

**Common Course Number:** BSC-2086

**Course Title:** Human Anatomy and Physiology II

**Catalog Course Description:**

The structure and function of the systems of the human body, emphasizing those aspects most pertinent to students in the nursing and allied health technology programs.

**Credit Hours Breakdown:** 3 lecture hours

**Prerequisite:** BSC-2085

**Co requisite:** BSC-2086-Laboratory

**Course Competencies:**

**Competency 1:** The Cardiovascular System: Blood, Blood Vessels and the Heart

Upon successful completion of this course, the student will be able to understand the cardiovascular system by:

- 1.1 Describing the general characteristics of blood and its major functions.
- 1.2 Listing the types of blood cells and their functions, and blood types.
- 1.3 Naming the organs of the cardiovascular system and discussing their functions.
- 1.4 Tracing the pathway of blood through the heart and lungs.
- 1.5 Comparing the structures and functions of the major types of blood vessels.
- 1.6 Defining cardiac output and how it is regulated.
- 1.7 Identifying the factors that affect blood pressure and vascular resistance.
- 1.8 Explaining the relationship between diet, exercise, and cardiovascular health.

### **Competency 2: The Lymphatic and Immune System**

Upon successful completion of this course, the student will be able to understand the lymphatic and immune systems by:

- 2.1 Describing the general functions of the lymphatic and immune systems.
- 2.2 Listing the major lymph organs and the functions of each.
- 2.3 Distinguishing between specific and non-specific defenses.
- 2.4 Distinguishing between primary and secondary immune responses.
- 2.5 Distinguishing between active and passive immunity.
- 2.6 Explaining how allergic reactions, tissue rejection reactions, and autoimmunity are related.
- 2.7 Comparing the functions of cell-mediated immunity and antibody-mediated immunity.

### **Competency 3: The Respiratory System**

Upon successful completion of this course, the student will be able to understand the respiratory system by:

- 3.1 Listing the general functions of the respiratory system.
- 3.2 Describing the structure and functions of each organ of the respiratory system.
- 3.3 Explaining how oxygen and carbon dioxide are carried by the blood and exchanged between the lungs and the tissues.
- 3.4 Describing the respiratory center and its role in inhalation and exhalation.

### **Competency 4: The Digestive System**

Upon successful completion of this course, the student will be able to understand the digestive system and its related functions by:

- 4.1 Naming and describing the major organs of digestion.
- 4.2 Explaining how food travels through the alimentary canal and discussing the mechanical and enzymatic activity occurring along the GI tract.
- 4.3 Listing and describing the factors that regulate food intake.

### **Competency 5: Metabolism and Nutrition**

Upon successful completion of this course, the student will be able to understand the roles of metabolism and nutrition by:

- 5.1 Defining metabolism and nutrition, and their roles in homeostasis.
- 5.2 Listing six classes of nutrients and distinguish between nutrients and essential nutrients.
- 5.3 Listing the major sources of carbohydrates, lipids, and proteins and how they are used by the cell(s).
- 5.4 Listing the fat-soluble and the water-soluble vitamins and stating the general functions of each class.
- 5.5 Explaining the importance of diet on health.

### **Competency 6: The Urinary System, Fluids, Electrolytes, and Acid-Base Balance**

Upon successful completion of this course, the student will be able to understand the urinary system and explain its related functions by:

- 6.1 Listing the organs of the urinary system .
- 6.2 Describing the structure of a kidney and discussing filtration, reabsorption, and secretion.
- 6.3 Discussing why kidneys are considered to be our most important homeostatic organ.
- 6.4 Describing the hormones affecting the kidneys, such as erythropoietin, aldosterone and ADH.
- 6.5 Listing the normal and abnormal components of urine, and discussing the importance of water and electrolyte balance.
- 6.6 Describing the various fluid compartments of the body and comparing their electrolyte composition.
- 6.7 Discussing the significance of physiological buffering by the lungs and kidneys.

### **Competency 7: The Reproductive System.**

Upon successful completion of this course, the student will be able understand the male and female reproductive systems by:

- 7.1 Naming the structure and functions of the male and female reproductive systems.
- 7.3 Comparing and contrasting spermatogenesis and oogenesis.
- 7.4 Explaining how hormones control the activities of the reproductive organs and discussing the role of hormones in the development of primary and secondary sexual characteristics.
- 7.5 Discussing the ovarian and menstrual cycles and explaining how they are related.
- 7.6 Describing the effects of aging on the reproductive systems of males and females.