Enrolled in the CALS Honors Program Sophomore or Junior standing.

Course Designation: Honors - Honors Only Courses (H)

Repeatable for Credit: Yes, unlimited number of completions

F&W ECOL 299 — INDEPENDENT STUDY
1-3 credits.

Requisites: Open to Freshmen, Sophomore or Junior standing written consent of instructor

Repeatable for Credit: Yes, unlimited number of completions

F&W ECOL 300 — FOREST BIOMETRY
4 credits.

Basic concepts of statistical inference and sampling theory as applied to forestry. Estimation of tree and forest characteristics. Use of aerial photographs; principles of data processing; information gathering and decision making under uncertainty.

Requisites: Stat 201 or Stat 224 or STAT 301 or equiv

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No
F&W ECOL 305 — FOREST OPERATIONS
2 credits.

Introduction to forestry operations in the implementation of forest plans, including site preparation, stand establishment, and harvesting systems. Analysis of costs and productivity, including system balance, marketing, timber procurement, and contractual services.

Requisites: Forestry 300 or 410
Repeatable for Credit: No

F&W ECOL 306 — TERRESTRIAL VERTEBRATES: LIFE HISTORY AND ECOLOGY
4 credits.

Life history, ecology, distribution, and taxonomy of reptiles, amphibians, birds, and mammals. Birds will receive less emphasis. Primary focus is on Wisconsin species, including conservation threats, but covers all major North American families, and surveys major groups of the world. Designed as a foundation for detailed study of vertebrates or to satisfy the need for a scientific introduction to Wisconsin vertebrates.

Requisites: Sophomore standing an elementary course in Zoology
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No

F&W ECOL/HORT/LAND ARC/PL PATH 309 — DISEASES OF TREES AND SHRUBS
3 credits.

Fundamental disease concepts, pathogens and causal agents, diagnosis, and biologically rational principles and practices for management of diseases of trees and shrubs. For degree students and professionals. One extended lecture with discussion and one lab or field trip per week.

Requisites: One semester of plant sci or consent of instructor
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL 312 — WOOD IDENTIFICATION
1 credit.

Introduction to gross and microscopic characteristics of wood. Identification of visual characteristics of twenty-eight major U.S. wood species using 10x magnification.

Requisites: So st
Repeatable for Credit: No
Last Taught: Spring 2010

F&W ECOL 314 — WOOD, INDUSTRIAL USE, AND SOCIETY
3 credits.

This course is an introduction to wood as an industrial raw material with content covering the biological nature of wood, mechanical and biological properties of wood, technology and products of wood, and the regional, national, and global demand for wood and forest products.

Requisites: Forestry 312 or con reg or cons inst
Repeatable for Credit: No
Last Taught: Spring 2010

F&W ECOL 318 — PRINCIPLES OF WILDLIFE ECOLOGY
3 credits.

Major environmental factors affecting wildlife; structure and behavior of wildlife populations; regional wildlife communities and their conservation. Open to Fr. Restricted to Wildlife Ecology majors

Requisites: High School biology
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL 330 — RESOURCE-ORIENTED RECREATION MANAGEMENT
3 credits.

Description and evaluation of outdoor recreation resource management problems and issues on public lands; analysis of the influence of different organizational structures and decision-making strategies on planning, resource management and conflict resolution; examination of vegetation and wildlife management for preservation and recreation purposes.

Requisites: Junior standing; intro courses in stats, ecology poli sci, or consent of instructor
Repeatable for Credit: No

F&W ECOL/ZOOLOGY 335 — HUMAN/ANIMAL RELATIONSHIPS: BIOLOGICAL AND PHILOSOPHICAL ISSUES
3 credits.

An interdisciplinary approach to our complex and often contradictory relationships with non-human animals, including information about the nature, needs and behavior of human and non-human animals in relation to our personal and professional interactions with them.

