

WFSC WILDLIFE & FISHERIES SCI.

WFSC 602 Field Herpetology

Credit 1. 3 Lab Hours.

Field work involving collection and preservation of herpetological specimens; natural history, ecological relations.

Prerequisites: Graduate classification.

WFSC 603 History of Ecological Thought and Conservation Practice

Credits 3. 3 Lecture Hours.

Survey of the philosophical roots and evolution of ecological thought and conservation practice; emphasis on theoretical foundations, seminal concepts, classic papers, and historic trends.

Prerequisites: Course in general ecology and graduate classification or instructor approval.

WFSC 604 Ecological Modeling

Credits 3. 3 Lecture Hours.

Philosophical basis, theoretical framework, and practical application of systems analysis and simulation within the context of ecology and natural resource management; emphasis placed on development, evaluation and use of simulation models by students.

Prerequisite: Approval of instructor.

WFSC 605 Community Ecology

Credits 3. 3 Lecture Hours.

Overview and in-depth knowledge of community ecology; historical development; current issues, methodologies, and practical applications in natural resource management, biological conservation, agriculture, and human health; practice critical thinking, communication skills, and professionalism.

Prerequisite: Graduate classification.

WFSC 609 Wildlife Research Methods

Credits 3. 3 Lecture Hours.

Research methods for ecology and conservation; become familiar with the philosophy of natural science and develop skill in study design, grantsmanship, presentation techniques, critical evaluation of others' work, and publication in refereed journals.

Prerequisites: Courses in general ecology and statistics and graduate classification or approval of instructor.

WFSC 610 Evolutionary Ecology

Credits 3. 3 Lecture Hours.

Survey the development of paradigms in evolutionary ecology; incorporates phylogenies into comparative analysis and macroecology; evaluates the roles of historical and local processes in determining species diversity.

Prerequisite: Graduate classification.

WFSC 611 Estuarine Ecology

Credits 4. 3 Lecture Hours. 3 Lab Hours.

Principles governing the relationships of estuarine organisms to their environment; productivity, adaptations to environment, community structure and factors affecting the distribution and abundance of biota.

Prerequisite: Invertebrate zoology and ichthyology or approval of instructor.

WFSC 613 Animal Ecology

Credits 3. 2 Lecture Hours. 3 Lab Hours.

Concepts of animal ecology which emerge at various levels or organization; the ecosystem, the community, the population and the individual; laboratories emphasis on the quantitative analysis of field data and the simulation of population dynamics.

Prerequisite: Graduate classification or approval of instructor.

WFSC 614 Down River: Biology of Gulf Coastal Fishes

Credits 3. 2 Lecture Hours. 3 Lab Hours.

Understanding the biological complexity of Gulf Coast river systems while gaining hands-on experience in field and museum ichthyological techniques; sampling of the Guadalupe and San Antonio rivers; participation in lectures, museum preparation and archiving specimens at the Biodiversity Research and Teaching Collections (BRTC).

Prerequisite: Graduate classification.

WFSC 618 Wildlife Study Design and Analysis

Credits 3. 3 Lecture Hours.

Fundamental and advanced aspects of study design applicable to terrestrial animals; analysis and review of the scientific literature related to study design; and the development of study design for written and oral presentations.

Prerequisite: Graduate classification or approval of instructor.

WFSC 619 Wildlife Restoration

Credits 3. 2 Lecture Hours. 3 Lab Hours.

Study of the fundamentals of the restoration of animal populations and the resources they require; factors that control the distribution and abundances of animals in relation to restoration; and how restoration plans for wildlife are developed.

Prerequisite: Graduate classification or approval of instructor.

WFSC 620 Vertebrate Ethology

Credits 4. 3 Lecture Hours. 2 Lab Hours.

Mechanisms and control of vertebrate behavior in an ecological context, as shaped by natural selection; classical and current theories regarding the genetic basis, development, specialized sensory systems and organization of responses in changing environment; laboratory emphasizes observational skills and quantitative analysis of behavior occurring in natural settings.

WFSC 622 Behavioral Ecology

Credits 3. 3 Lecture Hours.

Integration of animal behavior with ecological and evolutionary principles; includes mating, predation, foraging ecology, social behavior, game theory and behavioral genetics; emphasis on quantification of behavior and strategy modeling.

Prerequisites: Undergraduate ecology course; graduate classification.

WFSC 623 Aquaculture

Credits 4. 3 Lecture Hours. 3 Lab Hours.

