



BIOL 1030

Division: Natural Science and Mathematics

Department: Biology

Course: BIOL 1030

Title: Animal Biology

Catalog Description:

Animal biology is an introductory level course in the fundamental principles common to all life forms. Basic biological concepts including chemistry, cell structure and function, genetics, speciation, ecology, and behavior will be introduced. The remainder of the course will focus on a survey of the animal kingdom followed by a comparative approach to organ systems. This course will partially satisfy Natural Sciences GE.

General Education Requirements: N/A

Semesters Offered: TBA

Credit/Time Requirement: Credit: 3; Lecture: 3; Lab: 0

Clock/Hour Requirements: 0

Offered for Non-Credit: No

Justification:

Animal biology (BIOL 1030) is a basic biology course, which introduces non-life science majors to basic concepts in biology and then surveys the animal kingdom and organ systems.

Biology 1030 provides students that are interested in animal biology an opportunity to fulfill life science general education requirements.

Student Learning Outcomes:

As a result of taking this course, students will

- be able to explain covalent, ionic, and hydrogen bonding.
- be able to define what an acid and a base are.
- be able to describe and identify the four types of biological macromolecules.
- be able to describe how enzymes work together to produce a metabolic pathway.
- be able to describe how ATP is produced.
- be able to explain Darwin's theory of evolution by natural selection.
- be able to explain how modern theorists have modified Darwin's ideas on natural selection.
- be able to explain the concept of speciation.
- be able to define the abiotic influences in an animal's environment.

- be able to describe the factors which affect animal population growth.
- be able to define a community.
- be able to identify the major ecosystems of the earth.
- be able to explain the binomial system of classification.
- be able to identify the five kingdom classification system.
- be able to describe the major characteristics, classification, and habitats of the Phylum Porifera.
- be able to describe the major characteristics, classification, and habitats of the Phylum Cnidaria.
- be able to describe the major characteristics, classification, and habitats of the Phylum Platyhelminthes.
- be able to describe the major characteristics, classification, and habitats of the Phylum Nematoda.
- be able to describe the major characteristics, classification, and habitats of the Phylum Mollusca.
- be able to describe the major characteristics, classification, and habitats of the Phylum Annelida.
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Content:

Biology 1030 covers the following topics:

- Introduction to zoology and the scientific method
- Inorganic chemistry
- Organic chemistry
- Cell structure and function
- Energy
- Cell respiration
- Tissues and organs
- Cell division
- Spermatogenesis and oogenesis
- Inheritance patterns
- Chromosome and gene linkage
- Molecular genetics
- Embryology

- Evolution historical perspective
- Evolution and gene frequencies
- Asexual versus sexual reproduction and sexual dimorphism
- Animal classification
- Animal characteristics and terminology
- Porifera
- Cnidaria
- Platyhelminthes
- Nematoda
- Mollusca
- Annelida
- Arthropoda
- Echinodermata
- Chordata
- Fishes
- Amphibia
- Reptilia
- Aves
- Mammalia
- Comparative structure and function of organisms
- Ecology individuals and populations
- Ecology communities and ecosystems

General Education Outcomes:

1) Read effectively, constructively, and critically.

Students read the required text as well as other assigned papers. Students must be able to understand concepts to answer questions on examinations. Students must also be able to answer questions on exams that require the student to synthesize information learned from multiple readings.

2) Write clearly, informatively, and persuasively.

Students will write short essays to questions on the test to determine if they can synthesize multiple concepts and to determine how well they can communicate the information that they have learned. Each question is corrected and returned to students to help them learn how to synthesize the information and answer the questions.

4) Retrieve, evaluate, interpret, and deliver information through a variety of traditional and electronic media.

Students are required to conduct research of traditional library materials as well as information from the Internet. Students are also required to communicate with the instructor using e-mail.

5) Apply a cultural and historical awareness to a variety of phenomena.

The student will learn historical perspectives of evolution, genetics, and classification. The student will also learn how to distinguish between cultural, political, and biological views of the above-mentioned historical topics.

7) Apply scientific reasoning to a variety of contexts.

Students will be taught the scientific method and should be able to apply the scientific method in a number of situations relating to animal biology.

Key Performance Indicators:

4 exams (true-false, matching, multiple choice, short answer, and short essay): 80% Final exam (comprehensive with multiple choice and short essay): 20%

Representative Text and/or Supplies:

Zoology

Optimum Class Size: 48

Maximum Class Size: 48

Signatures:

I hereby submit this course syllabus:

Allan Stevens, , Professor

I hereby find this course consistent with the goals and resources of the Biology Department:

Allan Stevens, , Professor, Chair

I hereby find this course consistent with the goals and resources of the Natural Science and Mathematics Division:

Dan Black, EdD, Associate Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)