Course Information Form (CIF)

Course Code: KIN 288

Course Title: Exercise Physiology

Department: Natural Sciences
PCS Code: 1.1 - Baccalaureate/Transfer
CIP Code: 31.0101
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 3-3-4
Credit Hour Distribution:

Lecture: 3	Lab: 3	Clinical: 0	**Total: 4**

General Course Information

Catalog Description

Application of anatomy and physiology to human movement. How the body moves and physiological responses to exercise stress.

General Course Objectives

- To introduce the fundamentals of various physiological systems in the human body in order to learn how the body generates movement.
- To provide students with an overview of the theory and application of exercise physiology concepts.
- To introduce students to the theoretical and physiological aspects of human motor behavior.

Minimum Placement Levels

English	Reading	Math
None	Placement out of CCS 098	None

Prerequisites

Credit or concurrent enrollment in BIO 111 or BIO 121 with a grade of C or higher

Methods of Evaluation

6 hour exams, 12 lab reports, and 1 comprehensive final exam.

Instructional Materials and Additional Supplies

Physiology of Sport and Exercise, 5th edition by Kenney, Wilmore and Costill; Human Kinetics 2011.

Course Content

General Learning Outcomes (GLOs)

- Critical Thinking and Information Literacy: Students will demonstrate the ability to evaluate perspectives, evidence, and implications, and to locate, assess, and use information effectively.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Exercise Physiology and the Nerve Cell	1. Explain why the response to exercise is a function of exercise modality, intensity, and duration. 2. Describe the structure of the nervous system. 3. Articulate the anatomy of the nerve cell and describe how the nerve cell responds to exercise stress.	4	3	0
Ventilation, Respiration, and the Cardiovascular System	1. Distinguish between and explain the component variables of pulmonary ventilation, external respiration, and internal respiration. 2. Explain how respiration is regulated at rest and during exercise. 3. Explain the functions of the cardiovascular system and how it is regulated during exercise. 4. Identify the components of the cardiovascular system. 5. Explain the pattern of responses for the major respiratory variables as well as for major cardiovascular variables during various types of exercise. 6. Describe cardiovascular adaptations to exercise, including thermoregulation.	9	9	0
Thermodynamics and Energy	1. Describe the role of ATP. 2. Describe the goals of metabolic regulation during exercise. 3. Explain how the production of energy is regulated by intracellular and extracellular factors. 4. Articulate the major variables that are typically measured to describe the anaerobic response to exercise. 5. Explain the physiological reasons why lactate may accumulate in the blood and why it is a physiological and performance problem. 6. Articulate the major variables that are typically measured to describe the aerobic response to exercise. 7. Explain the laboratory and field assessment techniques used to obtain information on aerobic metabolism during exercise. 8. Explain why efficiency and economy are important to exercise performance.	9	9	0
Body Composition	1. Describe the technique of densitometry and its theoretical basis. 2. Describe strengths and weaknesses of various measurements of body composition. 3. Explain the scientific basis of obesity. 4. Articulate the caloric balance equation and discuss the impact of diet and exercise on the components of the caloric balance equation.	6	6	0
Skeletal Muscular System	1. Differentiate between cortical and trabecular bone. 2. Define bone remodeling and explain how bone density is affected by bone resorption and deposition. 3. Describe the hormonal control of bone remodeling and growth. 4. Describe the function and organization of skeletal muscle tissue and the characteristics of skeletal muscle tissue that make movement possible.	6	6	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Muscular Contraction and Movement, and Neuromuscular Aspects of Movement	1. Articulate the different types of muscle contraction. 2. Describe neural and mechanical factors that affect force development. 3. Articulate the possible causes of muscle fatigue and associate these causes with different types of physical activity. 4. Describe muscular adaptations to dynamic resistance training and dynamic aerobic endurance training programs. 5. Describe the nerve supply to muscle and the sequence of events at the neuromuscular junction. 6. Apply research and clinical evidence to explain how individual motor units can be volitionally controlled.	9	12	0
Kinesiology Careers	1. Describe career options and opportunities in the field of kinesiology, including sports medicine and athletic training.	2	0	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
45	45	0