Requisites: Sophomore standing
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
F&W ECOL/ENVIR ST/ZOOLOGY 360 — EXTINCTION OF SPECIES
3 credits.
A comprehensive treatment of the ecology, causes, and consequences of species extinction. Ecology and problems of individual species, habitat alteration and degradation, socio-economic pressures and conservation techniques and strategies. An intro biology course strongly recommended
Requisites: So st.
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL/ENVIR ST/G L E/GEOG/GEOSCI/LAND ARC 371 — INTRODUCTION TO ENVIRONMENTAL REMOTE SENSING
3 credits.
Introduction to the Earth as viewed from above, focusing on use of aerial photography and satellite imagery to study the environment. Includes physical processes of electromagnetic radiation, data types and sensing capabilities, methods for interpretation, analysis and mapping, and applications.
Requisites: MATH 114 Sophomore standing
Course Designation: Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL/ENVIR ST/G L E/GEOG/GEOSCI/LAND ARC 372 — INTERMEDIATE ENVIRONMENTAL REMOTE SENSING
3 credits.
Examines intermediate-level concepts in information extraction, data processing and radiative transfer relevant to remote sensing of the environment. Includes transforms, image correction, classification algorithms and change detection, with emphasis on applications for land use planning and natural resource management.
Requisites: Envir St 301 or consent of instructor, sophomore standing
Course Designation: Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No

F&W ECOL 375 — SPECIAL TOPICS
1-4 credits.
Requisites: None
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2018

F&W ECOL 379 — PRINCIPLES OF WILDLIFE MANAGEMENT
3 credits.
Ways of conserving desired numbers of animals for the overall best interests of society, be they aesthetic, ecological, economic, commercial or recreational; includes management of endangered species, exploited species, wildlife communities in nature reserves, and wildlife pests.
Requisites: WI Ecol 318 or equiv
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

F&W ECOL 399 — COORDINATIVE INTERNSHIP/COOPERATIVE EDUCATION
1-8 credits.
Requisites: So, Jr or Sr st and cons of supervising inst, advisor, and internship program coordinator
Course Designation: Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Workplace - Workplace Experience Course
Repeatable for Credit: Yes, unlimited number of completions

F&W ECOL 400 — STUDY ABROAD IN FOREST AND WILDLIFE ECOLOGY
1-6 credits.
Provides an area equivalency for courses taken on Madison Study Abroad Programs that do not equate to existing UW courses. Enroll Info: Current enrollment in a UW-Madison study abroad program
Requisites: None
Repeatable for Credit: Yes, unlimited number of completions

F&W ECOL 401 — PHYSIOLOGICAL ANIMAL ECOLOGY
3 credits.
Physiological adaptation and function in wild animals, primarily birds, mammals, reptiles, amphibians. Focus on interactions between animals and their environment, and relationships between animal physiology and the ecology and dynamics of populations.
Requisites: Jr st and basic zoology course
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017
F&W ECOL/BOTANY 402 — DENDROLOGY
2 credits.
Identification, ranges, uses, and some ecological characteristics of evergreen and deciduous woody plants, both native and cultivated; lab and field work.
**Requisites:** A 5 cr intro college crse in bot or equiv
**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
**Repeatable for Credit:** No
**Last Taught:** Fall 2017

F&W ECOL 404 — WILDLIFE DAMAGE MANAGEMENT
3 credits.
Theory and application of wildlife management from a species-specific and situational perspective. Introduction to career options in wildlife damage management.
**Requisites:** F&W ECOL 379, or cons inst
**Repeatable for Credit:** No
**Last Taught:** Fall 2016

F&W ECOL 410 — PRINCIPLES OF SILVICULTURE
3 credits.
Ecologically-based forest management principles for sustainable timber production, maintenance or restoration of biological diversity, and maintenance of aesthetic quality and site productivity. Includes coverage of even-aged and uneven-aged management, reforestation principles, and ecological restoration techniques.
**Requisites:** BOTANY/FW ECOL/ZOOLOGY/BOTANY/F&W ECOL 460 or F&W ECOL 550 or declared in Forest Science or Wildlife Ecology program or graduate or professional standing
**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
**Repeatable for Credit:** No

F&W ECOL 411 — PRACTICES OF SILVICULTURE
1 credit.
Field and some laboratory experience in utilization of ecologically-based forest management practices for sustainable timber production, maintenance or restoration of biological diversity, and maintenance of aesthetic quality and site productivity. Includes coverage of even-aged and uneven-aged management, reforestation principles, and ecological restoration techniques.
**Requisites:** Concurrent enrollment or prior completion of F&W ECOL 410
**Repeatable for Credit:** No

