

ARIZONA WESTERN COLLEGE  
SYLLABUS

## BIO 160 INTRODUCTION TO HUMAN ANATOMY AND PHYSIOLOGY

Credit Hours: 4 Lec: 3 Lab: 3

PREREQUISITE: None

NOTE: ENG 101 (or equivalent) is highly recommended.

This course is NOT intended to serve as a replacement for the two-semester A&amp;P series (BIO 201 &amp; BIO 202).

## COURSE DESCRIPTION

Biology 160 is a study of the structure and function of the human body. This course is designed for students who desire a one-semester course in Anatomy and Physiology. The primary aim of this course is to provide students with an introductory experience that equips them to proficiently navigate the terminology, technology, and interconnected concepts within the field of anatomy and physiology, empowering students to apply this acquired knowledge within their designated academic pursuits. This course incorporates both lectures and laboratory experiences, guiding students through an exploration of the human body, organized conceptually by organ systems. This approach aims to reinforce comprehension of fundamental concepts in anatomy and physiology, as well as their implications for human health and disease.

## 1. COURSE GOALS

- 1.1 Locate, label, and recognize the basic structures of the human body.
- 1.2 Summarize the functions of each of the organ systems of the body.
- 1.3 Relate normal physiological processes to a loss of homeostasis in each of the organ systems studied.
- 1.4 Integrate an understanding of the functioning of the organs within each of the organ systems and the interactions of the body systems making up the whole individual.

## 2. OUTCOMES

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

- 2.1 Pronounce, define, and appropriately utilize the anatomical and scientific terminology to accurately describe body regions, directions, planes, and systems of the body.
- 2.2 Explain fundamental principles of chemical bonding and their relevance to physiological processes, including demonstrating osmosis and other chemical principles through laboratory investigations.
- 2.3 Recognize and describe the levels of organization of the human body, from chemical elements to the entire organism, including identifying major organelles of cells and their specific functions.
- 2.4 Identify, describe, and compare the major structures and functions of the 11 organ systems of the human body - integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive.
- 2.5 Demonstrate knowledge of body structure and function by examining and identifying major organs through models and dissection, and explaining each of their roles in human physiology.
- 2.6 Analyze homeostatic mechanisms, including how various organ systems maintain internal stability and what occurs during loss of homeostasis, utilizing real-world and clinical examples.
- 2.7 Describe how sensory receptors operate, and relate general senses of the skin to sensory functions, including investigating sensory pathways through laboratory activities.
- 2.8 Explain the principles of bone tissue structure and function, and identify bones using anatomical models and laboratory activities.
- 2.9 Explain the principles of joint structure and function, and demonstrate joint actions using anatomical models and laboratory activities.
- 2.10 Explain the principles of muscle tissue structure and function, and identify muscles and their actions using anatomical models and laboratory activities.

- 2.11 Examine brain structures through comparative dissection of mammalian specimens to identify major regions, evaluate their corresponding functions, and explain their roles in human physiology.
  - 2.12 Differentiate roles of the parasympathetic and sympathetic divisions of the autonomic nervous system, and explain their roles in human physiology.
  - 2.13 Demonstrate understanding of the genetic inheritance of blood types by performing a blood-typing activity (ABO + Rh systems), predict phenotypes using Punnett squares, and interpret lab results to explain how allelic combinations determine antigen expression and compatibility.
  - 2.14 Examine heart structures through comparative dissection of mammalian specimens to identify major external and internal features, evaluate their corresponding functions, and explain their roles in human physiology.
  - 2.15 Examine lung structures using anatomical models and/or comparative mammalian specimens to identify major external and internal features, evaluate their corresponding functions, and explain their roles in human physiology.
  - 2.16 Differentiate the roles of external and internal respiration, including investigating pressure-volume relationships through laboratory activities.
  - 2.17 Investigate and analyze enzyme activity in general chemical reactions, including factors such as substrate concentration, temperature, pH, and inhibitors, and apply this understanding to digestive system enzymes, interpreting laboratory data to explain how these factors influence digestion of carbohydrates, proteins, and lipids.
  - 2.18 Examine kidney structures through comparative dissection of mammalian specimens to identify major external and internal features, evaluate their corresponding functions, and explain their roles in human physiology.
  - 2.19 Examine whole organism structures through comparative dissection of a whole mammalian specimen (fetal pig, cat, rat), to integrate anatomical and physiological knowledge across mammalian organ systems, accurately identify and compare homologous structures, explain functional similarities and differences, interpret morphological variation, and use dissection observations to predict organ system interactions and physiological consequences in the human body.
  - 2.20 Work safely and effectively during dissections and laboratory activities, relating observed structures to their functions in human health and disease.
  - 2.21 Apply reasoning skills to solve scientific and clinical problems related to human anatomy and physiology.
3. AWC GENERAL EDUCATION (GE) CATEGORY & CRITERIA  
NATURAL SCIENCES
    - 3.1 How to describe explain, and predict natural phenomena using scientific, logical, and quantitative reasoning and empirical evidence from observation and experimentation.
    - 3.2 The use of experimentation and/or observation to study natural phenomena, using the scientific method.
    - 3.3 How to communicate information about the natural world using written, numeric, and/or visual formats; and when possible, how to use computational/simulation programming environments as a method for solving systems and simulating theoretical or experimental data.
    - 3.4 How to critically evaluate scientific information, including visual displays and quantitative data.
4. METHODS OF INSTRUCTION
    - 4.1 Lecture
    - 4.2 Laboratory exercises
    - 4.3 Slide presentations
    - 4.4 Films
    - 4.5 Classroom demonstrations
    - 4.6 Student discussion
5. LEARNING ACTIVITIES
    - 5.1 Lecture on the structure and function of the human body
    - 5.2 Guest speakers when available and relevant
    - 5.3 Audio-visual materials when appropriate

