

# Zoology (ZOO)

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**ZOO 126. Human Biology. 3 Credits.**

Consideration of selected problems in human biology. Cross-listed with BIOL 126. Does not count toward major or minor.

**ZOO 126L. Human Biology Laboratory. 1 Credit.**

See Biological Sciences (Biology) for description. Does not count toward major or minor.

**ZOO 194. Individual Study. 1-5 Credits.****ZOO 196. Field Experience. 1-15 Credits.****ZOO 199. Special Topics. 1-5 Credits.****ZOO 280. Comparative Chordate Morphology. 4 Credits.**

Introduction to the systematics, history, and structure of chordates, especially the vertebrates. Prereq: BIOL 151, BIOL 151L. S.

**ZOO 291. Seminar. 1-5 Credits.****ZOO 292. Study Abroad. 1-15 Credits.****ZOO 294. Individual Study. 1-5 Credits.****ZOO 299. Special Topics. 1-5 Credits.****ZOO 315. Genetics. 3 Credits.**

Study of the basis of heredity with emphasis on structure and function of DNA and Mendelian genetics. 3 lectures. Cross-listed with BIOL 315, BOT 315, and PLSC 315. F, S.

**ZOO 315L. Genetics Laboratory. 1 Credit.**

Study of the basis of heredity with emphasis on structure and function of DNA and Mendelian genetics. 1 two-hour laboratory. Cross-listed with BIOL 315L, BOT 315L, and PLSC 315L. F, S.

**ZOO 360. Animal Behavior. 3 Credits.**

Description of the principal behavior patterns of animals with consideration of ecological, evolutionary, and internal mechanisms. Prereq: BIOL 151, BIOL 151L. Cross-listed with PSYC 360. S (even years).

**ZOO 364. General Ecology. 3 Credits.**

Ecological principles associated with organism environment interactions, populations, communities, and ecosystems. Quantitative approach with examples (animal, plant, microbial) included. Prereq: BIOL 150 or BIOL 151. Cross-listed with BIOL 364.

**ZOO 370. Cell Biology. 3 Credits.**

Structure and function of cells, including cell surfaces, membranes, organelles, cytoskeleton, cell division, cell physiology, and methods used in cell studies. Prereq: BIOL 150, BIOL 150L.

**ZOO 379. Study Tour Abroad. 1-6 Credits.****ZOO 380. Vertebrate Histology. 3 Credits.**

Study of the microscopic anatomy of vertebrate tissues and organs, especially mammals. Prereq: BIOL 150, BIOL 150L. S (odd years).

**ZOO 391. Seminar. 1-3 Credits.****ZOO 392. Study Abroad. 1-15 Credits.****ZOO 394. Individual Study. 1-5 Credits.****ZOO 397. Fe/Coop Ed/Internship. 1-4 Credits.****ZOO 399. Special Topics. 1-5 Credits.****ZOO 431. Intermediate Genetics. 3 Credits.**

Expansion of classical and molecular concepts of genetics; basic concepts of Mendelian, quantitative, population, molecular, and evolutionary genetics. 2 lectures. Prereq: PLSC 315. Cross-listed with BOT 431 and PLSC 431. F {Also offered for graduate credit - see ZOO 631.}.

**ZOO 450. Invertebrate Zoology. 4 Credits.**

Survey of the biology, classification, and evolution of invertebrates. Emphasis on major phyla, marine, and parasitic taxa. Prereq: BIOL 151, BIOL 151L. S {Also offered for graduate credit - see ZOO 650.}.

**ZOO 452. Ichthyology. 3 Credits.**

Biology and taxonomy of fishes. Prereq: BIOL 151, 151L. F (even years) {Also offered for graduate credit - see ZOO 652.}.

**ZOO 454. Herpetology. 3 Credits.**

Primarily a field and laboratory course focusing on amphibians and reptiles. Students must make a commitment to participate in at least one of two 4-day field trips plus an independent review project. Prereq: BIOL 151, BIOL 151L. F/2 (odd years) {Also offered for graduate credit - see ZOO 654.}.

**ZOO 456. Ornithology. 3 Credits.**

Introduction to the biology, classification, and identification of birds, especially local forms. Early morning field trips required. Prereq: BIOL 151, BIOL 151L. F {Also offered for graduate credit - see ZOO 656.}.

**ZOO 458. Mammalogy. 3 Credits.**

Biology and taxonomy of mammals. Prereq: BIOL 151, BIOL 151L. F {Also offered for graduate credit - see ZOO 658.}.

**ZOO 460. Animal Physiology. 3 Credits.**

Study of the physical and chemical principles that govern cell, tissue, organ, organ system, and organismal function. Prereq: BIOL 150, BIOL 151, CHEM 121, CHEM 122. {Also offered for graduate credit - see ZOO 660.}.