F&W ECOL 415 — TREE PHYSIOLOGY
3 credits.
Physiological basis of development of forest trees and stands, factors affecting tree growth.
**Requisites:** Botany 350 or 500 or cons inst
**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
**Repeatable for Credit:** No
**Last Taught:** Fall 2017

F&W ECOL 424 — WILDLIFE ECOLOGY SUMMER FIELD PRACTICUM
2 credits.
Two week field class emphasizing research and habitat management techniques through individual and group field work, tours, demonstrations and lectures. Class held in northern Wisconsin, transportation and lodging provided.
**Requisites:** Open to wildlife ecol majors only, Jr/Sr st or cons inst
**Repeatable for Credit:** No
**Last Taught:** Summer 2017

F&W ECOL 450 — COMMUNITIES AND FORESTS
3 credits.
An examination on a global basis of the interactions between human communities and forests, with an emphasis on alternative approaches to community forestry management, drawing on both first and third world experiences.
**Requisites:** Sr st
**Course Designation:** Breadth - Social Science
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
**Repeatable for Credit:** No

F&W ECOL/SOIL SCI 451 — ENVIRONMENTAL BIOGEOCHEMISTRY
3 credits.
Emphasis is given to a consideration of the processes influencing the distribution and cycling of chemical elements in native and anthropogenic ecosystem-level cycles of elements, and biogeochemical cycling in major soil-biome systems.
**Requisites:** CHEM 103-104 or equivalent
**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement
**Repeatable for Credit:** No
**Last Taught:** Spring 2013

F&W ECOL/ENVR ST/HISTORY 452 — WORLD FOREST HISTORY
3 credits.
Examines world forest history, with attention to links between societal change and forest change. Examines how different peoples have used or abused the forest, how societies have struggled to establish policies governing forests, and how perceptions of forests have evolved.
**Requisites:** None
**Course Designation:** Breadth - Either Humanities or Social Science
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
**Repeatable for Credit:** No
**Last Taught:** Spring 2012
F&W ECOL/BOTANY 455 — THE VEGETATION OF WISCONSIN
4 credits.

Ecology of Wisconsin plant communities: floristic composition, community structure; relationship to history, climate, soil, and geology; response to human perturbation. Lecture and lab.

Requisites: BOTANY 100, or BOTANY/BIOLOGY 130, or Botany/ZOOLOGY/BIOLOGY/BOTANY 151-152, or Biocore 313

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

Last Taught: Fall 2017

F&W ECOL/BOTANY/ZOOLOGY 460 — GENERAL ECOLOGY
4 credits.

Ecology of individual organisms, populations, communities, ecosystems, landscapes, and the biosphere. The interaction of organisms with each other and their physical environment. These relationships are studied, often in quantitative terms, in both field and laboratory settings; lecture and lab.

Requisites: Intro course in botany zoology, or Bot/Zoo 151-152, or Biocore 301 or 333; for biol sci majors only

Course Designation: Gen Ed - Quantitative Reasoning Part B
Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

F&W ECOL/ENTOM 500 — INSECTS IN FOREST ECOSYSTEM FUNCTION AND MANAGEMENT
2 credits.

Roles of insects in the functioning of healthy forest ecosystems, tactics for addressing challenges they pose to sustainable natural resource management, and emerging issues such as biological invasions, habitat alteration, and climate change that influence interactions among insects, their microbial associates, forests, and humans.

Requisites: BOTANY/BIOLOGY/ZOOLOGY 151 152 or equivalent

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

Last Taught: Fall 2015

F&W ECOL 501 — FOREST FIRE BEHAVIOR AND MANAGEMENT
1 credit.

Principles and applications of forest fire behavior, prediction, control and use; current policy issues in fire management.

Requisites: Forestry 100 or college level plant ecology course
Repeatable for Credit: No

Last Taught: Spring 2017

F&W ECOL/ENVIR ST 515 — NATURAL RESOURCES POLICY
3 credits.