Principle of fish production for stock enhancement and human food. Species of fish used for production, cross-breeding and selection; feeds and feeding of fish and nutritional and environmental requirements for optimum productivity; effects of fish production on land and water uses as related to conservation.

Prerequisite: Graduate classification or approval of instructor.

WFSC 624 Dynamics of Populations

Credits 4. 3 Lecture Hours. 2 Lab Hours.

Principles, models and methods for analysis of population dynamics; analysis of contemporary research emphasizing theory and its uses in evaluation and management of animal populations. Laboratory emphasizes mathematical, statistical and computer modeling of population phenomena.

WFSC 627 Ecological Risk Assessment

Credits 3. 3 Lecture Hours.

Approaches used to identify, evaluate and manage ecological risks of chemicals on aquatic and terrestrial environments; emphasis on methods useful to assess effects of contaminants on ecosystems; testing techniques, site assessment and monitoring procedures, regulatory requirements and field and laboratory techniques. Only one of the following can be applied to the requirements for a degree: WFSC 627 and WFSC 639.

WFSC 628 Wetland Ecology and Pollution

Credits 3. 3 Lecture Hours.

Wetlands as ecological systems that are prime habitats for wildlife and fish; geomorphology, hydrology, limnology, plant and animal communities, and humans use and management; wetlands as ultimate reservoirs of environmental pollutants; distribution, fate and effects of environmental pollutants on aquatic and terrestrial wildlife.

Prerequisite: Graduate classification or approval of instructor.

WFSC 630 Ecology and Society

Credits 3. 3 Lecture Hours.

Study and compare human and natural ecosystems using diversity, interrelations, cycles, and energy as the conceptual organization; central themes of the course are sustainability, stewardship and science.

Prerequisite: Graduate classification or approval of instructor.

WFSC 632 Ethology

Credits 3. 3 Lecture Hours.

Survey of the control, ontogeny, function and natural selection of behavior in a variety of vertebrate and invertebrate species; interaction between the organism and its environment with regard to the mechanisms and adaptive significance of behavior; evolution of anti-predator, feeding, reproductive and cooperative traits.

Prerequisites: BIOL 112 or equivalent; graduate classification.

WFSC 633/GENE 633 Conservation Genetics

Credits 3. 3 Lecture Hours.

Genetic concepts and techniques relevant to management and conservation of biological diversity, research and conservation strategies within a conservation genetics framework.

Prerequisite: Introductory courses in genetics and ecology or biological conservation.

Cross Listing: GENE 633/WFSC 633.

WFSC 635 Urban Wildlife and Fisheries

Credits 3. 3 Lecture Hours.

Urban wildlife and fisheries trains students to establish and maintain diverse, self-sustaining urban wildlife and fish populations at levels in harmony with ecological, social, and economic values of the human community and to develop optimal levels of public appreciation and use of urban wildlife and fish resources and associated habitats.

Prerequisite: Graduate classification or approval of instructor.

WFSC 636 Wildlife Habitat Management

Credits 3. 3 Lecture Hours.

Designed to acquaint with major land use practices on lands that produce wildlife, how these influences wildlife production and alterations or manipulations of habitat used to achieve specific wildlife management goals.

Prerequisite: Graduate classification or approval of instructor.

WFSC 638 Techniques of Wildlife Management

Credits 3. 2 Lecture Hours. 3 Lab Hours.

Techniques available to directly and indirectly manipulate wild animal populations to achieve balance between socioeconomic and aesthetic values.

Prerequisite: Graduate classification or approval of instructor.

WFSC 639 Wildlife Ecotoxicology

Credits 3. 3 Lecture Hours.

Distribution, fate, and effects of environmental pollutants on wildlife behavior and reproduction. Global distribution of pollutants and effects on near and remote ecosystems. Field studies, biomarkers, stable isotope and various techniques for evaluating pollutant hazards on wildlife. Only one of the following will satisfy the requirements for a degree: WFSC 627 and WFSC 639.

Prerequisites: Courses in CHEM and BICH and graduate classification or approval of instructor.

WFSC 640 Human Dimensions of Wildlife and Fisheries Management

Credits 3. 3 Lecture Hours.

Theory and applications for considering human dimensions in an integrated approach to wildlife and fisheries management; a social science perspective with emphasis to diversity of human values, role of constituency groups, wildlife and fisheries policy development, conflict management, management decision-making, research methods and management case studies.

WFSC 641 Sustainable Military Land Management

Credits 3. 3 Lecture Hours.

Overview of the Department of Defense (DOD) lands within a temporal, geographic, and environmental context and perspective; major policies/laws impacting military land use and areas critical to mission sustainment; management strategies important to sustaining installations and ranges.

