

BIOL 1413: General Zoology
Instructor Course Information Sheet – Spring 2025

Course Format: *Face-to-face, Levelland Campus*

Instructor Information

- **Instructor:** Mark Lee, M.S.
 - **Email:** mlee@southplainscollege.edu
 - **Office Hours:**
 - Monday/Wednesday – 1:00 - 3:45 pm
 - Friday: 9:30 am – 12:15 pm
 - **Office Location:** Science Room 79
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Course Information

Course Description:

This course covers fundamental biological concepts relevant to animals, including systematics, evolution, structure and function, cellular and molecular metabolism, reproduction, development, diversity, phylogeny, and ecology.

Evaluation Criteria

Note: Assignments not submitted by the deadline will receive a zero.

Grading Criteria	Point Value	Total
5 Exams	110	550
10 Quizzes	10	100
10 Discussions	5	50
10 Assignments	10	100
4 Practicals	50	200
Total		1000

Exams, Practicals, Quizzes and Discussions will all be done in class. Assignments will be done on Blackboard. Instructor reserves the right to change the modality of quizzes and assignments.

Every student will make a final presentation – instructions will be provided in-class and on Blackboard.

Textbooks

- **Required:**
 - *Van de Graaff's Photographic Atlas for the Zoology Laboratory* (8th edition). ISBN: 9781617317675
 - **Recommended:**
 - *Zoology* (12th edition). ISBN: 9781266701634
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Attendance

Students are expected to attend both lectures and labs. Excessive absences (>5) may result in a grade penalty. Students who expect to miss should let their instructor know as soon as possible. The instructor reserves the right to request proof of reasons for absence. Regardless of reason, students are expected to catch up on all the material they miss. Make-up exams and assignments will be offered at the instructor's discretion and are never guaranteed.

Lab Safety

- **Required Attire:** Closed-toe shoes and long pants/dresses.
 - **Prohibited Items:** Food, drinks, makeup, and tobacco are not permitted in the lab. Violations will result in the student being sent away and marked absent. Excessive violations may result in a grade penalty.
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Instructor Policies

- **Food and Drink:** Permitted in lecture unless abused, in which case the privilege will be revoked. Not permitted in lab.
- **Phones:** Permitted in lecture and lab unless abused, in which case the privilege will be revoked.
- **Exams and Quizzes:** Visibility of electronic devices or notes during exams or quizzes will result in an automatic zero, regardless of use. The instructor reserves the right to collect exams and quizzes at any time if academic dishonesty is suspected.

For Additional Policies and Procedures, refer to the Common Course Syllabus.

Student Learning Outcomes – What You Will Learn

For the official course learning outcomes that these SLOs were initially derived from, please refer to the common course syllabus.

1. **Scientific Investigation and Data Analysis:**
 - **Application of Scientific Reasoning:** Utilize logical thinking and scientific methods to explore questions and hypotheses.
 - **Utilization of Scientific Tools:** Employ microscopes and laboratory equipment proficiently to observe and gather data.
 - **Data Collection and Analysis:** Gather, organize, and analyze data using appropriate scientific methods and tools.
2. **Critical Thinking and Problem Solving:**
 - **Critical Analysis:** Evaluate information and observations to make informed decisions and draw logical conclusions.
 - **Scientific Problem Solving:** Apply analytical skills to tackle scientific challenges and devise solutions in laboratory settings.
3. **Effective Communication of Scientific Findings:**
 - **Results Presentation:** Communicate research findings clearly and concisely through written reports, oral presentations, and visual aids.
 - **Audience Adaptation:** Tailor communication strategies to effectively convey scientific concepts to different audiences.
 - **Scientific Writing:** Develop proficiency in scientific writing, including proper citation practices and adherence to formatting guidelines.
4. **Animal Diversity and Comparison:**
 - **Structural Variations:** Examine and contrast the anatomical structures of different animal species.
 - **Reproductive Strategies:** Compare and contrast various modes of reproduction employed by different animals.
 - **Characteristic Traits:** Analyze and contrast the unique characteristics and behaviors exhibited by different animal groups.
5. **Fundamental Characteristics of Life:**
 - **Essential Traits:** Describe the fundamental characteristics shared by all living organisms, such as growth, reproduction, and response to stimuli.
 - **Basic Properties of Substances:** Explain the essential properties of substances required for life, including water, carbohydrates, lipids, proteins, and nucleic acids.
6. **Genetics and Inheritance Principles:**
 - **Mendelian Genetics:** Understand the basic principles of inheritance as elucidated by Gregor Mendel.
 - **Genetic Problem Solving:** Apply Mendelian principles to solve classical genetic problems involving Punnett squares, pedigrees, and genetic crosses.
7. **Evolutionary Relationships and Taxonomy:**
 - **Phylogenetic Analysis:** Explore the evolutionary relationships between different organisms using phylogenetic trees and molecular data.
 - **Taxonomic Classification:** Understand and apply classification schemes to categorize organisms based on shared characteristics and evolutionary relationships.
8. **Major Animal Phyla and Adaptations:**
 - **Phylum Identification:** Identify and categorize major animal phyla based on structural and physiological characteristics.