**ZOO 462. Physiological Ecology. 3 Credits.**

Study of the physiological mechanisms underlying life-history trade-offs and constraints in an ecological and evolutionary context. Prereq: BIOL 151, BIOL 151L. S {Also offered for graduate credit - see ZOO 662.}.

**ZOO 463. Physiology of Reproduction. 3 Credits.**

Comparative anatomy, physiology, and endocrinology of reproduction in mammals. Cross-listed with ANSC 463. {Also offered for graduate credit - see ZOO 663.}.

**ZOO 463L. Physiology of Reproduction Laboratory. 1 Credit.**

Anatomy, physiology and demonstration and utilization of techniques in large animal reproductive management. Cross-listed with ANSC 463L. Prereq: ANSC 463. {Also offered for graduate credit - see ZOO 663L.}.

**ZOO 464. Endocrinology. 3 Credits.**

Physiology and anatomy of endocrine glands; chemistry and interrelations of their secretions. Prereq: BIOL 151, BIOL 151L. F/2 (odd years) {Also offered for graduate credit - see ZOO 664.}.

**ZOO 465. Hormones and Behavior. 3 Credits.**

Study of the organizational and activational role endocrine systems play in regulating animal behaviors. These studies will be explored within an ecological and evolutionary framework. Prereq: BIOL 150 and BIOL 151. {Also offered for graduate credit - see ZOO 665.}.

**ZOO 470. Limnology. 4 Credits.**

Biological, physical, and chemical features of freshwater ecosystems. Prereq: BIOL 151, BIOL 151L, BIOL 364, one year chemistry. F/2 (odd years) {Also offered for graduate credit - see ZOO 670.}.

**ZOO 475. Conservation Biology. 3 Credits.**

Integrative approach to the study and conservation of biodiversity. Application of principles from various sub-disciplines of the biological and social sciences to current conservation problems. Prereq: ZOO 315, ZOO 315L. F {Also offered for graduate credit - see ZOO 675.}.

**ZOO 476. Wildlife Ecology and Management. 3 Credits.**

Application of ecological principles to management of game and non-game wildlife populations. Prereq: BIOL 364. S {Also offered for graduate credit - see ZOO 676.}.

**ZOO 477. Wildlife and Fisheries Management Techniques. 3 Credits.**

Students will learn techniques used in the study and management of fish and wildlife populations. Students will design an independent field research project to be executed during a field trip (typically 2-4 days in length). {Also offered for graduate credit - see ZOO 677.}.

**ZOO 482. Developmental Biology. 3 Credits.**

Analysis of the processes of development, with an emphasis on animal development. Topics range from classical embryology to the cellular and molecular basis of development. Prereq: BIOL 150, BIOL 150L, BIOL 151, BIOL 151L. F/2 (even years) {Also offered for graduate credit - see ZOO 682.}.

**ZOO 491. Seminar. 1-5 Credits.****ZOO 492. Study Abroad. 1-15 Credits.****ZOO 494. Individual Study. 1-5 Credits.****ZOO 496. Field Experience. 1-15 Credits.****ZOO 499. Special Topics. 1-5 Credits.****ZOO 631. Intermediate Genetics. 3 Credits.**

Expansion of classical and molecular concepts of genetics; basic concepts of Mendelian, quantitative, population, molecular, and evolutionary genetics. 2 lectures. Cross-listed with BOT 631 and PLSC 631. F {Also offered for undergraduate credit - see ZOO 431.}.

**ZOO 650. Invertebrate Zoology. 4 Credits.**

Survey of the biology, classification, and evolution of invertebrates. Emphasis on major phyla, marine, and parasitic taxa. S {Also offered for undergraduate credit - see ZOO 450.}.

**ZOO 652. Ichthyology. 3 Credits.**

Biology and taxonomy of fishes. (even years) {Also offered for undergraduate credit - see ZOO 452.}.

**ZOO 654. Herpetology. 3 Credits.**

Primarily a field and laboratory course focusing on amphibians and reptiles. Students must make a commitment to participate in at least one of two 4-day field trips plus an independent review project. F/2 (odd years) {Also offered for undergraduate credit - see ZOO 454.}.

**ZOO 656. Ornithology. 3 Credits.**

Introduction to the biology, classification, and identification of birds, especially local forms. Early morning field trips required. F {Also offered for undergraduate credit - see ZOO 456.}.

**ZOO 658. Mammalogy. 3 Credits.**

Biology and taxonomy of mammals. F {Also offered for undergraduate credit - see ZOO 458.}.

**ZOO 660. Animal Physiology. 3 Credits.**

Study of the physical and chemical principles that govern cell, tissue, organ, organ system, and organismal function. {Also offered for undergraduate credit - see ZOO 460.}.

