

BIO 168 ANATOMY AND PHYSIOLOGY I

COURSE DESCRIPTION:

Prerequisites:

- ENG 090 and RED 090 or DRE 098 or a college level English composition with a grade of C or above
- MAT 070 or DMA 010, 020, 030, 040, 050, 060 or a college level algebra (or higher) with a grade of C or above
- CHM 094 or biology and chemistry in high school not older than 10 years or college biology and chemistry with a lab with a grade of C (70%) or above in both the lecture and lab

Corequisite: 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:

1. Explain the concept of homeostasis, how it interrelates basic human body functions and life processes, and demonstrate a knowledge of the organization of the human body.
2. Describe the major anatomical components of each human body system studied, describe briefly their anatomical locations and general structures, and explain their physiological functions at both the organ and cellular levels.
3. Apply the concepts learned in the lecture to understand and analyze laboratory activities and observations.

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

REQUIRED TEXTBOOKS AND MATERIALS:

To be selected by Instructor/Discipline Chair.