

Administrative Master Syllabus

Course Information

Course Title	Anatomy & Physiology I
Course Prefix, Num. and Title	BIOL 2401
Division	Life Sciences
Department	Biology
Course Type	Academic WCJC Core Course
Course Catalog Description	Anatomy and Physiology I is the first part of a two-course sequence. It is a study of the structure and function of the human body including cells, tissues and organs of the following systems: integumentary, skeletal, muscular, nervous and special senses. Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintaining homeostasis. The lab provides a hands-on learning experience for exploration of human system components and basic physiology. Systems to be studied include integumentary, skeletal, muscular, nervous, and special senses.
Pre-Requisites	TSI ELAR (Reading and Writing) requirement met
Co-Requisites	Enter Co-Requisites Here.

Semester Credit Hours

Total Semester Credit Hours (SCH): Lecture Hours:	4:3:2
Lab/Other Hours	
Equated Pay Hours	4.2
Lab/Other Hours Breakdown: Lab Hours	2
Lab/Other Hours Breakdown: Clinical Hours	Enter Clinical Hours Here.
Lab/Other Hours Breakdown: Practicum Hours	Enter Practicum Hours Here.
Other Hours Breakdown	List Total Lab/Other Hours Here.

Approval Signatures

Title	Signature	Date
Department Head:		
Division Chair:		
VPI:		

Additional Course Information

Topical Outline: Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

Lecture Outline

- I. Introduction: The body as a whole
 - A. Levels of structural organization
 - B. Homeostasis and homeostatic mechanisms
 - C. Language of anatomy
 - D. Medical imaging
- II. Chemical level of organization
 - A. Elements and atoms
 - B. Chemical bonds
 - C. Concept of pH and buffers
 - D. Inorganic and organic compounds
- III. Cellular level of organization
 - A. Plasma membrane structure/function
 - B. Passive and active processes
 - C. Organelle function
 - D. Protein synthesis
 - E. Cell cycle and cell division
- IV. Tissue level of organization (histology and function)
 - A. Characteristics of epithelium
 - B. Characteristics of connective tissue
 - C. Characteristics of muscle tissue
 - D. Characteristics of nervous tissue
 - E. Membranes
- V. The integumentary system
 - A. Functions
 - B. Structures and composition of epidermis, dermis, and hypodermis
 - C. Skin color
 - D. Glands
 - E. Hair and nails
 - F. Homeostatic imbalances
- VI. The skeletal system
 - A. Functions
 - B. Structure, classification and formation of bone
 - C. Bone and calcium homeostasis
 - D. Classification of joints
 - E. Anatomy and movements of synovial joints
 - F. Homeostatic imbalances
- VII. The muscular system
 - A. Functions
 - B. Types of muscle tissue
 - C. Fascicle arrangement and levers
 - D. Functions of major muscle groups
 - E. Microanatomy of muscle tissue
 - F. Muscle physiology



- G. Generation of ATP for contraction
- H. Contraction of muscle
- I. Homeostatic imbalances
- VIII. The nervous system
 - A. Functions
 - B. General organization
 - C. Neuron and supporting cells
 - D. Neuron physiology
 - E. Central nervous system
 - F. Peripheral nervous system
 - G. Autonomic nervous system
 - H. Homeostatic imbalances
- IX. The special senses
 - A. Selected anatomical structures of special sensory organs
 - B. Physiology of sight, hearing, taste, balance, and smell
 - C. Homeostatic imbalances

Laboratory Outline (a department lab schedule detailing lab exercises will be provided to the instructor)

- I. Orientation and safety procedures
- II. Microscope
 - A. Parts of a microscope
 - B. Calculation of total magnification
- III. Language of Anatomy
 - A. Anatomical terminology
 - B. Body directions and planes
 - C. Body cavities, regions and quadrants
 - D. Serous membranes
- IV. Cells, tissues, and skin
 - A. Identification of cellular organelles
 - B. Identification of four major types of tissues and subtypes
 - C. Identification of components of skin
- V. Skeletal system
 - A. Identification of selected microanatomical structures of bone
 - B. Identification of bones and selected bone markings
- VI. Muscular system
 - A. Identification of three muscle tissue types and selected microanatomical structures in muscle tissue
 - B. Identification of selected skeletal muscles
 - C. Identification of origin, insertion, and action of selected skeletal muscles
- VII. Nervous system and special senses
 - A. Identification of neuronal structures
 - B. Identification of selected brain structures (includes dissection)
 - C. Identification of selected spinal cord structures
 - D. Identification of selected cranial and peripheral nerves
 - E. Reflex physiology
 - F. Identification of selected structures of the eye and ear (includes dissection)
- VIII. Scientific Method
 - A. Identify steps of the scientific method
 - B. Perform an experiment using the scientific method

