



Syllabus

HPE 227 Physiology of Exercise

General Information

Date

May 29th, 2018

Author

Jessica Brinza

Department

Physical Education and Integrated Health Care

Course Prefix

HPE

Course Number

227

Course Title

Physiology of Exercise

Course Information

Credit Hours

4

Lecture Contact Hours

3

Lab Contact Hours

2

Other Contact Hours

0

Catalog Description

This course is a requirement for all students enrolled in the AS Kinesiology and Human Performance or AS Physical Education program. In addition, this course is appropriate for students intending to transfer to pursue a degree in sports medicine, including exercise science and athletic training. This course provides students with an opportunity to deepen their understanding of the body's responses and adaptations to exercise. Each of the body's systems will be reviewed with a focus on the influences of activity. Laboratory experiences will allow students to integrate and apply the concepts of exercise physiology through investigative experiments.

Key Assessment

This course contains a Key Assessment for the AS Physical Education and Exercise Science program

Prerequisites

BIO 110 or BIO 171

Co-requisites

None

Grading Scheme

Letter

First Year Experience/Capstone Designation

This course is designated as satisfying the outcomes applicable for status as a
Capstone Course

SUNY General Education

This course is designated as satisfying a requirement in the following SUNY Gen Ed category
None

FLCC Values

Institutional Learning Outcomes Addressed by the Course

Vitality
Inquiry
Perseverance
Interconnectedness

Course Learning Outcomes

Course Learning Outcomes

1. Discuss metabolic principles necessary for meeting energy needs during various intensity physical activities.
2. Explain how exercise causes both acute physiological adaptations and long term changes as a result of consistent physical activity.
3. Outline the health benefits of consistent physical activity as well as the health risks of physical inactivity.
4. Demonstrate accepted practices in evaluating an individual's physical performance (e.g. aerobic fitness, anaerobic fitness, cardiorespiratory fitness, neuromuscular performance, and body composition).

Outline of Topics Covered

1.

Nutrition Concepts

1. Role of macronutrients in physical activity
 1. Carbohydrates
 2. Lipids
 3. Proteins
 2. Role of micronutrients in physical activity
 1. Vitamins
 2. Minerals
 3. Water
 3. Optimal nutrition for physical activity/training
 4. Methods of assessing body composition
 1. Types of physiques and physical activity
 2. Principles of weight control
2. Metabolic Concepts
1. Energy value of food
 2. Fundamentals of human energy transfer
 1. Energy transfer in the body
 2. Energy transfer in exercise
 3. Measurement of human energy expenditure
 1. While at rest
 2. During various forms of physical activity
 3. Aerobic / anaerobic metabolism
3. Cardiorespiratory System Concepts
- 1.

Pulmonary structure/ function

1. Gas exchange in the lungs and tissues
 2. Oxygen transport
 3. Transport of carbon dioxide
 4. Regulation of pulmonary ventilation at rest and during exercise
2. Concepts of pulmonary functional testing
 3. Cardiac structure / function
 1. Cardiovascular regulation and integration
 2. Functional capacity of the cardiovascular system
 4. Concepts of cardiac functional testing
 5. Training methods to improve cardiovascular/pulmonary function
4. Neuromuscular Concepts
 1. Neural basis of muscular contractions
 2. Neuromuscular functional testing
 3. Training methods to improve muscular strength/power