

Course Outline

COURSE: BIO 7 **DIVISION:** 10 **ALSO LISTED AS:**

TERM EFFECTIVE: Fall 2021 **CURRICULUM APPROVAL DATE:** 06/08/2021

SHORT TITLE: HUMAN ANATOMY

LONG TITLE: Human Anatomy

<u>Units</u>	<u>Number of Weeks</u>	<u>Type</u>	<u>Contact Hours/Week</u>	<u>Total Contact Hours</u>
4	18	Lecture:	2	36
		Lab:	6	108
		Other:	0	0
		Total:	8	144

COURSE DESCRIPTION:

Structural organization of the human body: gross and microscopic structure of the integumentary, skeletal, muscular, nervous, sensory, endocrine, cardiovascular, lymphatic, respiratory, digestive, excretory, and reproductive systems, from cellular to organ system levels of organization. Includes dissection in lab. A cadaver is observed in this course. **PREREQUISITE:** BIO 8 or BIO 9 or BIO 10 or BIO 12 or BIO 15 with a grade of credit or C or better. (C-ID: BIOL 110B) **ADVISORY:** High school-level reading and writing skills and math skills equivalent to Intermediate Algebra.

PREREQUISITES:

- Completion of BIO 10, as UG, with a grade of C or better.
- OR
- Completion of BIO 12, as UG, with a grade of C or better.
- OR
- (Completion of BIO 15, as UG, with a grade of C or better.
- OR
- Completion of AH 15, as UG, with a grade of C or better.)
- OR
- Completion of BIO 8, as UG, with a grade of C or better.
- OR
- Completion of BIO 9, as UG, with a grade of C or better.

COREQUISITES:

CREDIT STATUS: D - Credit - Degree Applicable

GRADING MODES

L - Standard Letter Grade

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:

- 02 - Lecture and/or discussion
- 03 - Lecture/Laboratory
- 04 - Laboratory/Studio/Activity
- 04B - Laboratory - LEH 0.75
- 05 - Hybrid
- 71 - Dist. Ed Internet Simultaneous
- 72 - Dist. Ed Internet Delayed
- 73 - Dist. Ed Internet Delayed LAB
- 73B - Dist. Ed Internet LAB-LEH 0.75

STUDENT LEARNING OUTCOMES:

By the end of this course, a student should:

1. Identify structures of the human body.
2. Apply knowledge of structure learned at one level or system to other levels or systems.
3. Relate structures of the human body with their functions.
4. Develop basic laboratory and dissection skills which they will be able to utilize in further investigations.

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS

Curriculum Approval Date: 06/08/2021

LECTURE CONTENT:

1 LEC HOUR

Topic: Anatomical terms

Objectives:

1. Define and describe the contents of the body cavities.

Assignments: Read text. Answer homework questions.

1 LEC HOUR

Topic: Cell Structure and function

Objectives:

1. Describe the major biochemical molecules of life.
2. Describe the biochemical components of the cell.
3. Discuss the major function of proteins, carbohydrates, lipids and nucleic acids.
4. Describe the components of the cell membrane.
5. Describe the components and function of the eukaryotic cell.

Assignments: Read text. Answer homework questions.

1 LEC HOUR

Topic: Tissues

Objectives:

1. Describe the hierarchy of life.
2. Describe the importance of structure and how it relates to function.
3. Describe major tissue types Muscle, Endothelial, Nerve and Connective tissue.

Assignments: Read text. Answer homework questions.

1 LEC HOUR

Topic: Integument

Objectives:

1. Describe the structures and functions of the dermis, epidermis and subcutaneous layer and associated structures.
- 2 Describe and discuss the strata of the epidermis.
3. Describe the structure, function, development and distribution of hair.
4. Describe the structure of the nail.
5. Discuss the origin of skin color.
6. Clinical examples of the integument related to the normal versus abnormal, diseased (Psoriasis, basal cell carcinoma, squamous cell carcinoma and melanoma) or injured structures with regards to anatomy.

Assignments: Read text. Answer homework questions.