This course examines natural resources policy and law in the United States relating to forests, wildlife, and other natural resources. The course investigates the policy-making process and the role of science, values, property, economics, and justice in the development of federal and state resources policy. Students are trained in professional written and oral communication and ethical engagement in resources policy and administration.

Requisites: F&W ECOL 379, or 410, or consent of instructor

Course Designation: Gen Ed - Communication Part B
Breadth - Social Science
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

F&W ECOL/AN SCI/ZOOLOGY 520 — ORNITHOLOGY
3 credits.

Introduction to bird biology, ecology, and behavior. Topics include the evolutionary origin of birds and flight, anatomy and physiology, functional morphology, migration, communication, reproductive strategies, ecological adaptations and roles, and biogeographical patterns.

Requisites: BIOLOGY/ZOOLOGY/BIOLOGY 101 and 102, BIOLOGY/ZOOLOGY/BIOLOGY/BOTANY 151 and 152 or BIOCORE 381 and 382

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

F&W ECOL/AN SCI/ZOOLOGY 521 — BIRDS OF SOUTHERN WISCONSIN
3 credits.

Outdoor and indoor labs/lectures emphasizing identification of southern Wisconsin birds by sight and vocalization. Two required Saturday field trips in Southern Wisconsin.

Requisites: BIOLOGY/ZOOLOGY/BIOLOGY 101 and 102, BIOLOGY/ZOOLOGY/BIOLOGY/BOTANY 151 and 152 or BIOCORE 381 and 382

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
F&W ECOL/HORT/SOIL SCI 524 — URBAN SOIL AND ENVIRONMENT
3 credits.
Many environmental issues related to urbanization are derived from the manipulation of soil. By coupling contemporary literature in urban soils with soil science, students will be able to evaluate environmental issues within the urban environment and provide new ways of remediating their impact.
Requisites: Soil Sci 301 or 230
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL/A A E/ECON 531 — NATURAL RESOURCE ECONOMICS
3 credits.
Economic concepts and tools relating to management and use of natural resources, including pricing principles, cost-benefit analysis, equity, externalities, economic rent, renewable and nonrenewable resources, and resource policy issues.
Requisites: ECON 301 and MATH 211, or equiv
Course Designation: Breadth - Social Science
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

F&W ECOL/SURG SCI 548 — DISEASES OF WILDLIFE
3 credits.
This course is designed to provide students with an overview of the issues involved across a wide range of wildlife diseases, presented within the context of ecosystem health or “one health”. The primary focus of the lectures will be on the biological, epidemiological, clinical, public health and, in some cases, sociopolitical ramifications of wildlife diseases. The course will cover a wide variety of wildlife diseases caused by bacteria, viruses, parasites, prions, and environmental contaminants. Consequences associated with environmental changes on the manifestation of wildlife diseases will also be discussed. This range of diseases will be presented in order to familiarize students with the many facets involved in disease management, from animal and human health issues, to ecological and environmental considerations, to the role of society in contributing to, and managing, these diseases.
Requisites: Junior standing
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL 550 — FOREST ECOLOGY
3 credits.
Introduction to major abiotic and biotic factors that influence forest ecosystem composition, structure, and function. Reviews important processes that influence structure and function of forest ecosystems. Uses basic ecosystem concepts to elucidate influence of anthropogenic (including forest management) and natural disturbances on forest ecosystem structure and function.
Requisites: Five credit botany course
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL 551 — FOREST ECOLOGY LAB
1 credit.
Forest Ecology laboratory is the companion course for the lecture-based Forest Ecology (F&W ECOL 550). The objective of the forest ecology laboratory is to review concepts that are presented in the classroom by exposing students to the key concepts and processes discussed in lecture that can best be seen in the field or illustrated with the use of ecosystem models.
Requisites: F&W ECOL 550 or concurrent enrollment
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL 561 — WILDLIFE MANAGEMENT TECHNIQUES
3 credits.
Preparation of collections, analyses of food habits, sex and age determinations, censuses, trapping and banding, planting food and cover, research techniques.
Requisites: None
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Fall 2017
F&W ECOL/LAND ARC/ZOOLOGY 565 — PRINCIPLES OF LANDSCAPE ECOLOGY
2 credits.