Course Learning Outcomes:

Learning Outcomes – Upon successful completion of this course, students will:

LECTURE:

1. Use anatomical terminology to identify and describe locations of major organs of each system covered.
2. Explain interrelationships among molecular, cellular, tissue, and organ functions in each system.
3. Describe the interdependency and interactions of the systems.
4. Explain contributions of organs and systems to the maintenance of homeostasis.
5. Identify causes and effects of homeostatic imbalances.
6. Describe modern technology and tools used to study anatomy and physiology.

LAB:

1. Apply appropriate safety and ethical standards.
2. Locate and identify anatomical structures.
3. Appropriately utilize laboratory equipment, such as microscopes, dissection tools, general lab ware, physiology data acquisition systems, and virtual simulations.
4. Work collaboratively to perform experiments.
5. Demonstrate the steps involved in the scientific method.
6. Communicate results of scientific investigations, analyze data and formulate conclusions.
7. Use critical thinking and scientific problem-solving skills, including, but not limited to, inferring, integrating, synthesizing, and summarizing, to make decisions, recommendations and predictions.

Methods of Assessment:

LECTURE: lecture exam questions and post-test exam questions

LAB: laboratory practicals, group assignments, other graded work (quizzes, assignments, activities, etc.) and post-test exam questions

Required text(s), optional text(s) and/or materials to be supplied by the student:

Text: McKinley, O'Loughlin, & Bidle. *Anatomy & Physiology: An Integrative Approach*. McGraw-Hill. Current edition

Workbook: *Study Guide for Understanding Anatomy & Physiology*. F.A. Davis. Current edition

Suggested Course Maximum:

36

List any specific or physical requirements beyond a typical classroom required to teach the course.

laboratory classrooms with sinks

Course Requirements/Grading System: Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

Lecture Average		55%
Exam average (3-4 exams)	30-55%	
Other (homework, quizzes, etc.)	0-25%	
Lab Average (3 lab practicals-25% each, average of other graded work-25%)		25%
Final Exam (includes at least 50% comprehensive material)		<u>20%</u>
		100%



Grading Scale: A 90-100; B 80-89; C 70-79; D 60-69; F 59 and below

Curriculum Checklist:

- Administrative General Education Course** (from ACGM, but not in WCJC Core) – No additional documents needed.
- Administrative WCJC Core Course** – Attach the Core Curriculum Review Forms
 - Critical Thinking
 - Communication
 - Empirical & Quantitative Skills
 - Teamwork
 - Social Responsibility
 - Personal Responsibility
- WECM Course** – If needed, revise the Program SCANS Matrix and Competencies Checklist

Core Curriculum Review Form

Foundational Component Area: Core 030: Life & Physical Science

Course Prefix & Suffix: BIOL 2401

Core Objective:

Critical Thinking Skills—to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information

Student Learning Outcome Supporting Core Objective:

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
State Mandated	Work collaboratively to perform experiments.	Lab (students at a lab table work on an assignment, problem, or investigation)	Group lab activity, assignment, lab practical, post-test
Choose a SLO status.	Insert SLO (from Administrative Master Syllabi)	Provide a brief name and description of the sample learning activity.	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective.
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Core Curriculum Review Form

Foundational Component Area: Core 030: Life & Physical Science

Course Prefix & Suffix: BIOL 2401

Core Objective:

Communication Skills—to include effective development, interpretation and expression of ideas through written, oral and visual communication

Student Learning Outcome Supporting Core Objective:

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
State Mandated	Work collaboratively to perform experiments.	Lab (students at a lab table work on an assignment, problem, or investigation)	Group lab activity, assignment, lab practical, post-test
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Core Curriculum Review Form

Foundational Component Area: Core 030: Life & Physical Science

Course Prefix & Suffix: BIOL 2401

Core Objective:

Empirical and Quantitative Skills—to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

Student Learning Outcome Supporting Core Objective:

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
State Mandated	Work collaboratively to perform experiments	Lab (students at a lab table work on an assignment, problem, or investigation)	Group lab activity, assignment, lab practical, post-test
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Core Curriculum Review Form

Foundational Component Area: Core 030: Life & Physical Science

Course Prefix & Suffix: BIOL 2401

Core Objective:

Teamwork—to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

Student Learning Outcome Supporting Core Objective:

For each core objective, there must be at least two different methods of assessment.

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