4 LEC HOUR

Topic: Skeletal system

Objectives:

1. Components of Osseous tissue.
2. Bone structure (bony and compact).
3. Skeletal System and organization.
4. Clinical examples of the integument related to the normal versus abnormal, diseased or injured structures with regards to anatomy.

Assignments: Read text. Answer homework questions.

1 LEC HOUR

Topic: Articulations

Objectives:

1. Describe the structure of the different joint types.
2. Discuss and describe the functional and structural classification of articulations.
3. Describe the types of movements (flexion, extension, etc.)
4. Discuss common clinical conditions of articulations.

Assignments: Read text. Answer homework questions.

1 LEC HOUR

Topic: Muscle Tissue

Objectives:

1. Discuss general characteristics and classification of muscle tissue.
2. Describe the sliding filament theory of contraction.
3. Discuss common clinical conditions that apply to muscle tissue.

Assignments: Read text. Answer homework questions.

2 LEC HOUR

Topic: Muscular System

Objectives:

1. Discuss how skeletal muscles cause movement
2. List and describe the different lever system, give examples and explain why lever systems are important to movement.
3. Discuss group actions of muscles.
4. Describe the structure of skeletal muscles and connective tissue component.
5. Identify selected muscles and their origin, insertion and action.
6. Discuss common clinical conditions that involve the muscular system.

Assignments: Read text. Answer homework questions.

1 LEC HOUR

Topic: Blood

Objectives:

1. Describe and discuss the function and composition of blood, including plasma, serum, and formed elements.
2. Discuss common clinical conditions that apply to the blood.

Assignments: Read text. Answer homework questions

1 LEC HOUR

Topic: Heart

Objectives:

1. Describe the structure and functions of the pericardium.
2. Describe the structure of the heart and their relation to function.
3. Be able to follow the pathway of blood through the heart.
4. Be able to follow the pathway of electrical conduction through the heart.
5. Describe the ECG and heart sounds and discuss their importance.
6. Discuss common clinical conditions that relate to the heart.

Assignments: Read text. Answer homework questions.

1 LEC HOUR

Topic: Blood Vessels/Circulation

Objectives:

1. Describe, compare and contrast: Arteries, veins, arterioles, venules, and capillaries
2. Describe these circulatory routes: systemic, pulmonary, hepatic portal, renal, coronary, cerebral, fetal.
3. Identify selected arteries and veins.
4. Discuss common clinical conditions that apply to the blood vessels.

Assignments: Read text. Answer homework questions.

1 LEC HOUR

Topic: Lymphatic system

Objectives:

1. Describe the lymphatic system and its functions.
2. Describe the general plan of lymph circulation.
3. Describe the structure and function of the organs of the lymphatic system.
4. Describe and discuss the fluid compartments and their applications.
5. Identify selected lymph nodes and vessels.
6. Discuss common clinical conditions that apply to the lymphatic system.

Assignments: Read text. Answer homework questions.

2 LEC HOUR

Topic: Nervous System;

Objectives:

1. Describe the organization of the nervous system.
2. Describe the histology and classification of cells of the nervous system.
3. Describe the mechanisms of impulse conduction transmission.

Assignments: Read text. Answer homework questions.

2 LEC HOUR

Topic: Brain and Cranial Nerves

Objectives:

1. Describe the structure and functions of the spinal cord, cranial nerves, nerve plexuses and brain.

Assignments: Read text. Answer homework questions.

1 LEC HOUR

Topic: Autonomic Nervous System

Objectives:

1. Describe the structures and functions of the autonomic nervous system.
2. Discuss common clinical conditions that apply to the nervous system.

Assignments: Read text. Answer homework questions.

1 LEC HOUR

Topic: Endocrine System

Objectives:

1. List and describe the organs of the endocrine and their functions.
2. Describe the relationship between the hypothalamus and the endocrine system.
3. Identify selected endocrine organs and histology.
4. Discuss common clinical conditions that apply to the endocrine system such as Gigantism, Acromegally, Addison's, Cushing's syndrome, Klinefelter's, Turner's syndrome, Diabetes, hypothyroidism.