Landscape ecology emphasizes the importance of spatial patterns at broad scales. Concepts and applications are emphasized, especially for seniors and graduate students in applied natural resource fields. The course is also a prerequisite for Zoology/Forest Ecology 665, Advanced Landscape Ecology. Lecture format with discussion.

Requisites: Botany/Zoology/Forest 460, or Forest 550, a crse in stats, cons inst
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL/HORT/STAT 571 — STATISTICAL METHODS FOR BIOSCIENCE I
4 credits.

Descriptive statistics, distributions, one- and two-sample normal inference, power, one-way ANOVA, simple linear regression, categorical data, non-parametric methods; underlying assumptions and diagnostic work.

Requisites: College algebra: Grad st or cons inst
Course Designation: Gen Ed - Quantitative Reasoning Part B
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL/HORT/STAT 572 — STATISTICAL METHODS FOR BIOSCIENCE II
4 credits.

Continuation of Forestry 571. Polynomial regression, multiple regression, two-way ANOVA with and without interaction, split-plot design, subsampling, analysis of covariance, elementary sampling, introduction to bioassay.

Requisites: Stats/Forestry/HORT/F&W ECOL/STAT 571
Course Designation: Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

F&W ECOL 577 — COMPLEXITY AND CONSERVATION OF WHITE-TAILED DEER
3 credits.

Solving problems that arise in the conservation and management of wildlife populations requires that managers understand and evaluate human cultural, economic, and political issues in addition to ecological issues. Students will use deer management in Wisconsin as a case study to understand the interdisciplinary nature of wildlife management while gaining practical hands-on experiences.

Requisites: Junior standing and declared in the Wildlife Ecology program
Course Designation: Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL 590 — INTEGRATED RESOURCE MANAGEMENT
3 credits.

Resource management planning in state and federal land management agencies. Students apply principles by working in teams to develop a management plan for a real property by inventorying resources; developing management objectives and alternatives; and analyzing their ecological, social and institutional implications.

Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL 599 — WILDLIFE RESEARCH CAPSTONE
3 credits.

Capstone synthesis for wildlife ecology majors preparing themselves for a wildlife research career. Students develop a professional-quality research proposal for an extended project, carry out a pilot ecological field study, and design and implement a social survey questionnaire.

Requisites: Senior Standing or higher and Forest and Wildlife Ecology 561 required to enroll
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL/AGRONOMY/ENTOM/M&ENVTOX 632 — ECOTOXICOLOGY: THE CHEMICAL PLAYERS
1 credit.

Introduction to natural and man-made toxins/toxicants, their distribution, transport, and fate in the environment. Includes lectures, current research presentations, and discussions.

Requisites: 2 sem intro bio 1 sem organic chem, or cons inst
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL/AGRONOMY/ENTOM/M&ENVTOX 633 — ECOTOXICOLOGY: IMPACTS ON INDIVIDUALS
1 credit.

Addresses absorption, biotransformation, elimination of toxins in a wide variety of taxa (plants, invertebrates, vertebrates), and includes lectures, current research presentations, and discussions.

Requisites: MEnvTox 632, or 2 sem intro bio 1 MEnvtox 631, or cons inst
Repeatable for Credit: No
Last Taught: Fall 2017
F&W ECOL/AGRONOMY/ENTOM/M&ENVTOX 634 — ECOTOXICOLOGY: IMPACTS ON POPULATIONS, COMMUNITIES AND ECOSYSTEMS
1 credit.

Focuses on the impact of toxicants on populations, communities, ecosystems, and includes risk evaluation. Includes lectures, current research presentations, and discussions.
Requisites: MEnvTox 633, or MEnvTox 625, 626 631, or cons inst
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL 635 — FOREST STAND DYNAMICS
1-2 credits.

Changes in forest species composition and structure at the stand and landscape level resulting from tree growth, competition, succession, and disturbance. Methods for reconstructing past stand development and forecasting future trajectories. Selected applications in forest management and natural areas management. Sr or Grad st
Requisites: Crse in silviculture or ecology (BOTANY/F&W ECOL/ ZOOLOGY 460 or equiv) crse in stats.
Repeatable for Credit: No
Last Taught: Spring 2012

F&W ECOL/BOTANY/ENVIR ST/ZOOLOGY 651 — CONSERVATION BIOLOGY
3 credits.

