

# ALL COURSES

## FISHERIES WILDLIFE SCIENCE

### **FW 4XXX: FW TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for fisheries wildlife biology upper division elective.

### **FW 3XXX: FW TRANSFER ELECTIVE**

Credit transferred from another institution and articulated for fisheries wildlife biology upper division elective.

### **FW 1001: Orientation to Fisheries and Wildlife Science**

Offered: Fall

An introduction to professions in fisheries and wildlife science. Required of fisheries and wildlife students during their first fall term on the Tech campus.

### **FW 2003: Elements of Fish and Wildlife Management**

Offered: Fall

Principles of fish and wildlife management for the non-major, including fish and wildlife identification and the role of various natural resource organizations in conservation.

\$40 laboratory fee.

### **FW 2013: Natural Resources Communications**

Offered: Fall

Prerequisite: ENGL 1023 Composition II or alternate

An investigation and practice of effective communication techniques typically used in natural resources management. The focus of this course is to teach students to effectively communicate complex scientific messages to diverse audiences. Specific types of communication explored will include construction of figures, graphs and tables, power point presentations, abstracts and technical reports specific to the natural resources discipline.

### **FW 2833: Introduction to Geographic Information Systems**

Cross-listed: GEOG 2833 Introduction to Geographic Information Systems

An introductory course dealing with computer organized spatial and attribute data. GIS is a system of specialized computer programs with the capability to manipulate and analyze data for problem solving.

### **FW 3053: Fisheries and Wildlife Administration**

Offered: Fall

Prerequisites: Fisheries and Wildlife Science or Environmental Science majors or approval of instructor.

Administration of fish and wildlife agencies, including organizational designs and policies, planning, directing, budgeting, personnel management, and public relations. Special consideration will be given to public, scientific, and economic considerations in the decision making process.

### **FW 3074: Habitat Evaluation**

Introduction to aquatic and terrestrial habitat mensuration and evaluation for field biologists, with emphasis on the description and demonstration of evaluation procedures and software.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **FW 3084: Ichthyology**

Offered: Fall

Cross-listed: BIOL 3084 Ichthyology

Prerequisite: BIOL 2124 Principles of Zoology

Systematics, collection, identification, natural history, and importance of fishes.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **FW 3114: Principles of Ecology**

Cross-listed: BIOL 3114 Principles of Ecology

Prerequisites: BIOL 2124 Principles of Zoology, BIOL 2134 Principles of Botany, and one semester of chemistry.

Responses of organisms to environmental variables, bioenergetics, population dynamics, community interactions, ecosystem structure and function, and major bio geographical patterns.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **FW 3144: Ornithology**

Offered: Spring of even years

Cross-listed: BIOL 3144 Ornithology

Prerequisite: BIOL 2124 Principles of Zoology

An introduction to the biology of birds. The course covers aspects of anatomy, physiology, behavior, natural history, evolution, and conservation of birds. Laboratories address field identification and natural history of the birds of Arkansas.

Note: Students will be expected to participate in an extended 5-7day field trip.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **FW 3154: Mammalogy**

Offered: Fall

Cross-listed: BIOL 3154 Mammalogy

Prerequisite: BIOL 2124 Principles of Zoology

Taxonomy identification, ecology, and study natural history of the mammals.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **FW 3173: Biostatistics**

Offered: Fall

Prerequisite: one semester of statistics.

An analysis and interpretation of fisheries and wildlife data including descriptive statistics, hypothesis testing, analysis of variance, simple linear regression, correlation, goodness of fit, and contingency tables.

### **FW 3204: Aquaculture**

Offered: Spring

Prerequisite: BIOL 2124 Principles of Zoology or permission of instructor.

Course is designed to provide students with the essentials of successful warm water aquaculture including crayfish and alligators. Basics of cool and cold water aquaculture are also covered. Emphasis ranges from maintenance of brood stock and culture of fingerlings to production of market size fish.

Lecture three hours, laboratory two hours plus several full-day field trips that may involve weekend or overnight travel. \$40 laboratory fee.

### **FW 3224: Herpetology**

Offered: Spring of odd years

Cross-listed: BIOL 3224 Herpetology

Prerequisite: BIOL 2124 Principles of Zoology.

The phylogeny, classification, physiology, behavior, and distribution of reptiles and amphibians. The Laboratory will stress identification of the species found in Arkansas.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **FW 4001: Senior Seminar in Fisheries and Wildlife Biology**

Offered: Fall

Prerequisite: Senior fisheries and wildlife biology major or by consent of instructor.

Designed to integrate various aspects of fisheries and wildlife biology by covering current topics and to acquaint students with areas not covered elsewhere in the curriculum.

### **FW 4003: Principles of Wildlife Management**

Offered: Spring

Prerequisite: FW (BIOL) 3114 or permission of instructor.

Principles of managing wildlife resources with emphasis on the history of wildlife resources in the United States, population ecology, wildlife values, and the administration of wildlife resources and resources agencies.

### **FW 4013: Wildlife Techniques**

Offered: Spring

Prerequisite: FW (BIOL) 3114 or permission of instructor.

Instruction in current wildlife techniques including habitat evaluation and manipulation, estimation of wildlife abundance, capturing and marking, identification, aging, and scientific writing. Course is structured around a research project that requires use of popular wildlife techniques.

Lecture one hour, laboratory four hours. \$40 laboratory fee.

