JAMESTOWN COMMUNITY COLLEGE
State University of New York

INSTITUTIONAL COURSE SYLLABUS

Course Title: Anatomy & Physiology I

Course Abbreviation and Number: BIO 2510 **Credit Hours:** 4 **Course Type:** Lecture/Lab

Course Description: This first of two sequential human anatomy and physiology courses is designed for students who have had little or no previous study of the body or the physical and chemical principles on which body structure and function is based. In this course, students will learn basic chemistry and physics, cytology, and histology. Students will study the following organ systems: integumentary, skeletal, muscular, cardiovascular, lymphatic, and respiratory. In the accompanying laboratory, students will learn basic terminology, microscopy, animal dissection, organ dissection, and experimental process and protocols.

Prerequisite/Corequisite: ENG 1510; Prerequisite: CHE 1500 (or above)-unless high school chemistry was passed.

General Education Requirements Met

SUNY	JCC
Natural Sciences	Scientific Reasoning

Student Learning Outcomes:

Students who demonstrate understanding can.

1. Demonstrate an understanding of the methods scientists use to explore natural phenomena, including observation, hypotheses development, measurement and data collection, experimentation, evaluation of evidence, and employment of data analysis or mathematical modeling. [SUNY Gen Ed – Natural Sciences]
2. Application of scientific data, concepts, and models in one of the natural sciences. [SUNY Gen Ed – Natural Sciences]

Topics Covered:

- Introduction to Human Anatomy and Physiology
- Anatomy and Physiology
- Levels of Organization
- Characteristics of Life
- Maintenance of Life
- Organization of the Human Body
- Life-Span Changes
- Anatomical Terminology

- Chemical Basis of Life
- Structure of Matter
- Chemical Constituents of Cells

- Cells
- Composite Cell
- Movements Into and Out of the Cell
- Cell Cycle
- Control of Cell Division
- Stem and Progenitor Cells
- Cell Death

- Cellular Metabolism
- Metabolic Processes
- Control of Metabolic Reactions
- Energy for Metabolic Reactions
- Cellular Respiration
- Nucleic Acids and Protein Synthesis
- Changes in Genetic Information

- Tissues
- Epithelial Tissues
- Connective Tissues
- Types of Membranes
- Muscle Tissues
- Nervous Tissues

- Integumentary System
- Skin and its Tissues
- Accessory Structures of the Skin
- Regulation of Body Temperature
- Healing of Wounds and Burns
- Life-Span Changes

- Skeletal System
- Bone Structure
- Bone Development and Growth
- Bone Function
- Skeletal Organization
- Skull
- Vertebral Column
- Thoracic Cage
- Pectoral Girdle
- Upper Limb
- Pelvic Girdle
- Lower limb
- Life-Span Changes

- Joints of the Skeletal System
- Classification of Joints
- General Structure of a Synovial Joint
- Types of Synovial Joints
- Types of Joint Movements
- Examples of Synovial Joints
- Life-Span Changes

- Muscular System

- Structure of a Skeletal Muscle
- Skeletal Muscle Contraction
- Muscular Responses
- Smooth Muscles
- Cardiac Muscle
- Skeletal Muscle Actions
- Major Skeletal Muscles
- Life-Span Changes

- Respiratory System
- Why We Breathe
- Organs of the Respiratory System
- Breathing Mechanism
- Control of Breathing
- Alveolar Gas Exchanges
- Gas Transport
- Life-Span Changes

- Blood
- Blood Cells
- Blood Plasma
- Hemostasis
- Blood Groups and Transfusions

- Cardiovascular System
- Structure of the Heart
- Heart Actions
- Blood Vessels
- Blood Pressure
- Paths of Circulation
- Arterial System
- Venous System
- Life-Span Changes

- Lymphatic System and Immunity
- Lymphatic Pathways
- Tissue Fluid and Lymph
- Lymph Movement
- Lymph Nodes
- Thymus and Spleen
- Body Defenses Against Infection
- Innate (Nonspecific) Defenses
- Adaptive (Specific) Defenses or Immunity
- Life-Span Changes

Information for Students

- Expectations of Students
  - Civility Statement
  - Student Responsibility Statement
  - Academic Integrity Statement
- Accessibility Services
  Students who require accommodations to complete the requirements and expectations of this course because of a disability must make their accommodation requests to the Accessibility Services Coordinator.
- Get Help: JCC & Community Resources
- Emergency Closing Procedures
- Course grade is determined by the instructor based on a combination of factors, including but not limited to, homework, quizzes, exams, projects, and participation. Final course grade can be translated into a grade point value according to the following:

A=4.0	B+=3.5	B=3	C+=2.5	C=2	D+=1.5	D=1	F=0

- Veterans and active duty military personnel with special circumstances (e.g., upcoming deployments, drill requirements, VA appointments) are welcome and encouraged to communicate these to the instructor.

Effective Date: Fall 2023