Assignments: Read text. Answer homework questions.

2 LEC HOUR

Topic: Sensory Structures

Objectives:

1. Describe the structures and functions of the organs of simple and special sense. Include pathways to and roles of the brain.
2. Compare and contrast somatic and visceral sense; referred and phantom pain.
3. Describe sensory and motor pathways.
4. Identify selected structures and histology.
5. Discuss common clinical conditions that pertain to sensory structures.

Assignments: Read text. Answer homework questions.

2 LEC HOUR

Topic: Respiratory System

Objectives:

1. Describe the structures and functions of the organs of the respiratory system.
2. Describe the control of respiration.
3. List and define the air volumes exchanged in breathing.
4. Describe the effects of smoking on the respiratory and cardiovascular systems.
5. Identify selected structures and histology of the respiratory system.
6. Discuss common clinical conditions that pertain to the respiratory system such as asthma, emphysema.

Assignments: Read text. Answer homework questions.

2 LEC HOUR

Topic: Digestive System

Objectives:

1. Describe the structures and functions of the digestive system.
2. Discuss the importance of the peritoneum.
3. Be able to follow the pathway of food through the digestive canal and digestive processes.
4. Identify selected structures and histology of the digestive system.
5. Discuss common clinical conditions associated with the digestive system.

Assignments: Read text. Answer homework questions.

2 LEC HOUR

Topic: Urinary System

Objectives:

1. Describe and discuss the gross structure and histology of the kidney, urinary bladder, ureters and urethra.
2. Describe the structure and function of a cortical and juxtamedullary nephron.
3. Describe and discuss the importance of the juxtamedullary apparatus.
4. Describe the blood supply of the kidney.
5. Identify selected structures and histological features of the urinary system.
6. Discuss common clinical conditions associated with the urinary system such as Diabetes Insipidus, Diabetes Mellietus, Nephritis, Kidney failure and Dialysis.

Assignments: Read text. Answer homework questions.

2 LEC HOUR

Topic: Reproductive System

Objectives:

1. Describe the structures and functions of the male and female reproductive systems.
2. Discuss the processes of spermatogenesis and oogenesis.
3. Describe the structure of a mature sperm cell and ovum.
4. Describe the process of ovulation.
5. Describe the events and process of male and female intercourse.
6. Describe the composition and importance of semen.
7. Discuss common clinical conditions that affect the reproductive systems.

Assignments: Read text. Answer homework questions regarding the reproductive system.

2 LEC HOUR

Topic: Embryology and Developmental Anatomy

Objectives:

1. Describe and discuss: fertilization, implantation, placentation.
2. Describe: morula, blastocyst, gastrula, and germ layers; discuss their significance.
3. Describe and discuss the embryonic membranes.
4. Describe and discuss the placenta and umbilical cord.

Assignments: Read text. Answer homework questions.

2 LEC HOUR: Lecture Final

LAB CONTENT:

3 LAB HOUR

Topic: Anatomical position, directional terms, and planes of the body.

Objectives:

1. Identify anatomical positions, directional terms and planes of the body.

Assignments: read text; answer homework questions complete lab report regarding anatomical positions and directional terms.

2 LAB HOUR

Topic: Eukaryotic cell

Objectives:

1. Define and discuss mechanisms of membrane transport.
2. Discuss the structure and functions of animal cell organelles.
3. Describe cellular inclusions and extracellular materials.
4. Briefly describe mitosis and meiosis and mishaps in anatomy that may occur as a result of chromosomal nondisjunction, and/or mutations.

Assignments: read text, Answer homework questions; complete lab report.

1 LAB HOUR

Topic: Microscope Use

Objectives:

1. Be able to identify parts of the microscope and discuss their functions.
2. Be able to use a microscope at scanning through high power objectives.
3. Discuss the rules for proper use of the microscope.

Assignment: complete microscope lab report.

6 LAB HOUR

Topic: Tissues/Histology

Objectives:

1. Describe the different types of tissues discussed in text; include general and specific characteristics, example and function.
2. Be able to identify and classify the tissues discussed in lecture and text.
3. Discuss the functional and structural classification of glands.