Prerequisite: Graduate classification or approval of instructor.

WFSC 642 Field Military Land Management

Credit 1. 0 Lecture Hours. 2 Lab Hours.

Review of land management practices and challenges on military and adjacent private lands through field visits of select military installations. Field trips required. Previous or concurrent registration in WFSC 636 is strongly encouraged.

Prerequisite: Graduate classification or approval of instructor.

WFSC 644 Wildlife and Natural Resource Policy

Credits 3. 3 Lecture Hours.

Review formation and implementation of major natural resource laws and policies that impact land uses; overview of natural resource laws/policies followed by presentations of a selected case study; current natural resource management (including forestry, air, water, wildlife, climate change and energy) programs and institutions analyzed and related to current natural resource policy challenges.

WFSC 646 Quantitative Phylogenetics

Credits 3. 2 Lecture Hours. 1 Lab Hour.

Designed to provide the theory and tools required for inference of phylogenetic (evolutionary) relationships among biological taxa using various types of comparative data including morphological characters, biochemical and molecular characters, and DNA sequences; hands-on analysis of data using contemporary tools.

Prerequisites: ENTO 601 or approval of instructor.

Cross Listing: ENTO 606 and GENE 606.

WFSC 647/NFSC 651 Nutritional Biochemistry of Fishes**Credits 3. 3 Lecture Hours.**

Principles of nutritional biochemistry including nutrient metabolism and biochemical energetics with special emphasis on finfish and shell fish.

Prerequisite: BICH 410 or equivalent.**Cross Listing:** NFSC 651/WFSC 647.**WFSC 648/GENE 648 Molecular Evolution****Credits 3. 2 Lecture Hours. 1 Lab Hour.**

Theory and tools used in the analysis of molecular evolutionary patterns of DNA and protein sequences; format combines lecture presentations by instructor discussion of relevant scientific literature, computer exercises, preparation of research proposal or independent research project, and practice in peer-review process.

Prerequisite: Basic courses in general Genetics and Evolution.**Cross Listing:** GENE 648/WFSC 648.**WFSC 649 Principles of Fisheries Management****Credits 4. 3 Lecture Hours. 3 Lab Hours.**

Basic knowledge of ichthyology, biology of fishes and limnology related to applied aspects of freshwater and marine fishery science; management techniques applicable to streams, ponds, reservoirs, estuaries and the oceans.

Prerequisite: Graduate classification.**WFSC 654 Amazon Field School****Credits 4. 4 Lecture Hours.**

Investigation of social and ecological complexities of biodiversity conservation in tropical ecosystems; biological and social science approaches to evaluate causes, consequences and solutions to biodiversity loss through ecology, culture and governance.

Cross Listing: RPTS 654 and VTMI 604.**WFSC 655/RPTS 655 Applied Biodiversity Science I****Credits 3. 3 Lecture Hours.**

Applied Biodiversity Science. Students will study in the areas of Conservation genetics, metapopulations, landscape ecology, and ecosystem management.

Prerequisite(s): Graduate classification.**Cross Listing:** RPTS 655/WFSC 655.**WFSC 670 Excel Biometry****Credits 3. 3 Lecture Hours.**

Rational and mathematics behind upper level biometrical methods; construct spreadsheets and analyze a common data set; topics include multiple regressions, principle components analysis, multivariate analysis of variance and others.

Prerequisites: Graduate classification; STAT 651 or equivalent.**WFSC 681 Seminar****Credit 1. 1 Lecture Hour.**

Important current developments in wildlife or fisheries fields with special reference to literature. Students may register up to but no more than two sections of this course in the same semester.

WFSC 684 Professional Internship**Credits 1 to 16. 1 to 16 Other Hours.**

On-the-job training in fields of wildlife and fisheries sciences.

Prerequisite: Graduate classification in Wildlife and Fisheries Sciences.**WFSC 685 Directed Studies****Credits 1 to 6. 1 to 6 Other Hours.**

Individual study and research on selected problem approved by instructor and graduate advisor. Credit adjusted in accordance with requirements of each individual case.

Prerequisite: Approved proposal.**WFSC 689 Special Topics in...****Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours.**

Special topics in wildlife ecology, fisheries ecology, vertebrate systematics, evolutionary biology of vertebrates and conservation education. May be repeated for credit.

WFSC 691 Research**Credits 1 to 23. 1 to 23 Other Hours.**

Original research on selected wildlife and/or fisheries problem to be used in thesis or dissertation.