Application of ecological principles and human dimensions to the conservation of biological diversity. Topics: biodiversity science; conservation planning; population ecology; habitat loss, species exploitation, invasive species, pollution; human attitudes and activities as they affect the biosphere; approaches to monitoring interventions.
Requisites: An ecology crse (eg, Botany/ZOOLOGY/BOTANY/ F&W ECOL 460)
Course Designation: Gen Ed - Quantitative Reasoning Part B
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOLA A E/ENVIR ST 652 — DECISION METHODS FOR NATURAL RESOURCE MANAGERS
3-4 credits.

Applications of quantitative methods, including optimization and simulation, to the management of natural resources, especially forests.
Requisites: MATH 211 or equiv Comp Sci 132 or equiv
Course Designation: Gen Ed - Quantitative Reasoning Part B
Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No

F&W ECOL 655 — ANIMAL POPULATION DYNAMICS
3 credits.

Fluctuations of animal populations: techniques of study, documentation, controls.
Requisites: Wl Ecol 318 or equiv, and crse in stats
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

F&W ECOL 658 — FOREST RESOURCES PRACTICUM
3 credits.

Field training and experience; exposure to forestry operations, equipment, procedures, and management problems.
Requisites: None
Repeatable for Credit: No
Last Taught: Summer 2016

F&W ECOL/ZOOLOGY 660 — CLIMATE CHANGE ECOLOGY
3 credits.

The evidence that the Earth's climate is changing at unprecedented rates is now overwhelming. Environmental tipping points are being crossed and many species are adapting or failing to adapt. Climate change poses a significant problem for conserving and managing wildlife and their habitats. In this class, students will be introduced to climate change and its ecological impacts through engaging class discussions, online climate exercises, and group projects aimed at developing climate change adaptation plans.
Requisites: Junior or Senior standing as a Forest Science or Wildlife Ecology major; graduate student standing; FW Ecol/Zoology/BOTANY/ F&W ECOL/ZOOLOGY 460; or consent of instructor
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL/BOTANY/ZOOLOGY 672 — HISTORICAL ECOLOGY
2 credits.

Historical Ecology is an area of ecology that considers the importance of past events for current ecosystems. Concepts and applications are emphasized. Multidisciplinary emphasis, for seniors and graduate students in biological sciences, social studies, and humanities. Discussion format.
Requisites: Graduate or senior standing and consent of instructor
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
F&W ECOL 675 — PROFESSIONAL DEVELOPMENT IN FOREST & WILDLIFE ECOLOGY
1 credit.

This special topics course provides opportunities for students in Forest and Wildlife Ecology to receive additional training in professional development skills relevant to their careers in natural resources.

Requisites: Forest Science or Wildlife Ecology major or graduate standing
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2018

F&W ECOL 681 — SENIOR HONORS THESIS
2-4 credits.

Forestry research; an independent and original study guided by a staff member.

Requisites: Hon candidacy
Course Designation: Honors - Honors Only Courses (H)
Repeatable for Credit: No

F&W ECOL 682 — SENIOR HONORS THESIS
2-4 credits.

Continuation of 681.

Requisites: Honors program candidacy Forest 681
Course Designation: Honors - Honors Only Courses (H)
Repeatable for Credit: No

F&W ECOL 691 — SENIOR THESIS
2-4 credits.

Independent research guided by a faculty member (non-honors).

Requisites: Consent of instructor
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL 692 — SENIOR THESIS
2-4 credits.

Independent research guided by a faculty member (non-honors).

Continuation of F&W ECOL 691.

Requisites: Consent of instructor
Repeatable for Credit: No

F&W ECOL 699 — SPECIAL PROBLEMS
1-4 credits.

Requisites: Sr st cons inst
Course Designation: Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: Yes, unlimited number of completions

F&W ECOL/ENTOM 711 — MULTIVARIATE ANALYSIS OF ECOLOGICAL AND COMMUNITY DATA
2 credits.

