

**J. Sargeant Reynolds Community College**  
**Course Content Summary**

**Course Prefix and Number:** BIO 141

**Credits:** 4

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

**Course Description:** Integrates anatomy and physiology of cells, tissues, organs, and systems of the human body. Integrates concepts of chemistry, physics, and pathology. Part I of II. Prerequisites: (1) BIO 101 (or an equivalent) or high school biology and chemistry completed within seven years of registering for this course with a grade of C or better **or** a score of 75% or higher on the Test of Essential Academic Skills (TEAS) **or** advisor approval, and (2) completion of ENF 2, if required by placement test, **or** instructor/advisor approval. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

**General Course Purpose:** To prepare health science and beginning science students with a basic understanding of anatomy and physiology through the lecture and practical (laboratory) approach. The course is primarily designed for health science students and science majors.

**Course Prerequisites and Co-requisites:**

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**Course Objectives:**

Upon completing the course, the student will be able to

- a. Use a microscope and common laboratory equipment;
- b. Demonstrate effective scientific writing and speaking;
- c. Discuss the history of anatomy and physiology, analyze medical terms, and describe self-restoration of the body via homeostasis;
- d. Identify anatomical planes, directional terms, and body regions and cavities;
- e. Describe chemistry as it is related to physiological processes within the human body;
- f. Describe and analyze basic cellular anatomy and processes to include cellular transport, the cell cycle, and genetics;
- g. Identify and describe tissue classes, their functions, and their representative locations on the human body;
- h. Describe and relate the structure and function of human skin to common skin disorders and various pathological issues;
- i. Identify and describe the histology and physiology of bone tissue, the process of bone development, shapes of bones, and some common bone disorders;
- j. Identify the bones and selected bone markings in the human skeleton and illustrate their functions;

- k. Identify types, classifications, and movements of joints, with a focus on synovial joints;
- l. Identify and classify characteristics of muscle tissue types, as well as the microanatomy and behavior of skeletal muscles to include muscle physiology;
- m. Name and identify selected muscles and their actions;
- n. Categorize major anatomical subdivisions of the nervous system in addition to the structure and function of nervous tissue, to include electrophysiology; and
- o. Identify and categorize anatomy and physiology of the brain and cranial nerves, spinal cord and spinal nerves, autonomic nervous system, and the senses.

**Major Topics to Be Included:**

- a. Histology
- b. Human systems analysis (e.g., circulatory, digestive, respiratory, nervous, musculoskeletal, endocrine, reproductive)
- c. Pathological concepts and clinical applications to human systems
- d. Disease etiology

**Effective Date of Course Content Summary:** June 18, 2015