

Zooology (ZOOL)

ZOOL 1090 **BB**
Introduction to Human Anatomy and Physiology
3:3:0 **Fall, Spring, Summer**
 * Prerequisite(s): BIOL 1010 or BIOL 1610

Presents a basic introduction to the sciences of anatomy and physiology. Covers the basic structure and function of the human body at the cellular, tissue, organ, and system levels. Provides a foundation of particular value for pre-nursing students who wish to have a preview of their required life science courses.

ZOOL 2320 **BB**
Human Anatomy
3:3:0 **Fall, Spring, Summer**
 * Prerequisite(s): (BIOL 1010 or BIOL 1610) and ENGL 1010 with a minimum of C- or written permission of the Anatomy program coordinator
 * Corequisite(s): ZOOL 2325

Studies, in-depth, the anatomy of the human body. Covers the structure and some functions at the cellular, tissue, organ, and system levels. Emphasizes the names, locations, and functions of body components. Involves problem solving and analytical thinking. Includes weekly laboratory study of human cadavers, models, and specimens.

ZOOL 2325
Human Anatomy Laboratory
1:0:3 **Fall, Spring, Summer**
 * Corequisite(s): ZOOL 2320

Studies, in-depth, the anatomy of the human body. Covers the structure and some functions at the cellular, tissue, organ, and system levels. Emphasizes the names, locations, and functions of body components. Involves problem solving and analytical thinking. Includes weekly laboratory study of human cadavers, models, and specimens. Course Lab fee of \$30 applies.

ZOOL 232H **BB**
Human Anatomy
3:3:0 **Fall, Spring**
 * Prerequisite(s): BIOL 1010 or BIOL 1610; ENGL 1010 or written permission of the Anatomy program coordinator; a minimum of a C- required in prerequisite courses.
 * Corequisite(s): ZOOL 232L laboratory section; at least one semester of college level experience is highly recommended.

For students who intend to pursue careers in the bio-medical sciences; especially pre-nursing, pre-med, pre-dent, and pre-vet students. Emphasizes the role and value of anatomical knowledge in health and disease. Covers the same general material as ZOOL 2320, but emphasizes clinical applications of the information. Students will choose and complete a course project that may involve short written reports, a term paper, or a poster presentation. Includes weekly laboratory study of human cadavers, models, and specimens.

ZOOL 232L
Human Anatomy Honors Laboratory
1:0:3 **Fall, Spring**
 * Prerequisite(s): BIOL 1010 or BIOL 1610.
 ENGL 1010 or written permission of the Anatomy program coordinator.
 * Corequisite(s): ZOOL 232H

For students who intend to pursue careers in the bio-medical sciences; especially pre-nursing, pre-med, pre-dent, and pre-vet students. Emphasizes the role and value of anatomical knowledge in health and disease. Covers the same general material as ZOOL 2320, but emphasizes clinical applications of the information. Students will choose and complete a course project that may involve short written reports, a term paper, or a poster presentation. Includes weekly laboratory study of human cadavers, models, and specimens. Course Lab fee of \$30 applies.

ZOOL 2420
Human Physiology
3:3:0 **Fall, Spring, Summer**
 * Prerequisite(s): (BIOL 1010 or BIOL 1610) with a minimum grade of C-) and CHEM 1110 with a minimum grade of C-
 * Corequisite(s): ZOOL 2425

Studies the functions of the human body at the chemical, cellular, organ, and system levels. Explains control mechanisms involved in homeostasis and stimulus/response pathways. Involves problem solving and analytical thinking. Includes weekly laboratory.

ZOOL 2425
Human Physiology Laboratory
1:0:3 **Fall, Spring, Summer**
 * Prerequisite(s): (BIOL 1010 or BIOL 1610) and CHEM 1110
 * Corequisite(s): ZOOL 2420

Studies the functions of the human body at the chemical, cellular, organ, and system levels. Explains control mechanisms involved in homeostasis and stimulus/response pathways. Involves problem solving and analytical thinking. Includes weekly laboratory. Course Lab fee of \$24 applies.