Assignments: Read text. Answer homework questions; complete lab report on tissues and do a comparison of normal versus diseased, injured or age-related structural changes.

6 LAB HOUR

Topic: Integument

Objectives:

1. Identify the structures of the skin, hair and nails.
2. Clinical examples of the integument related to the normal versus abnormal, diseased (Psoriasis, basal cell carcinoma, squamous cell carcinoma and melanoma) or injured structures with regards to anatomy.

Assignment: Answer homework questions; complete lab report on the integument and do a comparison of normal versus diseased, injured or age-related structural changes.

6 LAB HOUR

Topic: Skeletal System

Objectives:

1. Describe the classification of bones according to shape.
2. Describe the structure of a generalized long bone.
3. Compare and contrast the histology of compact and dense bone.
4. Describe the osteon, its structures and their functions.
5. Describe types of bone cells.
6. Describe ossification.
7. Describe fracture repair and other common clinical conditions of the skeleton.
8. Identify the bones of the human body and their markings and unique characteristics.
9. Differentiate between axial and appendicular skeleton.
10. Compare male and female skeletons.

Assignments: Complete lab activities. Read text. Answer homework questions; complete Skeletal system lab reports and do a comparison of normal versus diseased, injured or age-related structural changes.

3 LAB HOUR

Topic: Articulations

Objectives:

1. Describe the structure of the different joint types.
2. Discuss and describe the functional and structural classification of articulations.
3. Describe the types of movements (flexion, extension, etc.)
4. Discuss common clinical conditions of articulations.

Assignments: Complete lab activities. Read text. Answer homework questions; complete articulation lab reports.

3 LAB HOUR

Topic: Muscular Tissues

Objectives:

1. Discuss general characteristics and classification of muscle tissue.
2. Describe the sliding filament theory of contraction.
3. Discuss common clinical conditions that apply to muscle tissue.

Assignments: Read text. Answer homework questions; complete lab reports.

4 LAB HOUR

Topic: Muscular System

Objectives:

1. Discuss how skeletal muscles cause movement
2. List and describe the different lever system, give examples and explain why lever systems are important to movement.
3. Discuss group actions of muscles.
4. Describe the structure of skeletal muscles and connective tissue component.
5. Identify selected muscles and their origin, insertion and action.
6. Discuss common clinical conditions that involve the muscular system.
7. Do a comparison of normal versus diseased, injured or age-related structural changes.

Assignments: Read text. Answer homework questions; complete lab reports.

3 LAB HOUR

Topic: Surface Anatomy

Objectives:

1. Be able to describe and identify selected surface anatomy features.

Assignments: Read text. Answer homework questions; complete lab reports.

2 LAB HOUR

Topic: Blood

Objectives:

1. Describe and discuss the function and composition of blood, including plasma, serum, and formed elements.
2. Discuss common clinical conditions that apply to the blood.
3. Do a comparison of normal versus diseased, injured or age-related structural changes.

Assignments: complete lab reports regarding blood.

5 LAB HOUR

Topic: Heart

Objectives:

1. Describe the structure and functions of the pericardium.
2. Describe the structure of the heart and their relation to function.
3. Be able to follow the pathway of blood through the heart.
4. Be able to follow the pathway of electrical conduction through the heart.
5. Describe the ECG and heart sounds and discuss their importance.
6. Discuss common clinical conditions that relate to the heart. Complete lab reports.
7. Do a comparison of normal versus diseased, injured or age-related structural changes.

Assignments: complete lab reports regarding the heart.

6 LAB HOUR

Topic: Blood Vessels

Objectives:

1. Describe, compare and contrast: Arteries, veins, arterioles, venules, and capillaries
2. Describe these circulatory routes: systemic, pulmonary, hepatic portal, renal, coronary, cerebral, fetal.
3. Identify selected arteries and veins.
4. Discuss common clinical conditions that apply to the blood vessels.
5. Do a comparison of normal versus diseased blood vessels, injured or age-related structural changes.

