Lassen Community College Course Outline

BIOL 21 Human Anatomy with Lab 4.0 Units

I. Catalog Description

One semester of a two semester sequence covering structure and function, integration and homeostasis of the human body at the cellular, tissue organ, organ system and organism level. This semester includes the structures of the integumentary, skeletal, muscular, nervous and sensory systems, cardiovascular, lymphatic, immune, respiratory, urinary, digestive, endocrine and reproductive systems. This course has been approved for Online and hybrid delivery.

Recommended Preparation: English 105 or equivalent multiple measures placement and Math 60 - Intermediate Algebra or the equivalent multiple measures placement, Biology 1 and Chemistry 1A

Transfers to CSU/UC
C-ID BIOL 110B
51 Hours Lecture, 102 Expected Outside Class Hours, 51 Hours Lab, 204 Total Student Learning Hours
Scheduled: Fall, Spring

II. Coding Information

Repeatability: Not Repeatable, Take 1 Time
Grading Option: Graded
Credit Type: Credit - Degree Applicable
TOP Code: 041000

III. Course Objectives

A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:

1. Explain the structures and location within the various body systems
2. Perform biological laboratory skills and display a habit of good laboratory practices.
3. Exhibit oral and written communication competency

B. Course Objectives

1. Describe key structural features of different human cell and major tissue types.
2. Identify and describe the anatomy of the systems of the human body
3. Explain the relationship between the structures and functions found at the cellular and system levels of human body organization
4. Describe structural or anatomical changes that occur in disease, injury or aging of the human body systems.

IV. Course Content

The following topics may be included; however, the order of presentation, relative emphasis and the depth of treatment will depend on the preferences of the instructor.

A. Cellular Biology
    1. Membrane Structure
    2. Cellular Organelle Structure
B. Histology (Structure, Function, Location)
    1. Epithelium

2. Connective
3. Muscle
4. Nerve

C. Integumentary System
1. Structure
2. Normal versus diseased, injured or age-related structural changes

D. Skeletal System
1. Bones of the Human Body
2. Structure of Bones
3. Articulations
4. Identify of Bones and features (processes, sutures, foramen, etc.)
5. Normal versus diseased, injured or age-related structural changes

E. Muscular System
1. Types of Muscles
2. Structure of Muscles
3. Naming of Muscles
4. Myoneural Junction structure
5. Identity of major muscles and selected origins, insertions and actions
6. Normal versus diseased, injured or age-related structural changes

F. Nervous System
1. Organization and Development of the Nervous System
2. Central Nervous System
3. Peripheral Nervous System
a. Somatic Division
b. Autonomic Division (Sympathetic and Parasympathetic)
4. Senses
a. Receptors
b. Tactile Senses
c. Chemical Senses
d. Vision
e. Senses of the Ear
5. Identity of various locations in the nervous system (regions, nerves, tract, nuclei, etc.)
6. Normal versus diseased, injured or age-related structural changes

G. Circulatory System
1. Structure of the system (heart, vessels and blood)
2. Lymphatic system
3. Immunity
a. Non-specific Immunity
b. Specific Immunity
4. Normal versus diseased, injured or age-related structural changes

H. Respiratory System
1. Types of respiration
2. Structure of the system
3. Normal versus diseased, injured or age-related structural changes

I. Digestive System
1. Structure of the system
2. Normal versus diseased, injured or age-related structural changes

J. Excretory System
    1. Structure of the system
    2. Normal versus diseased, injured or age-related structural changes
K. Endocrine System
    1. Role of system
    2. Components of the system
    3. Normal versus diseased, injured or age-related structural changes
L. Reproductive System
    1. Structure of the male and female reproductive systems
    2. Normal versus diseased, injured or age-related structural changes
G. Development
    1. Three primary germ layers
    2. Neurulation

Laboratory Content

A. Introduction to the Microscope - Eukaryotic Cell Structure
B. Scientific Inquiry and Experimental Design
C. Terms of Direction and Cavities
D. Histology (identification, diagram and label)
    1. Epithelial Tissues
    2. Connective Tissues
    3. Muscle Tissues
    4. Nerve Tissue
    5. Types of Membranes
    6. Types of Exocrine Glands
E. Integumentary System
    1. Observation of Models and Charts
    2. Identification of Structures on Models
    3. Histology (identification, diagram and label)
F. Skeletal System
    1. Identification of Bones (processes, foramen, and other structures)
    2. Identification of Articulations
G. Skeletal Muscular System
    1. Animal Dissection and Identification
    2. Identification of Structures on Models
H. Nervous System
    1. Sheep Brain Dissection and Identification
    2. Identification of Structures on Human Brain Slices
I. Sensory Structures
    1. Cow Eye Dissection and Identification
    2. Identification of Structures on Models
J. Circulatory System
    1. Animal Dissection and Identification
    2. Identification of Structures on Models
K. Respiratory System
    1. Animal Dissection and Identification
    2. Identification of Structures on Models
L. Digestive System
    1. Animal Dissection and Identification
    2. Identification of Structures on Models
M. Excretory System