ZOOL 242H
Human Physiology
3:3:0 **On Sufficient Demand**
 * Prerequisite(s): BIOL 1010 (or BIOL 1610) with a minimum grade of C- and CHEM 1110 with a minimum grade of C-, written permission of the physiology program coordinator
 * Corequisite(s): ZOOL 242L

Studies the functions of the human body at the chemical, cellular, organ, and system levels. Explains control mechanisms involved in homeostasis and stimulus/response pathways. Involves problem solving and analytical thinking. Includes weekly laboratory. Requires a term paper, project, or presentation.

ZOOL 242L
Human Physiology Honors Laboratory
1:0:3 **On Sufficient Demand**
 * Prerequisite(s): BIOL 1010 (or BIOL 1610), CHEM 1110, written permission of the physiology program coordinator.
 * Corequisite(s): ZOOL 242H

Studies the functions of the human body at the chemical, cellular, organ, and system levels. Explains control mechanisms involved in homeostasis and stimulus/response pathways. Involves problem solving and analytical thinking. Includes weekly laboratory. Course Lab fee of \$24 applies.

ZOOL 3100
Vertebrate Zoology
3:3:0 **Spring, Summer**
 * Prerequisite(s): (BIOL 1010 or BIOL 1620) with a C- or higher and University Advanced Standing
 * Corequisite(s): ZOOL 3105

Designed for intended Biology or Zoology majors who desire a broad introduction to the vertebrates and a greater understanding of their unique structure, distribution and the importance of these organisms in the present and past history of the Earth. Covers the evolutionary development of the vertebrates pertaining to major skeletal and physiological adaptations. The approach is also ecological as to vertebrate habitat requirements, their distribution, and community roles. Includes weekly laboratory.

ZOOL 3105
Vertebrate Zoology Laboratory
1:0:2 **Spring, Summer**
 * Prerequisite(s): University Advanced Standing
 * Corequisite(s): ZOOL 3100

Laboratory portion of the course, which provides students with hands-on experience with vertebrates. Course Lab fee of \$26 applies.

ZOOL 3200
Invertebrate Zoology
3:3:0 **Fall**
 * Prerequisite(s): BIOL 1620 with a C- or higher and University Advanced Standing
 * Corequisite(s): ZOOL 3205 Invertebrate Zoology Laboratory

Intended for Biology Department majors. Covers the anatomy, physiology, systematics, evolution and ecology of invertebrate animals.

ZOOL 3205
Invertebrate Zoology Laboratory
1:0:2 **Fall**
 * Prerequisite(s): BIOL 1620 with a C- or higher and University Advanced Standing
 * Corequisite(s): ZOOL 3200 Invertebrate Zoology

Intended for Biology Department majors. Covers the anatomy, physiology, systematics, evolution and ecology of invertebrate animals. Course Lab fee of \$25 applies.

Zoology

ZOOL 3300

Herpetology

3:3:0 **On Sufficient Demand**

* Prerequisite(s): BIOL 1620 with minimum grade of C-, and University Advanced Standing

* Corequisite(s): ZOOL 3305 Herpetology Laboratory

Covers the evolution, ecology, and diversity of reptiles and amphibians. Includes active class discussions, oral presentations. Emphasizes native Utah herpetofauna. Must be taken concurrently with weekly laboratory and required field trips.

ZOOL 3305

Herpetology Laboratory

1:0:2 **On Sufficient Demand**

* Prerequisite(s): BIOL 1620 with minimum grade of C-, and University Advanced Standing

* Corequisite(s): ZOOL 3300 Herpetology

Covers the evolution, ecology, and diversity of reptiles and amphibians. Includes active class discussions, oral presentations, and field trips. Emphasizes native Utah herpetofauna. Must be taken concurrently with lecture. Course Lab fee of \$40 for transportation, support, and lab applies.

