BIOL 221
Human Anatomy and Physiology II
4 Credits (3 hours lecture, 3 hours laboratory)

Community College of Baltimore County
Common Course Outline

Description

BIOL 221 – Human Anatomy and Physiology II: provides further study of the structure and function of the human body. This course emphasizes the lymphatic, circulatory, respiratory, reproductive, urinary, and digestive systems.

Pre-requisites: BIOL 220 with a minimum grade of "C" and MATH 083

Overall Course Objectives

Upon completion of this course, students will be able to:

1. apply the concepts of homeostasis, regional and directional terminology, and histology to the study of body systems;
2. explain how feedback loops maintain homeostasis within the reproductive, cardiovascular, lymphatic, respiratory, digestive, and urinary systems;
3. relate the structural features of the male and female reproductive systems to their roles in functional reproduction and inheritance;
4. relate the components of the blood to their functional roles in distribution of substances, regulation, and protection;
5. relate the structural properties of the heart and blood vessels to their functional roles in hemodynamics;
6. relate the structural properties of the lymphatic system to their functional roles in fluid dynamics and immunity;
7. relate the structural properties of the respiratory system to their functional roles in ventilation, external and internal respiration, and transport of respiratory gases;
8. relate the structural properties of the digestive system to their functional roles in digestion, absorption, and excretion;
9. explain the metabolism of major nutrients required by the human body;
10. explain the mechanisms of thermoregulation;
11. relate the structural properties of the urinary system to their functional roles in urine formation and excretion, and hemodynamics;
12. discuss the major electrolytes of the body and the homeostatic mechanisms that control fluid and electrolyte balance;
13. explain how the body maintains acid-base balance;
14. use current technology to calculate physiological parameters, collect, validate, and interpret data;

15. find, evaluate, use, and cite credible resources and incorporate the information effectively to explain the anatomical and physiological interrelationships within and between systems of the human body;
16. apply knowledge of the systems to practical problem-solving situations;
17. apply biological concepts to predict the consequences of physiological and anatomical changes on the body;
18. evaluate the ethical use of biomedical or biotechnological advances; and
19. evaluate the effects of society on the anatomy and/or physiology of the body

Major Topics

I. Reproductive Systems
II. Cardiovascular System
    a. Blood
    b. Heart
    c. Circulation
III. Lymphatic System
IV. Resistance to Disease
V. Respiratory System
VI. Digestive System
VII. Metabolism and Thermoregulation
VIII. Urinary System
IX. Fluid and Electrolyte Balance
X. Acid/Base Balance

Course Requirements

Grading will be determined by the individual faculty member, but shall include the following, at minimum:

Lecture Portion:

- Two interim exams
- A comprehensive final examination

Lab Portion:

- Two laboratory practical exams

50-70% of the grade will be derived from the lecture component of course. No more than 30% of a student's total grade may come from homework, non-proctored work, or open book tests.

Students must pass both the lab and lecture components with a 60% or better; failure to earn a minimum of 60% in either lab or lecture will result in failure of the entire course. Lecture and lab are not separate courses and must be taken concurrently.

Written Assignments: Students are required to use appropriate academic resources. The individual faculty member may require specific writing assignments.

Individual faculty members may include additional course objectives, major topics, and other course requirements above the minimum expectations stated in the Common Course Outline.

Assignments will assess General Education Outcomes.

Other Course Information

This course is an approved 4-credit General Education course in the Biological and Physical Sciences category that fulfills the laboratory requirement.

Date Revised: 2/17/2026