

**BIO 436: General Animal Physiology****Credit Hours:** 3**Scheduled hours per week**

Lecture: 3

Lab: N/A

Field: N/A

**Catalog Course Description:** In-depth, current treatment of physiological principles which operate at various levels of biological organization in animals of diverse taxonomic relationships, with emphasis on vertebrate physiology.

**Pre-requisites:** BIOL 101, BIOL 102, BIOL 103 and BIOL 104; or BIOL 115 and BIOL 117; or BIOL 107 and BIOL 108

**Co-requisites:** None

**Course Learning Outcomes (CLO):**

- Develop critical thinking skills and apply physiological concepts and principles at the basic and applied levels.
- Develop a working knowledge of major physiological systems and be able to associate anatomical areas with their specific function.
- Develop an understanding of the role of evolutionary processes (e.g. natural selection) in driving the organization of physiological systems.
- Understand important physiological challenges animals face and the processes by which animals deal with them.
- Identify and describe structural differences of major physiological systems that characterize different taxonomic groups of animals.
- Relate physiological processes—from the biochemical to the system level—to the function of the entire organism in its environment.
- Develop an understanding of current research topics in animal physiology using primary literature and develop hypotheses and methodology to address these questions.

**CLO Assessment Methods:**

- Direct Assessment Methods – Homework, quizzes, exams, oral presentation, in-class activities, final paper
- Indirect Assessment Methods – Course evaluations

**Topics to be studied:**

1. Describe normal function of the plasma membrane.
2. Identify structures of the nervous system and describe their functions.
3. Describe structure and function of major types of muscle.
4. Compare and contrast vertebrate and invertebrate muscle.
5. Describe the cardiac cycle in vertebrates.
6. Compare cardiovascular function in selected vertebrates and invertebrates.
7. Compare respiratory function in selected vertebrates and invertebrates.
8. Describe structure and function of the vertebrate kidney.
9. Compare excretion and osmoregulation in selected vertebrates and invertebrates.
10. Identify structures and function of digestive systems in selected specimens.

**Relationship of Course to Program Learning Outcomes (PLO) or Discipline Learning Outcomes:**

- Students will have the knowledge base and intellectual (conceptual) framework to use reasoning and problem-solving skills to; (1) read critically, (2) evaluate support for competing hypotheses, and (3) critique experimental design.
- Students will be able to communicate biological ideas from literature to audiences of biologists and non-biologists in a variety of formats including written reports, poster and oral presentations.
- Students will recognize the importance of scientific integrity and ethical research and applications of biology to science policy. They will be able to work independently and in teams for life-long learning.

Students will be able to demonstrate a broad and diverse background in biology and related sciences and a strong foundation for graduate and professional programs of study or employment.

Check if approved as:  Foundational Learning Course     Reinforcement Learning Course

**Special requirements of the course:**

**Prepared by:** Mary Hetrick

**Date:** 01/09/2022