ZOOL 3430

Entomology

3:3:0 **On Sufficient Demand**

* Prerequisite(s): BIOL 1620 and BIOL 1625 with a minimum grade of C- in each, and University Advanced Standing

* Corequisite(s): ZOOL 3435

An introduction to the study of insects, including insect diversity and classification, anatomy and physiology, relationships to other animals and plants, behavior, and ecology. Also includes the application of the study of insects to pest management, environmental assessment, and forensic investigations.

ZOOL 3435

Entomology Laboratory

1:0:2 **On Sufficient Demand**

* Prerequisite(s): University Advanced Standing

* Corequisite(s): ZOOL 3430

Laboratory to accompany ZOOL 3430. Will examine collection, preservation, and identification of insects. An individual reference collection is required of each student.

ZOOL 3500

Mammalogy

3:3:0 **Fall**

* Prerequisite(s): BIOL 1620 with a minimum grade of C-, and University Advanced Standing; ZOOL 3100 and ZOOL 3105 strongly recommended

* Corequisite(s): ZOOL 3505

Explores the taxonomy, morphology, behavior, ecology, evolution, development, and conservation of mammals. Includes three weekly lectures and a weekly laboratory.

ZOOL 3505

Mammalogy Laboratory

1:0:2 **Fall**

* Prerequisite(s): University Advanced Standing

* Corequisite(s): ZOOL 3500

Explores the taxonomy, morphology, behavior, ecology, evolution, development, and conservation of mammals. Includes three weekly lectures and a weekly laboratory. Course Lab fee of \$56 for transportation, lab applies.

ZOOL 3700 (Cross-listed with: EXSC 3700, PES 3700)

Exercise Physiology

3:3:0 **Fall, Spring, Summer**

* Prerequisite(s): EXSC Majors: ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), and EXSC 270G all with a C- or higher and MATH 1050. PETE Majors: PETE 2700 and ZOOL 1090 with a C- or higher and (MATH 1050 or MATH 1055). All: University Advanced Standing

* Prerequisite(s) or Corequisite(s): ZOOL 2420 (or 242H), ZOOL 2425 (or 242L)

Studies acute and chronic physiological responses to exercise, as well as nutritional and environmental effects on these responses. Requires separate weekly laboratory.

ZOOL 3705 (Cross-listed with: EXSC 3705)

Exercise Physiology Laboratory

1:0:3 **Fall, Spring, Summer**

* Prerequisite(s): University Advanced Standing

* Corequisite(s): ZOOL 3700

Studies acute and chronic physiological responses to exercise, as well as nutritional and environmental effects on these responses. Provides a hands-on approach where students will experience the physiological responses to different stressors in the lab setting. Covers similar material being discussed simultaneously in class. Course Lab fee of \$28 for materials applies.

ZOOL 4000

Animal Behavior

3:3:0 **Spring**

* Prerequisite(s): BIOL 1620 and University Advanced Standing

Examines the biological basis of animal behavior with emphasis on the underlying mechanisms and evolutionary causes of behavior. Covers first the proximate causes of behavior and then the ultimate or evolutionary causes of behavior. Specific topics include the genetic basis of behavior, perceptual and effectual systems, ethology, neurophysiology, learning, animal communication, sexual behavior, and social systems.

ZOOL 4100

Parasitology

4:3:2 **On Sufficient Demand**

* Prerequisite(s): (BIOL 1620 or MICR 2060 or BIOL 1010) with a C- or higher and University Advanced Standing

Introduces the study of parasites. Emphasizes the biology of principal groups of parasites affecting humans and livestock, including their medical and economic significance. Laboratory experience. Involves identification of parasites. Includes weekly laboratory.

ZOOL 4300

Histology

4:3:2 **Spring**

* Prerequisite(s): [(ZOOL 2320 or ZOOL 232H) with a C- or higher or written instructor approval] and University Advanced Standing

For pre-professional students pursuing biomedical careers and Biology majors with a particular interest in vertebrate structure and function. Studies the microscopic structure of the body at the cellular, tissue, and organ levels. Emphasizes physical and functional relationships of various tissues in the organs of the body. Includes weekly laboratory. Course Lab fee of \$35 applies.

