straighterline

Syllabus

BIO201L | **Anatomy & Physiology I Lab**

Course Text

Custom Lab Kit–Sold Separately

This course requires lab kit SI-11066-AP-01 from Science Interactive for $220 (plus shipping).

Students also planning to enroll in the Anatomy & Physiology II Lab course (BIO202L) can save money by purchasing a combined lab kit, SI-11048-AP-01, for $340 (plus shipping).

Course Description

This lab-only course is designed as a standalone addition to the Anatomy & Physiology I course. Students will complete at-home laboratory experiments, track and record results, answer lab-based questions reflected in graded lab reports, and complete lab-based assessments to meet the lab requirement. The labs are provided by Science Interactive, a leading provider of at-home lab kits and online lab instructional materials and resources.

Learning Outcomes

After completing this course, students will be able to:

1. Describe the structural and functional organization of the body
2. Use anatomical terminology
3. Describe how the body maintains homeostasis
4. Relate chemistry to the field of anatomy and physiology
5. Describe how cells function and divide
6. Discuss the structures and functions of the integumentary, skeletal, muscular, nervous and endocrine systems
7. Describe how muscles, bones, and nerves work together to create movement
8. Describe the structure and function of sensory organs
9. Describe the interactions between various organ systems in the body

Course Prerequisites

There are no prerequisites for this course.

Academic Integrity Statement

Academic integrity is the pursuit of scholarly activity in an honest, truthful and responsible manner. Violations of academic integrity include, but are not limited to, plagiarism, cheating, fabrication and academic misconduct. Failure to comply with the Academic Integrity Policy can result in a failure and/or zero on the attempted assignment/examination, a removal from the course, disqualification to enroll in future courses, and/or revocation of an academic transcript.

Course Completion Policy

In order for a course to be considered complete, **all required coursework must be attempted, submitted, and graded.** Required coursework consists of graded assignments. Any Academic Integrity Policy violations may prevent a course from being considered complete.

Assessment Types

StraighterLine courses may include any combination of the assessment types described below. Review the descriptions to learn about each type, then review the Course Evaluation Criteria to understand how your learning will be measured in this course.

Benchmarks

Benchmarks test your mastery of course concepts. You have 3 attempts, and your highest score counts. **Note:** Cumulative Benchmarks (final exams) only allow 1 attempt.

Capstones

Capstones are project-based assessments that help you apply concepts to real-world scenarios. You have 2 attempts, and your highest score counts.

Checkpoints

Checkpoints are quick knowledge checks on important course concepts. All are open-book, and most have 1-3 attempts.

AI Use-Case Policies

StraighterLine Capstone assessments operate under one of three AI Use-Case Policies. These designations are selected intentionally to support learners in developing digital literacy, ethical reasoning, and authentic communication skills. Each model requires students to engage meaningfully with the course outcomes while adhering to academic standards.

Independent Work Requirement: Capstones with this designation must be completed independently without using AI tools. The goal is for learners to showcase their own understanding and skills without AI assistance. Students are expected to generate and submit original work developed solely through their own reasoning and effort.

AI-Assisted Planning Option: Capstones with this designation may allow AI tools to support brainstorming and assessment planning. If allowed, students will be asked to document any AI assistance by noting how it informed their work. Documentation must be included within the assignment or in a designated reflection field. Examples include describing how an AI tool helped organize an outline, generate ideas, or surface sources for further exploration.

AI-Integration Requirement: Capstones with this designation require AI tools as part of the learning process. Students will be asked to reflect upon their AI interactions and AI contributions to the assessment. Reflections must include which tools were used, how they were used, and what insights students gained from the process. This promotes transparency, ethical use, and metacognitive skill-building.

Course Evaluation Criteria

Your score provides a percentage score and letter grade for each course. A passing percentage is 70% or higher.

