METROPOLITAN STATE COLLEGE *of* DENVER
Office of Academic Affairs

REGULAR COURSE SYLLABUS

College of: Letters, Arts and Sciences

Department: Biology

CIP Code: 26.0706

Prefix & Course Number: BIO 2310 **Crosslisted With*:** _____

Course Title: Human Anatomy and Physiology I

Check All That Apply: Required for Major: _____ Required for Minor: _____ Specified Elective: X

Required for Concentration: _____ Elective: _____ Service Course: X

Credit Hours: 4 (3+3)

Total Contact Hours per semester (assuming 15-16 week semester):

Lecture 45 Lab 45 Internship _____ Practicum _____ Other (please specify type and hours): _____

Schedule Type(s): B **Grading Mode(s)**: L

Variable Topics Courses (list restrictions, including the maximum number of hours that can be earned**):

_____

**** NOTE: This information must be included in the course description.**

Restrictions (Variable Topics Course): _____

Prerequisite(s): BIO 1080 and BIO 1090 or permission of instructor.

Corequisite(s): _____

Prerequisite(s) or Corequisite(s): _____

Banner Enforced:

Prerequisite(s): BIO 1080 and BIO 1090
Corequisite(s): _____
Prerequisite(s) or Corequisite(s): _____

Catalog Course Description:
This is the first of two courses addressing the structure and function of the human body. Topics include tissues, anatomy and physiology of the musculoskeletal, nervous, and sensory systems.

APPROVED:

Fordyce Lux	9/9/24
Department Chair/Institute Director	Date
Ting Jiang	11/29/24
Dean	Date
Shaun Schafer	12/17/24
Associate VP, Curriculum	Date

BIO 2310

Required Reading and Other Materials will be equivalent to:

1. Van Putte, Regan and Russo**,** *Seeley's Anatomy & Physiology*, McGraw-Hill, Evergreen Edition, 2024, or similar Open Educational Resource.
2. Marieb and Smith, *Human Anatomy and Physiology Laboratory Manual with Cat Dissections*, Pearson, 13th Edition, 2019, or similar Open Educational Resource.

Specific, *Measurable* Student Behavioral Learning Objectives (format: 1, a, i, ii, etc.)**:**

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

Lecture:

1. Define common anatomical terms and understand the various levels of organization in the body, from simplest to most complex.
2. Explain how homeostasis correlates to maintaining normal body physiology.
3. Describe the four major tissue types at a histological level.
4. Describe the components and functions of the skeletal system.
5. Correlate the structure of principal joints with their functions.
6. Explain the relationship between bones and muscles in producing body movements.
7. Discuss the structure and function of skeletal muscle fibers, skeletal muscle tissues, and whole muscles.
8. Compare smooth, cardiac, and skeletal muscle tissues.
9. Describe neuron types and their functions.
10. Explain the functional organization of the nervous system.
11. Discuss the functions of different brain regions.
12. Explore autonomic controls, including parasympathetic and sympathetic pathways and responses.
13. Correlate the structure of major eye components with their functions.
14. Describe auditory and vestibular pathways and functions.
15. Explain mechanisms for taste, olfaction, and mechanoreception.

Laboratory:

1. Develop and demonstrate safe and effective dissection techniques.
2. Differentiate between the four major tissue types and identify several examples in each category.
3. Identify bones and major surface features of the human skeleton.
4. Identify major skeletal muscles by their names, attachments, and functions.
5. Identify principal parts of central and peripheral nervous systems.
6. Explain results after conducting sensory and motor physiology experiments

Detailed Outline of Course Content (Major Topics and Subtopics) **or Outline of Field Experience/Internship (experience, responsibilities and supervision)** (format: I, A, 1, a, etc.):

I. Lecture
   - A. Introduction to basic anatomy and terminology
   - B. Tissue types
   - C. Skeletal morphology
     1. Microanatomy of bone and cartilage
     2. Bone physiology
     3. Functional anatomy of the human skeleton
   - D. Arthrology
     1. Structure and function of joints
     2. Classification of joints
   - E. Muscular System
     1. Physiology of muscle contraction
     2. Survey of human muscles
     3. Analysis of bone - muscle interactions
     4. Origins

5. Insertions
6. Actions

F. Nervous System
1. General design and functional divisions of the nervous system
2. Membrane potentials
3. Action potentials and neuronal functions
4. Anatomy and physiology of the spinal cord and spinal nerves
5. Anatomy and physiology of the brain and cranial nerves
6. Sensory and motor physiology

II. Laboratory
A. Tissues
B. Human skeleton (identification of bones and surface markings)
C. Muscular system (dissection and identification of muscles)
D. Central and peripheral nervous systems (nerve dissection and sheep brain)
E. Sensory and motor physiology

Evaluation of Student Performance (format: 1, a, i, ii, etc.):

Students will be evaluated on the basis of:
1. A combination of lecture exams and/or quizzes.
2. Laboratory exams and/or laboratory assignments.
3. Final examination.