- **Adaptive Traits:** Investigate structural and physiological adaptations of animals within different phyla to their respective environments.
9. **Molecular Biology of Nucleic Acids and Proteins:**
- **Chemical Structures:** Describe the molecular structures of nucleic acids (DNA and RNA) and proteins.
 - **Synthesis and Regulation:** Understand the processes involved in the synthesis and regulation of nucleic acids and proteins within cells.
10. **Respiration and Metabolic Pathways:**
- **Substrate Utilization:** Identify the substrates and products involved in cellular respiration.
 - **Metabolic Pathways:** Describe the important chemical pathways involved in respiration, such as glycolysis, Krebs cycle, and oxidative phosphorylation.
11. **Unity and Diversity in Animal Kingdom:**
- **Unity in Diversity:** Explain how animals share common characteristics while exhibiting diverse adaptations.
 - **Evidence for Evolution:** Discuss evidence supporting evolution through natural selection, including fossil records, comparative anatomy, and molecular biology.
12. **Scientific Reasoning and Methodology:**
- **Logical Analysis:** Apply logical reasoning and critical thinking skills to scientific investigations and problem-solving.
 - **Hypothesis Formulation:** Develop and test hypotheses using systematic and empirical methods.
 - **Data Interpretation:** Interpret experimental data and draw evidence-based conclusions.
13. **Animal Physiology and Homeostasis:**
- **Organ System Function:** Describe the structure and function of organ systems in animals, including circulatory, respiratory, and nervous systems.
 - **Homeostatic Regulation:** Explain how organ systems maintain internal stability and balance through homeostatic mechanisms.
14. **Evolutionary Synthesis and Genetics:**
- **Modern Evolutionary Synthesis:** Discuss the integration of genetics, paleontology, and other disciplines into evolutionary theory.
 - **Natural Selection and Population Genetics:** Understand the mechanisms of natural selection and population genetics underlying evolutionary change.
 - **Microevolution and Macroevolution:** Differentiate between microevolutionary processes (changes in allele frequencies within populations) and macroevolutionary patterns (long-term evolutionary trends and speciation events).
15. **Cell Membrane Structure and Function:**
- **Membrane Composition:** Describe the structure and composition of cell membranes, including lipid bilayers and membrane proteins.
 - **Molecular Transport:** Explain the mechanisms of molecular transport across cell membranes, including diffusion, osmosis, and active transport.

South Plains College

Common Course Syllabus: BIOL 1413

Revised Fall 2024

Department: Biology

Discipline: Zoology

Course Number: BIOL 1413

Course Title: General Zoology

Available Formats: Conventional, Online

Campuses: Levelland, Online

Course Description:

This course explores fundamental biological concepts related to animals, including systematics, evolution, structure and function, cellular and molecular metabolism, reproduction, development, diversity, phylogeny, and ecology. Laboratory activities will reinforce these concepts to ensure comprehension. (ACGM 2018)

Prerequisite:

Must be TSI Complete in Reading prior to taking this course.

Credit:

4 credits - Lecture: 3 hours, Lab: 3 hours

Textbook & Supplies:

See the instructor course information sheet.

Course-Specific Instructions:

See the instructor course information sheet.

Core Curriculum Requirement:

This course partially satisfies a Core Curriculum Requirement in the Life and Physical Sciences Foundational Component Area (030).

Core Curriculum Objectives Addressed:

- **Communication Skills:** Effective written, oral, and visual communication.
- **Critical Thinking Skills:** Creative thinking, innovation, inquiry, and analysis, evaluation, and synthesis of information.
- **Empirical and Quantitative Competency:** Ability to manipulate and analyze numerical data or observable facts to make informed conclusions.
- **Teamwork:** Ability to consider different points of view and work effectively with others to support a shared purpose or goal.