### **FW 4014: Forest Ecology and Management**

Offered: Fall of odd years

Prerequisite: FW (BIOL) 3114

An in-depth coverage of ecological interactions in forested ecosystems. Lectures cover biotic and abiotic factors that influence development and species compositions of forest stands. Wildlife habitat relationships in forested ecosystems will also be discussed. Laboratories will familiarize students with field techniques and management activities important in the major forest types of Arkansas.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **FW 4024: Limnology**

Offered: Spring

Cross-listed: BIOL 4024 Limnology

Prerequisite: FW (BIOL) 3114.

A study of physical and chemical processes in fresh water and their effects on organisms in lakes and streams. Laboratory sessions and field trips demonstrate limnological instrumentation and methodology.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **FW 4034: Advanced Geographic Information Systems Applications**

Offered: Spring

Prerequisite: An introductory course in GIS or permission of instructor.

Use of GIS technology in wildlife and fisheries management and research. Emphasis placed on creation, maintenance, and analysis of spatially explicit data.

Lecture three hours, laboratory two hours. \$40 laboratory fee.

### **FW 4043: Fisheries Techniques**

Offered: Fall

Prerequisites: FW (BIOL) 3114 and a computer science elective, or permission of instructor.

The techniques and practices of warm water fish management. Major emphasis will be placed on survey techniques, data collection, and data analysis techniques.

Lecture one hour, laboratory four hours. \$40 laboratory fee.

### **FW 4054: Waterfowl Ecology and Management**

Prerequisite: BIOL (FW) 3114.

Ecology and management of North American waterfowl and their habitats. Laboratory exercises will focus on identification, life histories, sex and age determination, and abundance survey methods. Lectures and discussions will cover behavioral ecology, reproductive ecology, winter ecology, harvest management, and habitat management and conservation.

Lecture two hours, laboratory four hours. \$40 laboratory fee.

### **FW 4064: Wetland Ecology and Management**

Offered: Fall of even years

Prerequisite: A course in ecology or permission of instructor

An in-depth coverage of wetlands including occurrence, morphology, hydrology, soils, ecology, and regulation. The types of wetlands and their functions are discussed, as are local, state and federal regulations pertaining to their use, management and protection. Laboratory focuses on identification of common wetland vegetation, delineation of wetland boundaries, as well as field techniques and management activities commonly used in Arkansas wetlands.

Lecture two hours, laboratory four hours. \$40 laboratory fee

### **FW 4083: Principles of Fisheries Management**

Offered: Spring

Prerequisites: FW (BIOL) 3114, one semester of statistics, and one semester of calculus, or permission of instructor.

The principles and theory of warm water fish management with major emphasis on the human dimension in fisheries management, fishery assessment, population dynamics, and common management practices.

### **FW 4103: Human Dimensions of Fisheries and Wildlife Management**

Offered: Fall

Prerequisite: BIOL (FW) 3114 or permission of instructor.

Exploration of the complex interactions of social, political, institutional, economic and ecological processes that contribute to natural resource use and management. The primary focus is on interactions and conflict resolution among various stakeholders, resource management agencies, and wildlife and fisheries resources. Topics covered include public attitudes and expectations; agency structure and policy; values of fishes, wildlife; and public relations.

### **FW 4112: Internship**

Prerequisite: Consent of program director.

A supervised, practical experience providing FW majors with a hands-on, professional experience related to their career interests. Approximately 200 clock hours, a proposal, a log book, and a written report are required.

Note: A maximum of four credit hours is allowed for FW internship.

### **FW 4114: Internship**

Prerequisite: Consent of program director.

A supervised, practical experience providing FW majors with a hands-on, professional experience related to their career interests. Approximately 400 clock hours, a proposal, a log book, and a written and oral report are required.

Note: A maximum of four credit hours is allowed for FW internship.

### **FW 4163: Biodiversity and Conservation Biology**

Offered: Fall

Cross-listed: BIOL 4163 Biodiversity and Conservation Biology

Prerequisite: a course in ecology or permission of instructor

The concepts of, processes that produce, and factors that threaten biological diversity are introduced and examined. Further emphasis is placed on unique problems associated with small population size, management of endangered species and practical applications of conservation biology.

**FW 4881: Advanced Topics**

Offered: On demand

Prerequisite: Consent of instructor. Open to junior and senior students only.

Offers special instruction on fisheries and wildlife topics that are not otherwise covered in the curriculum. The primary focus of the course will vary from offering to offering, thus the course may be taken more than once.

\$40 laboratory fee.

**FW 4882: Advanced Topics**

Offered: On demand

Prerequisite: Consent of instructor. Open to junior and senior students only.

Offers special instruction on fisheries and wildlife topics that are not otherwise covered in the curriculum. The primary focus of the course will vary from offering to offering, thus the course may be taken more than once.

\$40 laboratory fee.

**FW 4883: Advanced Topics**

Offered: On demand

Prerequisite: Consent of instructor. Open to junior and senior students only.

Offers special instruction on fisheries and wildlife topics that are not otherwise covered in the curriculum. The primary focus of the course will vary from offering to offering, thus the course may be taken more than once.

\$40 laboratory fee.

**FW 4884: Advanced Topics**

Offered: On demand

Prerequisite: Consent of instructor. Open to junior and senior students only.

Offers special instruction on fisheries and wildlife topics that are not otherwise covered in the curriculum. The primary focus of the course will vary from offering to offering, thus the course may be taken more than once.

\$40 laboratory fee.

**FW 4951: Undergraduate Research in Fisheries and Wildlife**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

**FW 4952: Undergraduate Research in Fisheries and Wildlife**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

**FW 4953: Undergraduate Research in Fisheries and Wildlife**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.

**FW 4954: Undergraduate Research in Fisheries and Wildlife**

Offered: On demand

Prerequisite: Departmental approval

Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

\$40 laboratory fee.