



Department:

Physical Education

Course Description:

This course investigates the fundamental physiological processes that operate during exercise. Emphasis will be placed on integrating systems and organs into a functional whole. Laboratories provide experience in evaluating exercise stress by motion methods and equipment.

Course Competencies:

At the completion of this course, students will be able to:

1. Describe the basic concepts of physiology related to control of the internal environment, bioenergetics, exercise metabolism, and hormonal responses to exercise.
2. Demonstrate an understanding of exercise physiology as it relates to the nervous, muscular, circulatory, and respiratory systems of the human body.
3. Describe the effects of exercise on acid-base balance and temperature regulation.
4. Demonstrate an understanding of the physiology of training.
5. Apply the essential principles on the physiology of health and fitness.
6. Apply concepts related to physiology of performance.

Course Content:

A. Physiology of exercise.

1. Physiology of exercise in the United States: its past, its future.
2. Control of the internal environment.
3. Bioenergetics.
4. Exercise metabolism.
5. Hormonal responses to exercise.
6. Measurement of work, power, and energy expenditure.
7. The nervous system: structure and control of movement.
8. Skeletal muscle: structure and function.
9. Circulatory adaptations to exercise.
10. Respiration during exercise.
11. Acid-base balance during exercise.



12. Temperature regulation.
13. The physiology of training: effect on maximum oxygen uptake, performance, homeostasis, and strength.

B. Physiology of health and fitness.

1. Patterns in health and disease: epidemiology and physiology.
2. Work tests to evaluate cardiorespiratory fitness.
3. Exercise prescriptions for health and fitness.
4. Exercise for special populations.
5. Body composition and nutrition for health.

C. Physiology of performance.

1. Factors affecting performance.
2. Work tests to evaluate performance.
3. Training for performance.
4. Training for the female athlete, children, and special populations.
5. Nutrition, body composition, and performance.
6. Exercise and the environment.
7. Ergogenic acids.

Learning Assessments:

Learning will be assessed through tests over each subject area covered by the course content. Students will also be given various assignments and quizzes over the material.

Instructional Materials:

Howley, Edward T., and Scott K. Powers. Exercise Physiology: Theory and Application to Fitness and Performance. 7th ed. New York: The McGraw-Hill Companies, Inc., 2009. ISBN# 978-0-07-337647-9



Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

On-Campus Students: At enrollment, any on campus student may complete a form that will allow them to self-identify any disability.

Off-Campus Regional Students: Self-identify your disability and accommodation needs with the Regional Coordinator and/or instructor, preferably prior to the first class meeting.

Online Students: Self-identify your disability and accommodation needs by contacting the Disabilities Coordinator. Students must provide their own programs to allow accessibility on their home computer.

Any student may also identify their disability by completing an online form located on the HCC homepage under Students Services/Resources/Disabilities. Questions should be directed to the Disabilities Coordinator.