Student Learning Outcomes:

Lecture:

1. Compare and contrast the structures, reproduction, and characteristics of animals.
2. Describe the characteristics of life and the basic properties of substances needed for life.
3. Identify the principles of inheritance and solve classical genetic problems.
4. Describe phylogenetic relationships and classification schemes.
5. 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.
6. Identify the chemical structures, synthesis, and regulation of nucleic acids and proteins.
7. Identify the substrates, products, and important chemical pathways in respiration.
8. Describe the unity and diversity of animals and the evidence for evolution through natural selection.
9. Describe the reasoning processes applied to scientific investigations and thinking.
10. Describe basic animal physiology and homeostasis as maintained by organ systems.
11. Describe modern evolutionary synthesis, natural selection, population genetics, micro and macroevolution, and speciation.
12. Describe the structure of cell membranes and the movement of molecules across a membrane.

Lab:

1. Apply scientific reasoning to investigate questions and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
2. Use critical thinking and scientific problem-solving to make informed decisions in the laboratory.
3. Communicate effectively the results of scientific investigations.

4. Compare and contrast the structures, reproduction, and characteristics of animals.
5. Describe the characteristics of life and the basic properties of substances needed for life.
6. Identify the principles of inheritance and solve classical genetic problems.
7. Describe phylogenetic relationships and classification schemes.
8. 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.
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14. Describe modern evolutionary synthesis, natural selection, population genetics, micro and macroevolution, and speciation.
15. Describe the structure of cell membranes and the movement of molecules across a membrane.

Course Evaluation:

Embedded exam questions will be assessed from various sections each semester to determine student mastery of material across the course. For more information, see the instructor course information sheet.

Attendance Policy:

Students are expected to attend all classes to succeed in the course. Absences that become excessive and hinder the achievement of minimum course objectives may result in the student being withdrawn from the course. Additional attendance information is provided on the instructor's course information sheet.

Plagiarism and Cheating:

Students must do their work on all projects, quizzes, assignments, examinations, and papers. Violations will result in an "F" for the assignment and may lead to an "F" for the course if warranted.

Plagiarism includes, but is not limited to:

1. Turning in a paper that has been purchased, borrowed, or downloaded.
2. Cutting and pasting together information from various sources without proper documentation.
3. Using direct quotations without citation.
4. Missing in-text citations.

Cheating includes, but is not limited to:

1. Obtaining an examination by stealing or collusion.
2. Discovering the content of an examination before it is given.
3. Using unauthorized sources during an examination, quiz, or homework assignment.
4. Taking an examination for another.
5. Altering grade records.
6. Copying another's work during an examination or on a homework assignment.

Student Code of Conduct:

A successful learning experience requires mutual respect. Disruptive, disrespectful, or threatening conduct will not be tolerated and may result in disciplinary action or removal from class.

Intellectual Exchange Statement:

Instructors will establish and support an environment that values and nurtures individual and group differences, encouraging engagement and interaction. Respect for multiple perspectives will challenge and stimulate learning about others, the larger world, and ourselves.

Disabilities Statement:

Students with disabilities who require accommodations should notify the Disability Services Office early in the semester. Proper documentation is required. Contact the Disability Services Office at Levelland, Lubbock Centers, or Plainview Center for more information.

Non-Discrimination Statement:

South Plains College does not discriminate based on race, color, national origin, sex, disability, or age in its programs and activities. Inquiries should be directed to the Vice President for Student Affairs.

Title IX Pregnancy Accommodations Statement:

Pregnant or recently postpartum students have the right to reasonable accommodations. To request accommodations, contact the Health and Wellness Center.

CARE Team:

South Plains College is committed to the safety, health, and well-being of its students. The CARE Team assesses and responds to students who may benefit from academic, emotional, or psychological support.

Campus Concealed Carry Statement:

Texas law authorizes the carrying of a concealed handgun in South Plains College buildings by those with a Texas License to Carry. Open carrying of handguns is prohibited. Violations should be reported to the College Police Department.

Withdrawal Policy:

The last day to withdraw/drop with a grade of “W” is December 2nd, 2024. It is the student’s responsibility to withdraw from the course if necessary. Course averages will be updated regularly, and guidance will be provided to help students make informed decisions.

COVID-19 Guidelines:

Students experiencing symptoms such as cough, shortness of breath, fever, or loss of taste/smell should not attend class and seek medical attention or get tested for COVID-19. SPC follows a 5-day isolation period for positive cases.

Artificial Intelligence Statement:

AI applications like ChatGPT are designed to supplement learning but should not replace critical thinking, creativity, and independent work. Misusing AI, including generating academic work without proper attribution, violates academic integrity policies and may result in disciplinary action.

Note:

The instructor reserves the right to modify the syllabus and policies and notify students of any changes during the semester.