There are a total of 1000 points in the course:

Assessment	Points	Learning Outcomes
Checkpoint 1: Getting Started	2	N/a
Checkpoint 2: Lab Safety	2	N/a
Checkpoint 3: Using the V-Scope	3	N/a
Checkpoint 4: Lab Kit Inventory	3	N/a
Capstone 1: Anatomical Orientations	66	1, 2
Capstone 2: Physiology of the Muscle System	66	3, 6, 7
Capstone 3: Cell Membrane Transport	66	3, 4, 5
Capstone 4: Mitosis and Meiosis	66	4, 5
Capstone 5: Axial and Appendicular Skeleton	66	1, 2, 6, 7
Capstone 6: Cell Structure and Function	66	4, 5
Capstone 7: Gross Anatomy of the Muscular System	66	2, 6, 7
Capstone 8: Joints	66	1, 6, 7
Capstone 9: Overview of the Skeletal System	66	1, 6, 7
Capstone 10: Senses	66	6, 8
Capstone 11: The Central Nervous System	66	3, 6, 7, 9
Capstone 12: The Endocrine System	66	3, 6, 9
Capstone 13: The Integumentary System	66	1, 6
Capstone 14: The Peripheral Nervous System	66	6, 7, 9
Capstone 15: Tissues and Histology	66	1, 5, 6
Total	**1000**	

Course Roadmap

This roadmap provides an overview of the checkpoints and lessons covered in this course.

Checkpoint 1: Getting Started

- The Science Interactive Cloud
- Exploration, Experimentation, and Evaluation
- Science Interactive Resources

Checkpoint 2: Lab Safety

- Safety guidelines for using Science Interactive lab kits
- Terms associated with common laboratory safety equipment

Checkpoint 3: Using the V-Scope

- Purpose and function of the SI V-Scope
- Controls of the SI V-Scope
- SI V-Scope selection, visibility, download, and reference of slides
- Special rules for using the SI V-Scope in microscopy

Checkpoint 4: Lab Kit Inventory

- Kit contents list
- Reviewing your Science Interactive kit

Capstone 1: Anatomical Orientations

- Anatomical position and its importance
- Anatomical terms and reference planes
- Major body cavities

Capstone 2: Physiology of the Muscle System

- Action potential, resting membrane potential, neuromuscular junction, and motor unit
- Different types of muscle contractions and fatigue
- Electromyogram and nerve conduction study

Capstone 3: Cell Membrane Transport

- The structure and function of the cellular plasma membrane
- Simple diffusion, osmosis, and active transport
- Water movement across a membrane in hypertonic, hypotonic, and isotonic solutions

Capstone 4: Mitosis and Meiosis

- Stages of the cell cycle
- The processes of mitosis and meiosis
- How karyotyping is used to identify chromosomal disorders

Capstone 5: Axial and Appendicular Skeleton

- Bones and regions of the axial and appendicular skeleton
- Anatomy of the pectoral and pelvic girdles.

Capstone 6: Cell Structure and Function

- Structures found in animal cells
- Significance of the surface area to volume ratio as it relates to simple diffusion within a cell

Capstone 7: Gross Anatomy of the Muscular System

- Origin, insertion, agonist, synergist, fixator, and antagonist
- Criteria for naming muscles
- Actions of major muscles of the head, torso, and arm

Capstone 8: Joints

- Lacuna, chondrocyte, hyaline cartilage, and fibrocartilage
- Fibrous, cartilaginous, and synovial joints in the body
- Movements of bones around joints

Capstone 9: Overview of the Skeletal System

- Osseous tissue, osteon, and bone marrow
- Cortical bone versus trabecular bone
- The structure and function of different bone shapes

Capstone 10: Senses

- Structures and functions of the eye
- Mechanisms of hearing
- Association between taste and smell

Capstone 11: The Central Nervous System

- Primary structures of the central nervous system
- Composition and distribution of white matter and grey matter
- Functions of the cerebral cortex, limbic system, cerebellum, and brain stem

Capstone 12: The Endocrine System

- Endocrine gland, hormone, and feedback loop
- Glands and hormones of the endocrine system
- Histology of endocrine glands

Capstone 13: The Integumentary System

- Integumentary system, epidermis, and dermis
- Structure and function of each skin layer
- Formation and analysis of fingerprints

Capstone 14: The Peripheral Nervous System

- Efferent nerve, afferent nerve, and plexus
- Structure of a motor neuron and neuromuscular junction
- Function of reflex arcs

Capstone 15: Tissues and Histology

- Histology, tissue, and extracellular matrix
- Six types of epithelial tissue
- Characteristics of loose, reticular, dense, and adipose connective tissues
- Structure and function of muscle and nervous tissue

Related Courses

BIO201
Anatomy and Physiology I
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SOC101
Introduction to Sociology
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MAT202
Introduction to Statistics
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