BIOL G220: HUMAN ANATOMY

Item	Value
Curriculum Committee Approval Date	10/20/2020
Top Code	041000 - Anatomy and Physiology
Units	4 Total Units
Hours	144 Total Hours (Lecture Hours 36; Lab Hours 108)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	Yes
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)
Local General Education (GE)	• GWC Physical Universe*** (GB1)
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 G170. A course in basic human anatomy, covering the major body systems and including topics of both gross and microstructure of the organ systems. Designed for paramedical biology majors (nursing, x-ray technicians, physician's assistant, chiropractic, dental hygiene, pharmacy) and physical education majors. Will not satisfy transfer requirements for Biological Science majors. PREREQUISITE: BIOL G100 or BIOL G180 or BIOL G221; and ENGL G090 or ENGL G099 or English Placement Test; and course taught at the level of intermediate algebra or appropriate math placement. Transfer Credit: CSU; UC. C-ID: BIOL 110B. **C-ID:** BIOL 110B.

Course Level Student Learning Outcome(s)

1. Course Outcomes
2. Perform laboratory dissections using the proper instruments and techniques while adhering to laboratory safety protocol.
3. Explain major anatomical concepts.
4. Name and identify the basic structures of the human body.
5. Demonstrate the ability to place a structure of anatomical significance in proper orientation (location) for normal body function, so that structure location will become second nature as they study physiology (function) in the second (follow-up) course.
6. Describe and explain major anatomical structures involved in organ system integrational homeostasis.

Course Objectives

- 1. Utilize basic dissection skills.
- 2. Review anatomical structures and concepts as they relate to physiological processes.
- 3. Identify cellular, tissue, organ, and organ system structures of the human body.
- 4. Describe cellular, tissue, organ, and organ system structures of the human body and place them in the appropriate locations.
- 5. Describe structural or anatomical changes that occur in disease, injury, or aging of the human body.
- 6. Use appropriate anatomical terminology when describing anatomical concepts, physiological concepts, describing anatomical structures, and identifying anatomical structures.

Lecture Content

Introduction Approaches to anatomy Levels of organization Major organ systems Directional terms, planes and sections Body cavities and serous membranes Body regions and quadrants Terminology Cells Major parts Nucleus Anatomy Cell Membrane anatomy Cytoplasm anatomy Organelles Movement of substances Passive Transport Active Transport Division Tissues Anatomy and Function of major types and subtypes Epithelium Muscle Connective Nervous Specific examples of location Microscope use/tissue identification Integumentary System Definition Functions Anatomy of skin/derivatives Bone and Cartilage Tissue Function of Bone and Cartilage Anatomy and Function of specific cartilage types Cells Chondroblasts Chondrocytes Osteoprogenitor cells Osteoblasts Osteoclasts Osteocytes Histology Lamellar Bone Woven Bone Basic anatomy of spongy/compact bone Bone development Endochondral ossification Intramembranous ossification Fractures/repair Axial and Appendicular Skeleton Axial skeletal system Appendicular skeletal system Major emphasis on bone identification Joints Functional and Anatomical Classification Synarthrosis Amphiarthrosis Diarthrosis Cartilaginous Subtypes Fibrous Subtypes Synovial Subtypes Synovial Joints Anatomy Planes of movement Shapes Types of movement Examples Muscle Tissue Basic types/functions Organization Muscle Fascicle Muscle Fiber Myofibrils Myofilaments Neuromuscular Junction Contraction Lever System Naming of Muscles Nervous Function Divisions Anatomical Divisions Nervous Tissue Neuron Structure/Function/Classifications Glial Cell Structure/Function/Classifications Spinal Cord and Nerves Function Structure Protection: Meninges Reflex arc Plexuses Associated Nerves Plexuses Brian and Cranial Nerves Brain Function Brain Structure Cerebrum and components Diencephalon and components Brainstem and components Cerebellum and components Meninges C.S.F Formation and flow Autonomic Nervous System Structure/function Sympathetic/parasympathetic divisions and comparisons Special Senses Structure/Function Touch Taste Smell Vision Hearing Equilibrium Blood Function Components Plasma components Buffy coat components Red blood cell Anatomy Red blood cell life cycle Heart Location External Structures Internal St ructures Coronary Circulation Pulmonary Circulation Conduction System Circulatory System Vessel structure/properties Arteries Veins Capillaries Systemic and Pulmonary Circulation Fetal Circulation and changes Major vessel identification Lymphatic System Lymphatic function Lymphatic vessels Lymphatic cells Lymphatic structures Lymphatic organs Lymph flow Endocrine System Functions Major glands Hormones Target organs Comparison to nervous system Respiratory System Functions Upper respiratory tract anatomy Upper respiratory tract anatomy Respiratory membrane anatomy Gas exchange/flow Digestive System Function GI

