

BIO 168
ANATOMY AND PHYSIOLOGY I

COURSE DESCRIPTION:

Prerequisites: ENG 090, MAT 070, and RED 090 or satisfactory score on placement test, and BIO 092 or General/Cell Biology (high school or college) in last 5 years, and CHM 094 or General Chemistry (high school or college) in last 5 years

Corequisites: None

This course provides a comprehensive study of the anatomy and physiology of the human body. Topics include body organization; homeostasis; cytology; histology; and the integumentary, skeletal, muscular, nervous systems and special senses. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships. Laboratory work includes dissection of preserved specimens, microscopic study, physiologic experiments, computer simulations, and multimedia presentations. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.* Course Hours Per Week: Class, 3. Lab, 3. Semester Hours Credit, 4.

LEARNING OUTCOMES:

Upon completion of this course, the student will demonstrate basic knowledge in the following:

- a. General body organization and anatomical terminology.
- b. Tissue types.
- c. Integumentary system.
- d. Anatomical and physiological characteristics of the skeletal system.
- e. Bioelectrical events of membrane potentials.
- f. Anatomy and physiology of muscle and muscle contraction.
- g. Anatomy and physiology of the central and peripheral nervous systems.
- h. Functions of the autonomic nervous system.
- i. Reflexes and central motor mechanisms.
- j. Anatomy and physiology of sensory processes.

OUTLINE OF INSTRUCTION:

- I. Introduction
 - A. Course overview
 - B. Physiological regulation: homeostasis
- II. Body organization
 - A. Levels of organization
 - B. Body regions
- III. Cytology and Histology

BIO 168

- A. Cell specializations
 - B. Cell membrane physiology
 - C. Tissue types
 - D. Membranes
- IV. Integumentary system
- A. Skin
 - B. Accessory structures
 - C. Clinical correlations
- V. Skeletal system
- A. Bone tissue: development and physiology.
 - B. Overview of the skeletal system (axial and appendicular skeleton.)
 - C. Movements (joints)
 - D. Clinical correlations
- VI. Muscular system
- A. Muscle types
 - B. Muscle properties
 - C. Microscopic structure
 - D. Macroscopic structure of skeletal muscle
 - E. Neuromuscular junction
 - F. Excitation-contraction coupling
 - G. Muscle relaxation
 - H. Muscle contractions
 - I. Types of skeletal muscle
 - J. Clinical correlations
- VII. Nervous system
- A. Cell types
 - B. Membrane potentials
 - C. Meninges
 - D. Peripheral nervous system
 - E. Central nervous system
 - F. Synaptic transmission
 - G. Reflexes
 - H. Central motor mechanisms
 - I. Autonomic nervous system
- VIII. Somatic sensation
- A. Receptors
 - B. Somesthesia
 - C. Pain and temperature sensation
- IX. Special Senses
- A. Receptors

BIO 168

- B. Somatic sensation
- C. Pain
- D. Smell
- E. Taste
- F. Hearing
- G. Vestibular function
- H. Vision

REQUIRED TEXTBOOKS AND MATERIALS:

Saladin, K. S. Anatomy & Physiology. The unity of form and function. 5th ed. New York: McGraw-Hill Higher Education, 2010.

Van De Graaff, K., Morton, D., & Crawley, J. A Photographic Atlas for the Anatomy and Physiology Laboratory. 6th ed., Englewood, CO., Morton Publishing Company, 2007.

Amerman, E. Exercises for the Anatomy & Physiology Laboratory, 6th ed., Englewood, CO., Morton Publishing Company, 2006

SUGGESTED REFERENCES, PERIODICALS, AND VISUAL AIDS:

Numerous supplementary texts, programmed materials, and audiovisual packages are available in the Educational Resources Center. These materials may be utilized to reinforce the lecture and lab material or to provide material for independent study by the student.

STATEMENT OF STUDENTS WITH DISABILITIES:

Students who require academic accommodations due to any physical, psychological, or learning disability are encouraged to request assistance from a disability services counselor within the first two weeks of class. Likewise, students who potentially require emergency medical attention due to any chronic health condition are encouraged to disclose this information to a disability services counselor within the first two weeks of class. Counselors can be contacted by calling 536-7207, ext 1418 or by visiting the Student Development Office in the Phail Wynn Jr. Student Services Center, room 1309.