ZOOL 4400

Pathophysiology

4:4:0 **Fall, Spring**

* Prerequisite(s): ZOOL 2320, ZOOL 2420, and MICR 2060 each with a minimum grade C-, and University Advanced Standing

For Biology majors with an emphasis in human physiology, pre-professional majors, and nursing students. Studies pathophysiological etiologies and mechanisms that cause disease and examines physiological adaptations and dysfunction of organs and organ systems in a disease state.

ZOOL 4500

Comparative Vertebrate Zoology

3:3:0 **On Sufficient Demand**

* Prerequisite(s): ZOOL 3100 and (ZOOL 1090 or ZOOL 2320), with a grade of C- or higher, and University Advanced Standing

* Corequisite(s): ZOOL 4505 Comparative Vertebrate Zoology Laboratory

Studies the structure and function of vertebrates at the cellular, tissue, organ and systems levels. Emphasizes developmental and evolutionary comparative aspects of mammalian, avian, reptilian, amphibian, and piscine organs and systems.

ZOOL 4505**Comparative Vertebrate Zoology****Laboratory****1:0:3** **On Sufficient Demand**

* Prerequisite(s): ZOOL 3100 and (ZOOL 1090 or ZOOL 2320), with a grade of C- or higher, and University Advanced Standing

* Corequisite(s): ZOOL 4500 Comparative Vertebrate Zoology

Studies the structure and function of vertebrates at the cellular, tissue, organ and systems levels. Emphasizes developmental and evolutionary comparative aspects of mammalian, avian, reptilian, amphibian, and piscine organs and systems. Course Lab fee of \$24 applies.

ZOOL 4600**Ornithology****4:3:2** **On Sufficient Demand**

* Prerequisite(s): BIOL 1620 and University Advanced Standing; ZOOL 3100 and ZOOL 3105 highly recommended

Provides an in-depth study of avian evolution, systematics, developmental anatomy (wings, beaks, feathers), physiology, and social and reproductive behavior. Emphasizes an evolutionary and adaptive theme to the study of birds. Includes lectures, laboratories and field trips. Course Lab fee of \$41 for transportation, lab applies.

ZOOL 4700**Advanced Anatomy****4:3:3** **Fall, Spring**

* Prerequisite(s): ZOOL 2320 with a minimum grade of C- and University Advanced Standing

For students interested in biomedical science careers or with a special interest in anatomy. Covers principles and techniques of anatomical investigation and specimen preparation. Provides supervised experience in human cadaver dissection, anatomic interpretation of radiographs, craniometrics, and palpation of the body. A regional dissection approach will be used in the lab. Requires problem solving and analytical thinking. Includes the theory and basic principles of various forms of diagnostic imaging, light and electron microscopy, skeletal preparation, and injection/maceration techniques. Includes weekly laboratory. Course Lab fee of \$13 applies.

ZOOL 4750**Human Physiology A Cell Biology****Approach****4:3:3** **On Sufficient Demand**

* Prerequisite(s): BIOL 3400 and University Advanced Standing

Addresses physiological principles and functions of the human body systems at the molecular level. Emphasizes cell signal transduction involved in the body maintaining homeostasis. Gives special attention to nervous, muscular, cardiovascular, urinary and respiratory systems. Students will be required to use problem solving and analytical thinking skills to be successful in the class. Includes weekly laboratory. Course Lab fee of \$25 applies.

ZOOL 4780**Neuroscience****4:4:0****Fall**

* Prerequisite(s): ZOOL 2420 with a C- or higher and University Advanced Standing

Focuses on neurobiology and neuroscience, covering aspects of molecular and cell biology, physiology, pharmacology, anatomy and the interplay of these and other disciplines in our understanding of the structure and function of the nervous system. Topics to be covered include neuroanatomy and developmental neurobiology, electrophysiology and membrane specializations related to signal propagation and signal transmission, neurotransmitter function and neuropharmacology, structure and function of simple neuronal circuits and complex neural networks and the plasticity of the nervous system, among others. Incorporates discussion of journal articles related to the latest advances in neuroscience. Requires students write a paper on a neuroscience topic of interest to them.