Assignments: complete lab reports.

2 LAB HOUR

Topic: Lymphatic System

Objectives:

1. Describe the lymphatic system and its functions.
2. Describe the general plan of lymph circulation.
3. Describe the structure and function of the organs of the lymphatic system.
4. Describe and discuss the fluid compartments and their applications.
5. Identify selected lymph nodes and vessels.
6. Discuss common clinical conditions that apply to the lymphatic system.
7. Do a comparison of normal versus diseased lymphatic tissue, injured or age-related structural changes.

Assignments: Read text. Answer homework questions; complete lab reports.

6 LAB HOUR

Topic: Nervous Tissue/ Spinal Cord, Spinal nerves

Objectives:

1. Describe the structure and functions of the spinal cord, spinal and cranial nerves, nerve plexuses and brain.
2. Discuss the components and examples of reflex arcs.
3. Do a comparison of normal versus diseased, injured or age-related structural changes.

Assignments: Complete Nerve tissue/spinal cord and spinal nerve lab report.

6 LAB HOUR

Topic: Brain and Cranial Nerves

Objectives:

1. Describe the structure and functions of the spinal cord, cranial nerves, nerve plexuses and brain.
2. Do a comparison of normal versus diseased, injured or age-related structural changes.

Assignments: Complete Brain and Cranial Nerves lab report.

6 LAB HOUR

Topic: Endocrine System

Objectives:

1. List and describe the organs of the endocrine and their functions.
2. Describe the relationship between the hypothalamus and the endocrine system.
3. Identify selected endocrine organs and histology.
4. Discuss common clinical conditions that apply to the endocrine system such as Gigantism, Acromegally, Addison's, Cushings syndrome, Kliefelters, Turners syndrome, Diabetes, hypothyroidism.
5. Do a comparison of normal versus diseased, injured or age-related structural changes.

Assignments: complete lab reports.

6 LAB HOUR

Topic: Sensory Structures

Objectives:

1. Describe the structures and functions of the organs of simple and special sense. Include pathways to and roles of the brain.
2. Compare and contrast somatic and visceral sense; referred and phantom pain.
3. Describe sensory and motor pathways.
4. Identify selected structures and histology.
5. Discuss common clinical conditions that pertain to sensory structures.
6. Do a comparison of normal versus diseased, injured or age-related structural changes.

Assignments: Read text. Answer homework questions; complete lab reports.

6 LAB HOUR

Topic: Respiratory System

Objectives:

1. Describe the structures and functions of the organs of the respiratory system.
2. Describe the control of respiration.
3. List and define the air volumes exchanged in breathing.
4. Describe the effects of smoking on the respiratory and cardiovascular systems.
5. Identify selected structures and histology of the respiratory system.
6. Discuss common clinical conditions that pertain to the respiratory system such as asthma, emphysema.
7. Comparison of normal versus diseased lungs (due to industrial or behavioral exposure).

Assignments: complete Respiratory lab report.

6 LAB HOUR

Topic: Digestive System

Objectives:

1. Describe the structures and functions of the digestive system.
2. Discuss the importance of the peritoneum.
3. Be able to follow the pathway of food through the digestive canal and digestive processes.
4. Identify selected structures and histology of the digestive system.
5. Discuss common clinical conditions and compare normal versus abnormal gastrointestinal tissue associated with the digestive system.

Assignments: Complete digestion histology lab and identify parietal, chief cells and mucosal lining and their function. Complete lab report and activities.

6 LAB HOUR

Topic: Urinary System and clinical conditions that affect the urinary system;

Objectives:

1. Describe and discuss the gross structure and histology of the kidney, urinary bladder, ureters and urethra.
2. Describe the structure and function of a cortical and juxtamedullary nephron.
3. Describe and discuss the importance of the juxtamedullary apparatus.
4. Describe the blood supply of the kidney.
5. Identify selected structures and histological features of the urinary system.
6. Discuss common clinical conditions associated with the urinary system such as Diabetes Insipidus, Diabetes Mellietus, Nephritis, Kidney failure and Dialysis.

