

JAMESTOWN COMMUNITY COLLEGE
State University of New York

INSTITUTIONAL COURSE SYLLABUS

Course Title: Anatomy & Physiology II

Course Abbreviation and Number: BIO 2520

Credit Hours: 4

Course Type: Lecture/Lab

Course Description: In this second of two sequential human anatomy and physiology courses, students will study water, electrolyte, and acid-base balance, and the following organ systems: urinary, digestive, endocrine, nervous, and reproductive. In the accompanying laboratory students will perform animal dissection, organ dissection, and will implement experimental process and protocols.

Prerequisite: BIO 1570 or BIO 2510.

General Education Requirements Met

SUNY

Natural Sciences

JCC

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]
 3. Recognize the importance of ethical behavior in fostering a community of mutual respect and integrity.
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Topics Covered:

Nervous System I: Basic Structure and Function

- General Functions of the Nervous System
- Description of Cells of the Nervous System
- Classification of Cells of the Nervous System
- The Synapse
- Cell Membrane Potential
- Synaptic Transmission
- Impulse Processing

Nervous System II: Divisions of the Nervous System

- Meninges
- Ventricles and Cerebrospinal Fluid
- Spinal Cord
- Brain
- Peripheral Nervous System
- Autonomic Nervous System
- Life-Span Changes

Nervous System III: Senses

- Receptors, Sensation, and Perception
- General Senses

- Special Senses
- Life-Span Changes

Endocrine System

- General Characteristics of the Endocrine System
- Hormone Action
- Control of Hormonal Secretions
- Pituitary Gland
- Thyroid Gland
- Parathyroid Glands
- Adrenal Glands
- Pancreas
- Other Endocrine Glands
- Stress and Its Effects
- Life-Span Changes

Digestive System

- General Characteristics of the Alimentary Canal
- Mouth
- Salivary Glands
- Pharynx and Esophagus
- Stomach
- Pancreas
- Liver
- Small Intestine

- Large Intestine

- Life-Span Changes

Nutrition and Metabolism

- Carbohydrates
- Lipids
- Proteins
- Energy Expenditures
- Vitamins
- Minerals
- Healthy Eating
- Life-Span Changes

Urinary System

- Kidneys Urine Formation
- Elimination of Urine
- Life-Span Changes

Water, Electrolyte, and Acid-Base Balance

- Distribution of Body Fluids
- Water Balance
- Electrolyte Balance
- Acid-Base Balance
- Acid-Base Imbalances

Reproductive Systems

- Organs of the male Reproductive System
 - Hormonal Control of Male Reproductive System
 - Organs of the Female Reproductive System
 - Hormonal Control of Female Reproductive Systems
 - Mammary Glands
- Pregnancy, Growth, and Development
 - Pregnancy
 - Prenatal Period
 - Postnatal Period
 - Aging
- Genetics and Genomics
 - Modes of Inheritance
- Factors That Affect Expression of Single Genes
 - Multifactorial Traits
 - Matters of Sex
 - Chromosome Disorders
 - Gene Expression Explains Aspects of Anatomy and Physiology

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
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- 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