Tract components (function/anatomy) Oral Cavity Pharynx Esophagus Stomach Small intestines and parts Large intestines and parts Accessory organ components (function/anatomy) Salivary glands Liver Gall bladder Pancreas Blood Supply Innervation Serous Membranes Histology Urinary System Function Kidney (function/anatomy) Nephron anatomy Urinary tract components (function/anatomy) Ureter Urinary bladder Urethra Histology Urinary reflex Blood supply Reproductive System Function > Male Major organs Sperm production/movement Hormones Female Major organs Ovarian Cycle Hormones Menstrual cycle

Lab Content

Introduction Anatomical terminology Cells Cell anatomy (Cell membrane, cytoplasm, organelles, and nucleus) Cell life cycle Microscope anatomy and use Tissues Identify various types of epithelial, connective, muscle, and nervous tissue Integument Identify the various layers, tissues, and accessory structures of the integument Bone Identify all 206 bones of the human body and various features on them Identify microscopic components of bone and cartilage Identify structural and functional classifications as well as ligaments associated with specific articulations such as (but not limited to): Acromioclavicular, glenohumeral, elbow, coxal, and knee Muscle Identify various muscles of the human body Identify microscopic components of muscle Identify origin and insertion of prime movers in the human body Nervous Identify structures of nervous tissue including anatomical components of a neuron and nerve Brain Identify structures of the brain belonging to the cerebrum, diencephalon, brainstem, and cerebellum Identify the 12 Cranial Nerves Spinal Cord and spinal nerves Identify structures of the spinal cord and location of specific spinal nerves Senses Identify the structures of the eye and ear Blood Identify the components of formed elements Erythrocytes, Platelets, Neutrophils, Lymphocytes, Monocytes, Eosinophils, Basophils Heart Identify the structures of the heart Circulatory system Identify the arteries and veins of the human body > Lymphatic system Identify the components of the lymphatic system Respiratory system Identify the components of the upper respiratory system Identify the components of the lower respiratory system Digestive system Identify the components of the upper gastrointestinal tract Identify the components of the accessory digestive organs Urinary System Identify the components of the kidney Identify the components of the urinary tract Reproductive System Identify the components of the female reproductive system Identify the components of the male reproductive system Endocrine System Identify the components of the endocrine system Cat Dissections Dissections are to be performed on cats when available Systems to be covered: Muscle Respiratory Digestive Reproductive Urinary See attachments for specific components/structures required for each system.

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

Will vary. Examples: Power Point, board work, study guides, videos, worksheets, hands-on work, project based learning, formative assessment, flipped classroom.

Reading Assignments

Chapter readings on a weekly basis.

Writing Assignments

Creative writing assignments, decision tress, pathway projects.

Out-of-class Assignments

Lab pages, quizzes, worksheets, drawings, creative projects, group projects.

Demonstration of Critical Thinking

Will vary. Examples: 1. Identify ways in which structure relates to function, 2. Identify problems that may result from structural abnormalities, 3. Compare and contrast the ways in which different systems function to maintain homeostasis.

Required Writing, Problem Solving, Skills Demonstration

Will vary. Examples for lecture: Multiple choice, fill-in-the-blank, matching, short answers, or essays may be given as exams. Questions will focus on: 1. Identifying structures, 2. Relating structure to function, 3. Describing developmental processes, 4. Analyzing systemic components, 5. Explain how anatomical problems relate to functional skills. Lab examples: 1. Identifying structures orally or on lab practicum using models, charts, pictures, or dissected material, 2. Cat dissection/oral exam on cat systems, using cats prepared by students. Lab Practicums given as "Method of Student Evaluations"

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.

Textbooks Resources

1. Required Michael P. McKinley, Ronald T. Harris, Valerie Dean OLoughlin.. Human Anatomy, 6th ed. McGraw Hill, 2020

Manuals Resources

1. Eckel, C.. Special GWC Edition: Human Anatomy Laboratory Manual, McGraw Hill , 01-01-2018 2. Allen Harper. Cat Dissection, A Laboratory Guide, Wiley , 01-01-2012

Other Resources

1. Dissection kit, safety goggles, nitrile gloves