BIOL C221: INTRODUCTION TO ANATOMY AND PHYSIOLOGY

Item	Value
Curriculum Committee Approval Date	10/19/2007
Top Code	040100 - Biology, General
Units	4 Total Units
Hours	108 Total Hours (Lecture Hours 54; Lab Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)
Local General Education (GE)	• CL Option 1 Natural Sciences (CB2)
California General Education Transfer Curriculum (Cal-GETC)	• Cal-GETC 5B Biological Sciences (5B) • Cal-GETC 5C Laboratory Activity (5C)
Intersegmental General Education Transfer Curriculum (IGETC)	• IGETC 5B Biological Sciences (5B) • IGETC 5C Laboratory Activity (5C)
California State University General Education Breadth (CSU GE-Breadth)	• CSU B2 Life Science (B2) • CSU B3 Laboratory Activity (B3)

Course Description

Formerly: BIOL C105. This course with laboratory introduces students to the subject of Anatomy and Physiology of the human body. It highlights the interaction between different body systems to maintain homeostasis. This course prepares students for many programs in the medical field. Transfer Credit: CSU; UC: Credit Limitation: Credit may be granted for either BIOL C102 or BIOL C221 or BIOL C220, BIOL C225.

Course Level Student Learning Outcome(s)

1. Identify organs of each body system and describe how they work together to perform the functions of that system.
2. Correlate the structure of specific organs to their functions and the way that organ works to maintain homeostasis.

Course Objectives

- 1. Develop an understanding of the organization of the human body from atoms and molecules to organs and systems.
- 2. Understand the basic cellular anatomy and physiology including mitosis and meiosis
- 3. Describe general tissue types
- 4. Understand the basic structure and function of the 11 systems of the human body
- 5. Develop a working knowledge of the special senses

Lecture Content

Introduction to Anatomy and Physiology The science of Anatomy and Physiology Organization of the Human body Mechanisms of Homeostasis Anatomical Terms The Chemical level of organization Atoms and Molecules Chemical reactions Organic compounds Inorganic compounds The Structure and Function of the Cell The Cell Membrane The Cytoplasm The Nucleus Cell Organelles Cell Division Cellular respiration Protein synthesis The Tissue level of organization Epithelial tissue Connective Tissue Muscular Tissue Nervous (Neural) Tissue The Integumentary System Structure of the Integumentary System Functions of the Integumentary System Role of the Integumentary System in Homeostasis The Skeletal System Structure of bone Bone formation and remodeling Axial Skeleton Appendicular Skeleton Articulations The Muscular System Structure and Functions of Skeletal Muscles Mechanism of Skeletal muscle contraction The Axial Muscles The Appendicular Muscles Cardiac and Smooth Muscle Tissue Integration with other body systems The Nervous System Structure and function of Neurons Synapse and Neural communication The Central Nervous System The Peripheral Nervous System The Autonomic Nervous System Integration with other body systems The General and Special Senses The General Senses The Special Senses The Endocrine System Overview of the Endocrine System The Pituitary Gland The Thyroid Gland The Parathyroid Gland The Adrenal Gland The Pancreas The pineal Gland Integration with other systems The Cardiovascular System Blood The Anatomy of the Heart The Physiology of the Heart Blood Vessels The Pulmonary and Systemic Circulation The Lymphatic System and immunity The Organization of the Lymphatic System Nonspecific defenses Specific Responses Integration with other body systems The Respiratory System The Organization of the Respiratory system Respiratory Physiology and control of Respiration Integration with other systems The Digestive System and Nutrition Organs of the Digestive System Digestion, and Absorption of Nutrients Regulation of Gastrointestinal secretions and motility. Diet and Nutrition Metabolism The Urinary System The Organization of the Urinary System Urine production and transportation Fluid and Electrolyte Balance Integration with other body systems The Reproductive System, Development and Inheritance The Anatomy and Physiology of the Male Reproductive System The Anatomy and Physiology of the Female Reproductive System Fertilization and Pregnancy Development and Inheritance

Lab Content

Laboratory may include any of the following Study or use the microscope Study and/or perform microscopic examination of mitosis Study and/or perform microscopic examination of general tissue types Identify parts of the integumentary system on models and/or microscopic material Identify skeletal anatomy Identify muscles on models and/or dissections Identify parts of the nervous system on models and/or dissection Identify parts of the endocrine system on models and/or microscopic material Identify heart anatomy on models and/or dissections Conduct physiologic exercises on the heart including measurement of blood pressure Conduct basic spirometry Identify organs and tissues of the digestive system on models, dissections and/or microscopic slides. Identify parts of the urinary system on models, dissections and/or microscopic slides. Perform urinalysis Identify parts of the reproductive system on models, dissections and/or microscopic slides.

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- DE Online Lecture (02X)
- Lab (04)
- DE Live Online Lab (04S)
- DE Online Lab (04X)

Instructional Techniques

Lectures Videos PowerPoints Discussions Current events Laboratory exercises

Reading Assignments

Textbook and internet readings; lab assignments.

Writing Assignments

Essays; discussions; lab assignments.

Out-of-class Assignments

Research assignments, current events

Demonstration of Critical Thinking

Tests, essays, quizzes, group projects, lab exercises.

Required Writing, Problem Solving, Skills Demonstration

Given a real anatomical or physiological scenario, student should be able to analyze and interpret the information and come to proper conclusions

Eligible Disciplines

Biological sciences: Masters degree in any biological science OR bachelors degree in any biological science AND masters degree in biochemistry, biophysics, or marine science OR the equivalent. Masters degree required. Kinesiology: Masters degree in kinesiology, physical education, exercise science, education with an emphasis in physical education, kinesiology, physiology of exercise, or adaptive physical education OR Bachelors degree in any of the above AND Masters degree in any life science, dance physiology, health education, recreation administration or physical therapy OR the equivalent.

Textbooks Resources

1. Required Shier, David. Holes Essentials of Human Anatomy Physiology, 14th ed. McGraw-Hill, 2021

Manuals Resources

1. Shier, David. Lab Manual for Holes essential of Human Anatomy Physiology, McGraw-Hill , 01-01-2020

Other Resources

1. Coastline Library 2. OER: Anatomy and Physiology I II Labs (UGA)Weblink: https://oer.galileo.usg.edu/biology-collections/12/ 3. OER: Anatomy and Physiologyhttps://openstax.org/details/books/anatomy-and-physiology