**Course Description**

Integrates the study of gross and microscopic anatomy with physiology emphasizing the analysis and interpretation of physiological data. Lecture 3 hours. Recitation and laboratory 3 hours. Total 6 hours per week.

**General Course Purpose**

The purpose of this college transfer course is to provide the student with an opportunity to study the bodily structure through anatomical studies and the fundamental biological, chemical, and physical principles that govern the physiology of the human body.

The course is designed for students pursuing programs in pre-medicine, pre-dentistry, nursing, physical therapy, physical education, medical technology, selected paramedical areas, and biology.

**Course Prerequisites/Co-requisites**

Prerequisites are CHM 111, 112 and two of the following: BIO 101, 102, 110, 120, 141, 142 or division approval.

**Course Objectives**

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

**Introductory Principles & Concepts**

- name and locate the principal body cavities and the major organs within the cavities
- identify the organ-systems of the human body and their respective major functions
- define and use anatomical terms to describe relationships of the body parts.
- identify the major components of a typical cell and their respective functions
- describe the four major classes or organic compounds - carbohydrates, lipids, proteins, and nucleic acids - their building blocks, functional chemical groups, and their role in human physiology
- briefly distinguish among glycolysis, Krebs citric acid cycle, oxidative phosphorylation, and lactic acid fermentation in respect to location, substrates, products, and ATP production
- describe the major events of mitosis
- outline the process of protein synthesis

**Tissues, Membranes & Integumentary System**

- identify the major tissue types - epithelial, connective, muscle, and nervous, their respective functions, and cite examples of each type
- distinguish between the mucous, serous, cutaneous and synovial membranes and identify their locations in the body
- contrast exocrine and endocrine glands, giving examples of each types
- describe the major components of the integumentary system and their functions

**Skeletal System**

- describe the functions of the skeletal system
- identify the major divisions of the skeletal system and the major bones of each division
- distinguish between endochondral/intracartilaginous and intramembranous bond development
• locate and describe the major type of articulations

**Muscular System**
• explain the biochemistry, mechanics, and regulation of muscle contraction
• identify the major muscles of the body and their actions, origins, and insertions
• differentiate between the various muscle types in form and function

**Nervous System & Special Senses**
• identify the structure and function of the various types of nervous system cells, neurons and neuroglial
• describe the electrochemical events of nerve transmission
• identify the major subdivisions of the nervous system and their components
• trace the pathway of a nerve impulse through a reflex arc
• describe the basic brain and spinal cord structure and the major functions of each
• describe the major sensory and motor pathways
• describe the origin, composition and functions of cerebral spinal fluid (CSF), and trace the path of the CSF through the brain and spinal cord
• outline the mechanisms by which sensory information is received and transmitted through the nervous system
• identify the sensory organs, their component parts and their mechanisms of detecting the environment
• discuss the processing of sensory information and the events culminating in a motor response

**Endocrine System**
• using a homeostatic model, explain negative and positive feedback
• identify the endocrine glands, their secretions, and regulatory mechanisms that control their activities
• describe how the homeostatic controls of the endocrine system permit integration of the multi-system body
• distinguish between the consequences of hypo- and hypersecretion of the glands

**Major Topics to be Included**
- Organization of the body
- Cellular organization and function
- Tissues, membranes and integumentary system
- Skeletal system
- Muscular system
- Nervous system and special senses
- Endocrine system

Laboratory topics and activities should be parallel with the lecture topics with emphasis upon:

- Comparative studies using cat dissection
- Observational studies using models of the human body
- Microscopic studies
- Physiographic exercises

**Optional Topics**
- Micro pathology
- Treatment modalities
- Diagnostic procedure