

University of Arkansas – Fort Smith
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General Syllabus

BIOL 2211 Human Physiology Laboratory

Credit Hours: 1 Lecture Hours: 0 Laboratory: 2 hours

Prerequisite: BIOL 2203/2201 Human Anatomy/Laboratory

Prerequisite or corequisite: BIOL 2213 Human Physiology

Effective Catalog: 2018- 2019

I. Course Information

A. Catalog Description

Investigations of human physiological processes will be used to enhance the integration of content presented in BIOL 2213. Clinical scenarios are incorporated throughout the course to assist students in correlating basic physiology with the pathophysiologic outcomes.

B. Additional Information - None

II. Student Learning Outcomes

A. Subject Matter

Upon successful completion of this course, the student will be able to:

1. Explain physiological processes of body systems in detail and on an appropriate level (knowledge, comprehension, application and analysis).
2. Explain the role of body systems and mechanisms in maintaining homeostasis.
3. Explain how the activities of organs and organ systems are integrated.

B. University Learning Outcomes

This course enhances student abilities in the following areas:

Analytical Skills

Critical Thinking Skills: Student will solve problems by integrating knowledge of the physiology of cells, tissues, organs, organ systems, to the organism as a whole.

Communication Skills (written and oral)

Students will effectively communicate scientific ideas and principles. Students will compose scientifically sound lab reports and communicate facts to intended audience.

Ethical Decision Making

Students will reflect upon dilemmas of moral principles, values and judgments that apply to the ethical practice of medicine.

III. Major Course Topics

- A. Homeostasis
 - 1. Fluid and electrolyte balance
 - 2. Osmosis
 - 3. Acid-base balance
- B. Membrane Functions
 - 1. Signal molecules
 - 2. Cell signaling
- C. Neurophysiology
 - 1. Resting membrane potential
 - 2. Action potential
 - 3. Synaptic transmission and modulation
- D. Muscle Physiology
 - 1. Neuromuscular junction
 - 2. Excitation-contraction coupling
 - 3. Cross-bridge formation
 - 4. Relaxation
- E. Cardiovascular Physiology
 - 1. Cardiac cycle
 - 2. Heart failure
 - 3. Blood pressure
 - 4. Capillary filtration
- F. Respiratory Physiology
 - 1. Respiratory gas diffusion and transport
 - 2. Oxygen dissociation
 - 3. Control of respiration
- G. Hormones
 - 1. Hormone regulation
 - 2. Blood glucose and diabetes