

BIOLOGY 243L
HUMAN ANATOMY AND PHYSIOLOGY I LABORATORY

BULLETIN INFORMATION

BIOL 243L: Human Anatomy and Physiology I Laboratory (1 credit hour)

Course Description:

The principles of anatomy and physiology as demonstrated by microscopic studies, animal dissection, and physiological experiments.

Prerequisites: BIOL 243

Note: One three-hour laboratory per week.

SAMPLE COURSE OVERVIEW

BIOL 243L is the first part of a two part laboratory sequence covering Human Anatomy and Physiology and is the laboratory accompanying BIOL 243. The students learn the principles of human anatomy and physiology, which are demonstrated by microscopic studies, animal dissection, and physiological experiments. BIOL 243L is designed for pre-pharmacy and pre-nursing students and others seeking a human anatomy and physiology course. BIOL 243L is not available for major credit. The following topics will be covered in BIOL 243L: language of anatomy, light microscopy, cytology, histology, the skeletal system including articulations and the muscular system. Microscope slides, models of human organs and cat dissections will be utilized to facilitate the understanding of important aspects of the topics described above. The construction and testing of hypotheses pertaining to how organ function reflects its anatomical organization at cellular level will be incorporated. Students will also demonstrate their understanding of the scientific method by observation and inquiry that will lead to their ability to identify, classify, describe, and explain the structure and functions of different human cell types, tissues, organ systems, in particular the integumentary, skeletal, muscular, and nervous systems. The societal implications of human anatomy and physiology as impacted by modern medicine will only be briefly discussed. These topics will be covered in more detail in the accompanying lecture course, BIOL 243.

ITEMIZED LEARNING OUTCOMES

Upon successful completion of Biology 243L, students will be able to:

1. Define, understand, and use scientific, biological, and medical terminology relating to anatomy and physiology.
2. Demonstrate an understanding of life processes that power, support, and move parts of the human body.
3. Identify, classify, describe, and explain the structure and function of human cells, tissues, and organ systems, including the integumentary, skeletal, muscular, and nervous systems.
4. Examine organ morphology and structure through observation.

5. Construct hypotheses about how organ morphology and structure optimize organ function.
6. Discuss the societal implications of contemporary medical and technological advances such as stem cell research, genomics, organ/cell transplantation, and regenerative medicine.

SAMPLE REQUIRED TEXTS/SUGGESTED READINGS/MATERIALS

1. Human Anatomy and Physiology Laboratory Manual, Cat Version by E. N. Marieb

SAMPLE ASSIGNMENTS AND/OR EXAMS

1. **Three (3) practical exams**
2. **Quizzes** at the beginning of each lab session
3. **Student Evaluation:** Quizzes will evaluate the student’s understanding of the upcoming laboratory using a simple fill in the blank format. Exams will require students to demonstrate knowledge of basic scientific terminology relating to anatomy and physiology, and to apply this knowledge by identifying structures in models or dissected animals and answering hypothetical physiological questions. Exam questions will test the student’s analytical thinking pertaining to organ structure and function, and hypothesis building and investigation with respect to human physiology and anatomy. Some exam questions require students to discuss the societal implications of contemporary medical and technological advances such as stem cell research, genomics, organ/cell transplantation, and regenerative medicine.

SAMPLE COURSE OUTLINE WITH TIMELINE OF TOPICS, READINGS/ASSIGNMENTS, EXAMS/PROJECTS

- Lab 1:** Intro; Terminology; Metric System
- Lab 2:** Microscope, Cell; Tissues (Histology)
- Lab 3:** Tissues; Integumentary System
- Lab 4:** Exam I
- Lab 5:** Skeletal System
- Lab 6:** Skeletal System
- Lab 7:** Muscles
- Lab 8:** Muscles
- Lab 9:** Exam II
- Lab 10:** Brain; Spinal cord; Cranial Nerves

Lab 11: Brain; the Special Senses

Lab 12: Exam III