- 5.4 Recitation, class discussion, questions and answers to augment the lecture
  - 5.5 Internet explorations to augment the lecture
  - 5.6 Laboratory investigation through:
    - 5.6.1 Examination of preserved materials
    - 5.6.2 Viewing of microscopic preparations
    - 5.6.3 Examination of models
    - 5.6.4 Demonstrations by the instructor where applicable
    - 5.6.5 Experimentation to correlate with lecture material
  - 5.7 Writing Assignments
6. EVALUATION
- 6.1 Laboratory exercises
  - 6.2 Homework assignments
  - 6.3 Quizzes
  - 6.4 Exams
7. STUDENT RESPONSIBILITIES
- 7.1 Under AWC Policy, students are expected to attend every session of class in which they are enrolled.
  - 7.2 If a student is unable to attend the course or must drop the course for any reason, it will be the responsibility of the student to withdraw from the course. Students who are not attending as of the 45th day of the course may be withdrawn by the instructor. If the student does not withdraw from the course and fails to complete the requirements of the course, the student will receive a failing grade.
  - 7.3 Americans with Disabilities Act Accommodations: Arizona Western College provides academic accommodations to students with disabilities through AccessABILITY Resource Services (ARS). ARS provides reasonable and appropriate accommodations to students who have documented disabilities. It is the responsibility of the student to make the ARS Coordinator aware of the need for accommodations in the classroom prior to the beginning of the semester. Students should follow up with their instructors once the semester begins. To make an appointment call the ARS front desk at (928) 344-7674 or ARS Coordinator at (928) 344-7629, in the College Community Center (3C) building, next to Advising.
  - 7.4 Academic Integrity: Any student participating in acts of academic dishonesty—including, but not limited to, copying the work of other students, using unauthorized “crib notes”, plagiarism, stealing tests, or forging an instructor’s signature—will be subject to the procedures and consequences outlined in AWC’s Student Code of Conduct.
  - 7.5 Texts and Notebooks: Students are required to obtain the class materials for the course.
  - 7.6 Arizona Western College students are expected to attend every class session in which they are enrolled. To comply with Federal Financial Aid regulations (34 CFR 668.21), Arizona Western College (AWC) has established an Attendance Verification process for "No Show" reporting during the first 10 days of each semester.

Students who have enrolled but have never attended class may be issued a “No Show” (NS) grade by the professor or instructor and receive a final grade of “NS” on their official academic record. An NS grade may result in a student losing their federal financial aid.

For online classes, *student attendance in an online class is defined as the following* (FSA Handbook, 2012, 5-90):

    - Submitting an academic assignment
    - Taking an exam, an interactive tutorial, or computer-assisted instruction
    - Attending a study group that is assigned by the school
    - Participating in an online discussion about academic matters
    - Initiating contact with a faculty member to ask a question about the academic subject studied in the course