

Course discipline/number/title: BIOL 1230: General Biology II

A. CATALOG DESCRIPTION

1. Credits: 4
2. Hours/Week: 3 lecture, 2 lab
3. Prerequisites (Course discipline/number): None
4. Other requirements: None
5. MnTC Goals (if any): Goal 3/Natural Sciences

B. COURSE DESCRIPTION: This course is one of two introductory biology courses. It is an organism-based study of the evolutionary history and diversity of living organisms. The course addresses how organism structures and functions are related to how they carry out basic life processes (e.g., gas exchange, nutrition). Students study the comparative anatomy and physiology and evolutionary relationships among organisms, addressing key adaptations to survival of selected organisms.

C. DATE LAST REVISED (Month, year): November, 2022

D. OUTLINE OF MAJOR CONTENT AREAS:

1. Evolution of Organisms
 - a) History of evolutionary thought
 - b) Evolutionary theory
 - c) Processes of microevolution
 - d) Speciation and macroevolution
 - e) Phylogeny and cladistics
2. Diversity in Structure and Function of Organisms
 - a) Prokaryotic organisms
 - b) Protista
 - c) Fungi
 - d) Plants
 - e) Animals
3. Comparative plant anatomy, function, and physiology of select groups of angiosperms and gymnosperms, including an emphasis on differences between eudicotyledons and monocotyledons
4. Comparative animal anatomy, function and physiology of select phyla
5. Ecological Principles
 - a) Behavioral Ecology
 - b) Interactions among organisms and their environment
 - c) Conservation biology

E. LEARNING OUTCOMES (GENERAL): The student will be able to:

1. Explain evolutionary theory
2. Describe biological diversity of organisms ranging from bacteria, protista, plants, fungi, and animals.
3. Describe the evolutionary origins of prokaryotes and eukaryotes.
4. Describe various plant and animal structures and functions.
5. Describe plant and animal development.

F. LEARNING OUTCOMES (MNTC):

Goal 3/Natural Sciences: The student will be able to:

1. Demonstrate understanding of scientific theories.
2. Formulate and test hypotheses by performing laboratory, simulation, or field experiments in at least two of the natural science disciplines. One of these experimental components should develop, in greater depth, student's laboratory experience in the collection of data, it's statistical and graphical analysis, and an appreciation of its sources of error and uncertainty.

- F. LEARNING OUTCOMES (MNTC): Continued. . .
3. Communicate their experimental findings, analyses, and interpretations both orally and in writing.
 4. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.
- G. METHODS FOR EVALUATION OF STUDENT LEARNING: Methods may include but are not limited to:
1. Objective and short answer exams.
 2. Lab practical exams
 3. Essay exams
 4. Lab experiments
 5. Short papers and projects
 6. Group work and presentations
 7. Skill performance
- H. RCTC CORE OUTCOME(S). This course contributes to meeting the following RCTC Core Outcome(s):
Critical Thinking. Students will think systematically and explore information thoroughly before accepting or formulating a position or conclusion.
- I. SPECIAL INFORMATION (if any):
The initial lab session explains and familiarizes the student with general safety hazards and safety equipment in the lab. During the pre-lab discussion, the hazardous characteristics of any materials used during the lab are discussed. In addition, if the lab involves any potentially infectious material, the students will be instructed about the proper use and disposal. The instructor will direct all students to wear necessary protective equipment while working with any hazardous chemicals. A copy of Safety Data Sheets for chemicals used is available online.