**ZOO 662. Physiological Ecology. 3 Credits.**

Study of the physiological mechanisms underlying life-history trade-offs and constraints in an ecological and evolutionary context. S {Also offered for undergraduate credit - see ZOO 462.}.

**ZOO 663. Physiology of Reproduction. 3 Credits.**

Comparative anatomy, physiology, and endocrinology of reproduction in mammals. Cross-listed with ANSC 663. {Also offered for undergraduate credit - see ZOO 463.}.

**ZOO 663L. Physiology of Reproduction Laboratory. 1 Credit.**

Anatomy, physiology and demonstration and utilization of techniques in large animal reproductive management. Cross-listed with ANSC 663L. {Also offered for undergraduate credit - see ZOO 463L.}.

**ZOO 664. Endocrinology. 3 Credits.**

Physiology and anatomy of endocrine glands; chemistry and interrelations of their secretions. F/2 (odd years) {Also offered for undergraduate credit - see ZOO 464.}.

**ZOO 665. Hormones and Behavior. 3 Credits.**

Study of the organizational and activational role endocrine systems play in regulating animal behaviors. These studies will be explored within an ecological and evolutionary framework. {Also offered for undergraduate credit - see ZOO 465.}.

**ZOO 670. Limnology. 4 Credits.**

Biological, physical, and chemical features of freshwater ecosystems. F/2 (odd years) {Also offered for undergraduate credit - see ZOO 470.}.

**ZOO 675. Conservation Biology. 3 Credits.**

Integrative approach to the study and conservation of biodiversity. Application of principles from various sub-disciplines of the biological and social sciences to current conservation problems. F {Also offered for undergraduate credit - see ZOO 475.}.

**ZOO 676. Wildlife Ecology and Management. 3 Credits.**

Application of ecological principles to management of game and non-game wildlife populations. S {Also offered for undergraduate credit - see ZOO 476.}.

**ZOO 677. Wildlife and Fisheries Management Techniques. 3 Credits.**

Students will learn techniques used in the study and management of fish and wildlife populations. Students will design an independent field research project to be executed during a field trip (typically 2-4 days in length). {Also offered for undergraduate credit - see ZOO 477.}.

**ZOO 682. Developmental Biology. 3 Credits.**

Analysis of the processes of development, with an emphasis on animal development. Topics range from classical embryology to the cellular and molecular basis of development. F/2 (even years) {Also offered for undergraduate credit - see ZOO 482.}.

**ZOO 690. Graduate Seminar. 1-3 Credits.****ZOO 695. Field Experience. 1-15 Credits.****ZOO 696. Special Topics. 1-5 Credits.****ZOO 790. Graduate Seminar. 1-3 Credits.****ZOO 791. Temporary/Trial Topics. 1-5 Credits.****ZOO 792. Specialized Studies for K-12 Teachers. 1-5 Credits.**

Study of contemporary issues relevant to the K-12 education environment. Graded "S" or "U" and non-didactic by default. Letter grading may be requested. Contact the Graduate School to request didactic credit.

**ZOO 793. Indiv Study/Tutorial. 1-5 Credits.****ZOO 795. Field Experience. 1-15 Credits.**

**ZOO 796. Special Topics. 1-5 Credits.**

**ZOO 797. Master's Paper. 1-3 Credits.**

**ZOO 798. Master's Thesis. 1-10 Credits.**

**ZOO 820. Advanced Cell Biology. 3 Credits.**

Study of molecular biology of plant and animal cells including molecules, molecular organization, growth and development, nuclear function, cell cycle, and cellular communication. Prereq: BIOC 702. Cross-listed with BOT 820.

**ZOO 850. Advanced Conservation Biology. 3 Credits.**

This class will cover recent developments in the field of conservation biology, with a specific focus on recent literature. Areas of focus will include Evolutionary Conservation and Conservation Genetics.

**ZOO 860. Evolutionary Ecology. 3 Credits.**

Lecture-discussion course on recent developments in evolutionary theory and their implications in the study of animal adaptation, ecology, and behavior. S/2 (odd years).

**ZOO 866. Advanced Animal Behavior. 3 Credits.**

This course investigates current concepts and research areas in animal behavior, with a focus on topics that lie at the interface between animal behavior, ecology and evolution. Cross-listed with BIOL 766.

**ZOO 870. Aquatic Community Ecology. 4 Credits.**

Nature and ecological roles of the freshwater biota. Discussion of contemporary issues in aquatic ecology. F/2 (even years).

**ZOO 895. Field Experience. 1-15 Credits.**

**ZOO 899. Doctoral Dissertation. 1-15 Credits.**