

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: BIO 142 **Credits:** 3

Course Title: Human Anatomy and Physiology II

Course Description:

Continues study of anatomy and physiology including endocrine system, blood and cardiovascular system, lymphatic system and immunity, respiratory system, urinary system, fluid, electrolyte, and acid-base balance, digestive system and nutrient metabolism, reproductive system, and prenatal development. Part II of II. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week. 4 credits

General Course Purpose:

The purpose of BIO 142 is to provide students with knowledge of human anatomy and how the major organ systems contribute to homeostasis.

Course Prerequisites/Corequisites:

Completion of BIO 141 with a grade of C or better

Course Objectives:

Upon completing the course, the student will be able to:

Organ Systems

- Describe the structure and function of the endocrine system and its role in maintaining homeostasis.
- Describe the composition of blood, both formed elements and plasma, and the functions of each component.
- Describe the processes of hematopoiesis and hemostasis.
- Explain the classifications and compatibility of blood groups.
- Describe the structure and function of the cardiovascular system, including hemodynamics.
- Compare and contrast prenatal and postnatal circulation.
- Describe the structure and function of the lymphatic system, including its relationship with the cardiovascular and immune systems.
- Compare and contrast innate and adaptive immunity, including a comparison of humoral and cell-mediated responses.
- Describe the structure and function of the respiratory system, including lung volumes and capacities, gas exchange, and gas transport.
- Describe the structure and function of the digestive system, including the functions of the enzymes and hormones involved in digestion.
- Describe the metabolism of macromolecules and the roles of vitamins and minerals.
- Describe the structure and function of the urinary system, including its role in blood pressure regulation.
- Explain the homeostatic regulation of fluids, electrolytes, and pH, including physiological and chemical buffering systems, and a brief description of common acid-base disorders.
- Describe the structure and function of the male and female reproductive systems.

- Describe the process of fertilization, general embryonic and fetal development, development of the placenta and extraembryonic membranes, pregnancy, and parturition.

Major Topics to be Included:

- Organ Systems

Effective Date/Updated: January 1, 2022