This course will examine some common methods of multivariate data analysis in ecology and environmental science. Often called "community data analysis," this class will cover methods for the analysis of complex, multidimensional datasets that are collected in the study of plant, invertebrate, fish, and bird communities. We will also address the concurrent analysis of the environmental factors that may drive community distributions. All of this provides the basis for predictive modeling of distributions across landscapes. General methods we will cover include ordination (PCA, DCA, NMDS, CCA), clustering (or classification), and other comparative analyses of data matrices (ANOSIM, Mantel tests). The "class" (better called a "workshop") is designed to be applied, meaning that the objective is for students to learn in a "hands-on" way how to use these tools, and the circumstances under which their uses are either appropriate or inappropriate.

Requisites: Students must have Stats 571 or 572 to enroll, if a student feels that they have an equivalent background, they must get permission of the instructor to enroll
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

F&W ECOL/C&E SOC/SOC 749 — SOCIAL POLICY AND MANAGEMENT OF NATIONAL PARKS AND PROTECTED AREAS
3 credits.

Explores the relationship of social policy to the formation and management of U.S. National Parks in the past, present and future. Implications of social policy for park systems and preserves throughout the world are addressed.

Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2010

F&W ECOL 790 — SPECIAL PROBLEMS
1-4 credits.

Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions

F&W ECOL 799 — PRACTICUM IN FORESTRY AND WILDLIFE ECOLOGY TEACHING
1-3 credits.

Instructional orientation to teaching at the higher education level in the agricultural and life sciences, direct teaching experience under faculty supervision, experience in testing and evaluation of students, and the analysis of teaching performance.

Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
F&W ECOL 840 — METAPOPULATIONS AND OTHER ADVANCED TOPICS
3 credits.
Explore the use of metapopulation models in ecology and conservation. The course will review population dynamics, present the concepts of metapopulations and the implications to wildlife management and conservation biology.
Requisites: A basic crse in population dynamics
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

F&W ECOL 875 — SPECIAL TOPICS
1-4 credits.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2018

F&W ECOL/BOTANY/ZOOLOGY 879 — ADVANCED LANDSCAPE ECOLOGY
3 credits.
Landscape ecology emphasizes spatial patterning—its development and importance for ecological processes—and often focuses on large regions. Concepts, methods, and applications of landscape ecology will be learned through lectures, readings, exercises in quantitative approaches, and an independent project.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

F&W ECOL 901 — COLLOQUIUM IN FORESTRY AND FOREST PRODUCTS
1 credit.
Lectures, seminars, and discussion on current topics in forest biology, forest management, forest products, and recreation.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2011

F&W ECOL/AGRONOMY/ATM OCN/BOTANY/ENTOM/ENVIR ST/GEOG/ZOOLOGY 953 — INTRODUCTION TO ECOLOGY RESEARCH AT UW-MADISON
1-2 credits.
This seminar course will introduce new graduate students to the diversity of ecologists across the UW-Madison campus. Course meetings will include discussions of key topics in professional development, research presentations by faculty members, and discussions of assigned papers with senior graduate students.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

F&W ECOL/DS/URB R PL 955 — PRACTICAL RESEARCH DESIGN AND METHODS OF EMPIRICAL INQUIRY
3 credits.
Provides a practical introduction to basic concepts of research question formulation, research designs and alternative methods of inquiry, implications for internal validity of the research and generalizability of the findings, operational definitions and measurement validity, reliability, utility and precision.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

F&W ECOL 961 — WILDLIFE SEMINAR
1 credit.
Monthly research reports and special topics.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions

F&W ECOL/ATM OCN/BOTANY/ENVIR ST/GEOG/GEOSCI/ZOOLOGY 980 — EARTH SYSTEM SCIENCE SEMINAR
1 credit.
Topics in earth system science. Emphasis on the coupling between atmospheric, oceanic and land surface systems, involving physical geochemical and biological processes, and including interactions with human systems.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2016

F&W ECOL 990 — RESEARCH AND THESIS
1-12 credits.
Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions

F&W ECOL 999 — ADVANCED INDEPENDENT STUDY
1-3 credits.
Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions