

BIOL 1413
General Zoology

Western Texas College

- I. Basic Course Information
 - A. Lecture Course Description: Fundamental biological concepts relevant to animals will be studied, including systematics, evolution, structure and function, cellular and molecular metabolism, reproduction, development, diversity, phylogeny, and ecology. This course is intended for science majors.
 - B. Lab Course Description: Laboratory activities will reinforce fundamental biological concepts relevant to animals, including systematics, evolution, structure and function, cellular and molecular metabolism, reproduction, development, diversity, phylogeny, and ecology.
 - C. Required Prerequisite: MATH 1314 or its equivalent.
- II. Student Learning Outcomes
 - A. Compare and contrast the structures, reproduction, and characteristics of animals.
 - B. Describe the characteristics of life and the basic properties of substances needed for life.
 - C. Identify the principles of inheritance and solve classical genetic problems.
 - D. Describe phylogenetic relationships and classification schemes.
 - E. Identify the major phyla of life with an emphasis on animals, including the basis for classification, structural and physiological adaptations, evolutionary history, and ecological significance.
 - F. Identify the chemical structures, synthesis, and regulation of nucleic acids and proteins.
 - G. Identify the substrates, products, and important chemical pathways in respiration.
 - H. Describe the unity and diversity of animals and the evidence for evolution through natural selection.
 - I. Describe the reasoning processes applied to scientific investigations and thinking.
 - J. Describe basic animal physiology and homeostasis as maintained by organ systems.
 - K. Describe modern evolutionary synthesis, natural selection, population genetics, micro and macroevolution, and speciation.
 - L. Describe the structure of cell membranes and the movement of molecules across a membrane.
 - M. Apply scientific reasoning to investigate questions and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
 - N. Use critical thinking and scientific problem solving to make informed decisions in the laboratory.

- O. Communicate effectively the results of scientific investigations.
- III. Testing Requirements
 - A. On-campus: All exams are given during scheduled lecture time
 - B. Online: Standard exams and the final exam must be proctored by an approved testing organization. (Ask your instructor for more details.)
 - C. No outside materials are allowed during standard exams or the final
 - D. All standard exams and the final are timed
- IV. Course Requirements
 - A. 11 multiple-choice quizzes
 - B. 4 long-form responses to prompts based on current science articles
 - C. 14 total lab assignments
 - D. 3 non-cumulative multiple-choice lecture standard exams
 - E. 1 cumulative multiple-choice final exam
- V. Information on Books and Other Course Materials
 - A. Required Book: Integrated Principles of Zoology, 17rd Edition by Hickman, et al.
ISBN – 978-1-259-56231-0
 - B. Lab materials are provided
- VI. Grading Breakdown

Types of Assignments	Proctored	Not Proctored
In-Class Assignments	10%	
Chapter Quizzes		10%
Article Questions		10%
Lab	25%	
Semester Exams	20%	
Lecture Final Exam	20%	
Participation	5%	
Total	80%	20%

- VII. Other Policies, Procedures and important Dates - Please refer to the WTC [Catalog](#) for the following
 - A. Campus Calendar
 - B. Final exam schedule
 - C. How to drop a class
 - D. Withdrawal information
 - E. Student Conduct/Academic Integrity
 - F. Students with disabilities
- VIII. Course Content

Weekly Overview	Topics Covered
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1 – Introduction to Science and Zoology	Common themes of life, introduction to evolutionary theory, the scientific method
2 – The Chemistry of Life	Atoms, chemical bonds, hydrogen bonds, acids and bases, carbohydrates, proteins, lipids, nucleic acids, ATP
3 – Cells and Metabolism	Cell theory, prokaryotic traits, eukaryotic traits, organelles, the cytoskeleton, enzymes, metabolic pathways, cell membranes, diffusion, active transport
4 – Gene Expression and Development	Introduction to genetics, principles of animal development, architectural patterns of animals
5 – Development and Relationships of Early Life	Phylogeny, taxonomy, potential origins of life, early environment of Earth, protocells, early evolution, origin of eukaryotes, endosymbiotic theory, unicellular eukaryotes
6 – Simple Invertebrates	Sponges, cnidarians, acoelomates, polyzoa
7 – Complex Invertebrates I	Mollusks, annelids, nematoda
8 – Complex Invertebrates II	Trilobites, crustaceans, hexapods, echinoderms, hemichordates
9 – The First Vertebrates	Vertebrate evolution, fishes, early tetrapods, amphibians
10 – Reptiles and Birds	Amniote evolution, land animal adaptations, reptile evolution, bird evolution, reptile/bird commonalities
11 – Mammals	Mammal evolution, mammalian advantages, mammalian dominance, homeostasis

Last Modified: August 21, 2019