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:
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

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