Assignments: Read text. Answer homework questions; complete lab reports.

6 LAB HOUR

Topic: Reproductive System and clinical conditions that affect the reproductive system.

Objectives:

1. Describe the structures and functions of the male and female reproductive systems.
2. Discuss the processes of spermatogenesis and oogenesis.
3. Describe the structure of a mature sperm cell and ovum.
4. Describe the process of ovulation.
5. Describe the events and process of male and female intercourse.
6. Describe the composition and importance of semen.
7. Discuss common clinical conditions that affect the reproductive systems.

Assignments: Complete lab activities and submit lab report.

6 LAB HOUR

Topic: Embryology and common clinical conditions as a result of genetic, age-related or environmental effects on development of organ systems.

Objectives:

1. Describe and discuss: fertilization, implantation, placentation.
2. Describe: morula, blastocyst, gastrula, and germ layers; discuss their significance.
3. Describe and discuss the embryonic membranes.
4. Describe and discuss the placenta and umbilical cord.
5. Do a comparison of normal embryological development versus diseased such as spina bifida, and congenital heart disease.

2 LAB HOUR: Lab Final

METHODS OF INSTRUCTION:

Instructional methods will include lecture and lab, with use of audio visual aids, computer, models, slides and dissections of cadaver and other material.

OUT OF CLASS ASSIGNMENTS:

Required Outside Hours 40

Assignment Description

Homework, case studies, and other assignments

Required Outside Hours 32

Assignment Description

Lab assignments, Lab reports

METHODS OF EVALUATION:

Writing assignments

Evaluation Percent 15

Evaluation Description

Percent range of total grade: 10 % to 15 %

Lab Reports

Problem-solving assignments

Evaluation Percent 10

Evaluation Description

Percent range of total grade: 3 % to 10 %

Lab Reports

Quizzes

Skill demonstrations

Evaluation Percent 5

Evaluation Description

Percent range of total grade: 2 % to 5 %

Class Performance/s

Objective examinations

Evaluation Percent 70

Evaluation Description

Percent range of total grade: 70 % to 85 %

Multiple Choice

True/False

Matching Items

Completion

REPRESENTATIVE TEXTBOOKS:

VisibleBody Courseware

Human Anatomy Atlas (Version 2021) [Computer software]. (2021). Retrieved January 21, 2021, from www.visiblebody.com Title Principles of Human Anatomy, Publisher John Wiley & Son, Place of Publication USA

Author Gerard J. Tortora, Mark Nielsen, ISBN 978-1-119-66286-0, Year 2021

Reading Grade Readability Grade level 17 Grade Verified By: Microsoft

VisibleBody Courseware

Human Anatomy Atlas (Version 2021) [Computer software]. (2021). Retrieved January 21, 2021, from www.visiblebody.com

RECOMMENDED MATERIALS:

Allen & Harper, Laboratory Manual for Anatomy and Physiology, 5th Edition. ISBN: 978-1-118-34440-8
Wiley Publishing

ARTICULATION and CERTIFICATE INFORMATION

Associate Degree:

GAV B2, effective 201330

GAV B3, effective 201330

CSU GE:

CSU B2, effective 201330

CSU B3, effective 201330

IGETC:

IGETC 5B, effective 201330

IGETC 5C, effective 201330

CSU TRANSFER:

Transferable CSU, effective 201330

UC TRANSFER:

Transferable UC, effective 201330

SUPPLEMENTAL DATA:

Basic Skills: N

Classification: Y

Noncredit Category: Y

Cooperative Education:

Program Status: 1 Program Applicable

Special Class Status: N

CAN: BIOL10

CAN Sequence: BIOL SEQ B

CSU Crosswalk Course Department: BIO

CSU Crosswalk Course Number: 7

Prior to College Level: Y

Non Credit Enhanced Funding: N

Funding Agency Code: Y

In-Service: N

Occupational Course: E

Maximum Hours:

Minimum Hours:

Course Control Number: CCC000334780

Sports/Physical Education Course: N

Taxonomy of Program: 041000