1. Animal Dissection and Identification
2. Identification of Structures on Models

N. Endocrine System
1. Animal Dissection and Identification
2. Identification of Structures on Models

O. Reproductive Systems (Male and Female)
1. Animal and organ Dissection and Identification
2. Identification of Structures on Models

P. Development
1. Identification of Structures on Models

V. Assignments

A. Appropriate Readings

Reading assignments which will be used to enhance the learning process may include, but are not limited to:

1. Standard college level lecture and laboratory texts
2. Monthly scientific journals such as Scientific American and Science
3. Electronic and other archival research on a variety of topics in human anatomy and physiology
4. Newspaper articles relevant to current topics in human anatomy and physiology

B. Writing Assignments

In order to successfully complete this course, students must demonstrate understanding of course content through writing assignments which may include, but are not limited to:

1. Essay answers to questions on exams
2. Maintain a laboratory notebook
3. Research paper on a topic pertinent to human anatomy

C. Expected Outside Assignments

Examples of outside assignments may include, but are not limited to:

1. Reading assignments as specified in the course syllabus
2. Library and Learning Center: electronic and other archival research on a variety oftopics in the field of human anatomy and physiology
3. Research paper on a topic of interest pertinent to the human body
4. Read and summarize newspaper articles relevant to current topics in human anatomyand physiology
5. Imaging and labeling of histology slides in preparation of a histology notebook

Students will be required to complete two hours of outside-of-class homework for each hour of lecture.

D. Specific Assignments that Demonstrate Critical Thinking

Examples of assignments that demonstrate critical thinking may include, but are not limited to:

1. Review of periodicals and newspapers
2. Analysis and synthesis of information presented in the text and during lecture to formulate answers to essay questions on mixed format exams

VI. Methods of Evaluation

The formulation of a student grade will be based upon:

Traditional Classroom Evaluation

A. Performance on mixed-format exams including essay questions asking students to critically analyze topics discussed in class.

B. Performance on unit laboratory practical exams

C. Performance on a term paper based on research

D. Performance of a laboratory notebook

Hybrid Evaluation
A combination of traditional classroom and online evaluations will be used, such as (1) Traditional Classroom: objective examinations and essay examinations, laboratory practical examinations, laboratory notebook and (2) Online delivery: online quizzes, essay forum postings, chat rooms and email communications.
Online Evaluation:
Identical to face-to-face instruction including a variety of evaluation methods such as: research papers, asynchronous and synchronous discussions (chat/forum), exercises/assignments, online quizzes and exams, and postings to online website.

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

☒ Traditional Classroom Delivery ☐ Correspondence Delivery

☒ Hybrid Delivery ☒ Online Delivery

Traditional Classroom Instruction
1. Lecture and computer assisted presentations
2. Computer generated tutorials
3. Laboratory
4. Discussion and problem solving performed in and outside class
5. Homework and extended projects
6. Collaborative projects

Hybrid Delivery
Hybrid modality may involve face to face instruction mixed with online instruction. A minimum of 1/3 of instruction including 100 % of labs will be face to face. The remaining hours will be taught online through a technology platform as adopted by the district.
Online Delivery:
Online instruction will be utilized through the technology platform adopted by the District. A mixture of asynchronous and synchronous methods will be utilized. Online delivery will consist of participation in live video meetings, forum-based discussions and posts, web links, email communications, lecture posts, exams and online lectures. Adding extra resources and other media sources as appropriate.

VIII. Representative Texts and Supplies

Required:
Marieb, E.N., Wilhelm, P.B., Mallatt, J.B. "*Human Anatomy* ", 2020, 9th edition, Pearson. This textbook may be purchased in a cloth/paper bound version, ISBN: 9780135168059 or in a loose-leaf version, ISBN: 9780135206195, or as an eText version, ISBN 9780135273005 all without the online assignment system.

When a BIOL 21 section requires the use of an online assignment system, the eText and Mastering can be purchased as a bundle (ISBN 9780135241356, eText and Mastering access) ***OR*** Learning Catalytic may be purchased separately in addition to the eText (ISBN 9780134433271, 6-month Learning Catalytic Access without eText). Please

consult the instructor of record prior to making any purchases.

A laboratory manual resources will be prepared and provided by instructor.

Recommended:
"Atlas of Histology", Eroschenko, 8th edition, Williams.

Reynolds, M., Pelzer, E., Gregory, L., Shariff, M., Richardson, N., & Battle, A. "*Anatomy & Physiology [CC BY4.0]*" 2020, Queensland University of Technology. https://qut.pressbooks.pub/anatomyandphysiology/

IX. Discipline/s Assignment

Biological Sciences

X. Course Status

Current Status: Active
Original Approval Date: 01/21/2020
Course Originator: Crystal Tobola
Board Approval Date: 02/11/2020
Chancellor's Office Approval Date: 02/20/2020
Revised By: Kelly Kissane, Tiffany Baiocchi
Curriculum/Academic Standards Committee Revision Date: 03/07/2023