

BIOLOGY 243
HUMAN ANATOMY AND PHYSIOLOGY I

BULLETIN INFORMATION

BIOL 243: Human Anatomy and Physiology I (3 credit hours)

Course Description:

Functional anatomy and physiology of the human body, including the integumentary, skeletal, muscular, and nervous systems. Not available for biology major credit.

Prerequisites: CHEM 102

Note: Three lecture hours per week.

SAMPLE COURSE OVERVIEW

BIOL 243, Human Anatomy and Physiology I, is the first part of a two-part sequence covering Human Anatomy and Physiology. The second part of the sequence is BIOL 244, Human Anatomy and Physiology II. Separate syllabi will be issued for the laboratory sections that accompany these courses. BIOL 243 is designed for pre-pharmacy and pre-nursing students and others seeking a human anatomy and physiology course. BIOL 243 is not available for major credit. The following topics will be covered in BIOL 243: basic chemistry including biochemistry, cells, tissues, integumentary system, skeletal system, articulations, muscular system, the central and peripheral nervous systems but not the autonomic nervous system. Students will also learn the societal implications of recent advances in biomedical research including sequencing the human genome on human disease and the treatment of human disease. The scientific method will also be addressed as it relates to understanding the function of various body parts.

ITEMIZED LEARNING OUTCOMES

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

1. Define and employ correctly anatomical and physiological terminology.
2. Explain the basic organization of the cell and the functions of various parts of the cell and discuss the cellular basis of human disease.
3. Identify and explain the function and structure of muscular, epithelial, connective and nervous tissues.
4. Explain the molecular basis of muscle contraction and the conduction of nerve impulses and apply this knowledge to evaluate questions and issues in human disease and physiology.
5. Explain the structure and function of the integumentary, skeletal, muscular and nervous systems and apply this information to new medical and therapeutic issues, questions, and advances in these areas.

6. Discuss the significance of recent advances in human medicine (e.g., sequencing individual human genomes or organ specific stem cells) and explain the implications for human disease and the treatment of human disease.
7. Explain the societal implications of the recent advances in biomedical research pertaining to skeletal, muscle, and nervous tissues.
8. Construct hypotheses concerning the functions of various body parts and evaluate these hypotheses by closely analyzing the morphology of these structures.

SAMPLE REQUIRED TEXTS/SUGGESTED READINGS/MATERIALS

1. Human Anatomy and Physiology by E.N. Marieb, Second, Third, Fourth, Fifth, Sixth, Seventh or Eighth Edition

SAMPLE ASSIGNMENTS AND/OR EXAMS

1. **Six quizzes**
2. Three exams
3. **Comprehensive final exam**
4. **Student Evaluation:** The exams and quizzes will include questions that will test students' ability to apply the basic knowledge of biochemistry, cells, and tissues as well as the integumentary, skeletal, muscular and nervous systems to normal functioning of organs/tissues and under conditions of human diseases. In particular, students' understanding about organ structure and morphology as required for its function in human body will be tested via specific questions that will focus on how the organ function would dictate its anatomical structure to ensure efficient functioning in human body. Exam questions will also evaluate their understanding of recent technical advances including human genome sequencing, stem cell research and the societal implications of these advances pertaining to specific organs and their disease states.

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

Class 1: Introduction

Class 2: Chemistry

Class 3: Biochemistry

Class 4: Biochemistry
QUIZ

Class 5: Cells

Class 6: Tissues
QUIZ

Class 7: Tissues

<u>Class 8:</u>	EXAM
<u>Class 9:</u>	Integument
<u>Class 10:</u>	Bones and Bone Tissue
<u>Class 11:</u>	Bones and Bone Tissue
<u>Class 12:</u>	Joints QUIZ
<u>Class 13:</u>	Muscle Tissue
<u>Class 14:</u>	Muscle Contraction, Muscles
<u>Class 15:</u>	Muscle Contraction, Muscles QUIZ
<u>Class 16:</u>	Nervous Tissue
<u>Class 17:</u>	EXAM
<u>Class 18:</u>	Nervous Tissue
<u>Class 19:</u>	Neurophysiology
<u>Class 20:</u>	Neurophysiology
<u>Class 21:</u>	Central Nervous System QUIZ
<u>Class 22:</u>	Central Nervous System
<u>Class 23:</u>	Peripheral Nervous System
<u>Class 24:</u>	Peripheral Nervous System QUIZ
<u>Class 25:</u>	Neural Integration
<u>Class 26:</u>	EXAM
<u>Class 27:</u>	Special Senses

Class 28: Special Senses

FINAL EXAM according to University exam schedule