



MERCER
COUNTY COMMUNITY COLLEGE

COURSE OUTLINE

Course Number	Course Title	Credits
HPE241	Applied Exercise Physiology	3
Hours: Lecture/Lab/Other 2/2/0	Co- or Pre-requisite BIO103 and ENG101	Implementation Semester & Year Spring 2022

Catalog description:

Addresses anatomical, biomechanical, and physiological effects of physical activity on the human body through a series of lectures and labs. Students learn methods of assessment, design and implementation of exercise programs for individuals and groups. Lab activities include practical applications of theoretical concepts.

2 Lecture/2 Lab Hours

General Education Category:
Not GenEd

Course coordinator: Mike DeAngelis MS,CSCS, 609-570-3758,
deangelm@mccc.edu

Required texts & Other materials:

Title: Exercise Physiology: Energy, Nutrition, & Human Performance, 6th Ed.

Authors: McArdle, Katch, & Katch

Publisher: Lippincott, Williams, & Wilkins

ISBN: 0-7817-4990-5

Information Resources:

Web Sites:

www.acsm.org – American College of Sports Medicine www.aahperd.org – American Alliance for Health, Physical Education, recreation & Dance www.fitnessbusiness-pro.com
www.healthpromotionjournal.com www.ihrsa.org – International Health, Racquet, and Sports Clubs Association www.isapa.org – International Society for Aging and Physical Activity
www.jap.physiology.org - Journal of Applied Physiology www.nscs-lift.org – National Strength and Conditioning Association www.nasm.org – National Academy for Sports Medicine
www.naspem.org – North American Society for Pediatric Exercise Medicine www.nata.org – National Athletic Training Association
www.physsportsmed.com – The Physician and Sportsmedicine www.specialolympics.org – Special Olympics www.sportsnutritionociety.org – International Society for Sports Nutrition
www.ymca.com

Other Journals (not found on the above web sites):

American Journal of Health Behavior
Clinical Exercise Physiology

Other Organizations/Associations:

American Association for Active Lifestyles & Fitness
American Association for Health Education
American Association for Leisure & Recreation
National Association for Girls & Women in Sport
National Association for Sport & Physical Education
National Dance Association

Course Student Learning Outcomes (SLO):

Upon Successful Completion of the course, the student will be able to:

1. Understand, describe, and perform appropriate protocols for assessing body composition. (ILG 2,4, PLO 3,5)
2. Discuss, distinguish, identify, and design appropriate training protocols for weight management (ILG 2,3,11, PLO 3,4,5,6)
3. Discuss, distinguish, and identify the roles and sources of dietary macro-nutrients on metabolism and exercise. (ILG 3, PLO 2,3,4)
4. Discuss, distinguish, and identify the roles and sources of dietary micro-nutrients on health and performance. (ILG 3, PLO 2,3,4)
5. Describe, analyze, and recommend appropriate nutrient requirements for optimal performance. (ILG 3 PLO 2,3,4)
6. Describe, distinguish, and identify energy transfer and expenditure within the body for optimal performance. (ILG 3 PLO 4,6)
7. Describe, discuss, and identify function and impact that the pulmonary, cardiovascular, endocrine, and skeletal systems have on performance. (ILG 3, PLO 3,4)
8. Design, describe, distinguish, and identify appropriate training protocols for developing aerobic and anaerobic power, and muscular strength, as well as for individuals with medical protocol considerations and environmental considerations. (ILG 11 PLO 6,7)

Course-specific Institutional Learning Goals (ILG):

Institutional Learning Goal 2. Mathematics. Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.

Institutional Learning Goal 3. Science. Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.

Institutional Learning Goal 4. Technology. Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.

Institutional Learning Goal 11. Critical Thinking: Students will use critical thinking skills understand, analyze, or apply information or solve problems.

Program Learning Outcomes for Exercise Science A.S. (PLO)

1. Succeed academically upon transfer to a baccalaureate program related to exercise science;
2. Secure employment in the field of exercise science;
3. Demonstrate the knowledge, skills, and ethical integrity necessary to succeed and grow as a health, wellness, fitness, and/or athletic performance professional;
4. Apply scientific and physiological principles to the promotion and enhancement of health, wellness, fitness, and athletic performance;
5. Assess and evaluate an individual's health and performance;
6. Prescribe workouts for generally healthy individuals as well as for athletic populations and those with special considerations;
7. Conduct safe and effective training sessions with generally healthy individuals

Units of study in detail – Unit Student Learning Outcomes (SLO):

Unit #1 (SLO 1,2,3,4)

- Describe sources and functions of Carbohydrates, Lipids, and Proteins
- Investigate the sources and functions of various Vitamins, Minerals, & Water
- Describe best practice in performance eating for various anaerobic and aerobic sports
- Identify and define various methods of body composition assessment

- Discuss the impact of the human physique on sport performance
- Define the terms obesity, overweight, and weight control
- Perform body composition assessment (lab)

Unit #2 (SLO 4,6,7)

- Calculate energy values of foods
- Understand principles related to Energy Transfer in the body during rest
- Discuss the process of energy transfer during exercise
- Utilize formulas to measure human energy expenditure during rest and physical activity
- Calculate the amount of energy expenditure during walking, jogging, running, & swimming
- Examine individual differences in energy expenditure capacity
- Measure energy expenditure in various populations (lab)

Unit #3: (SLO 7,8)

- Describe principles relating to Pulmonary Structure and Function
- Discuss the process of gas exchange and transport
- Examine the cardiovascular and pulmonary system function
- Analyze cardiovascular regulation and integration
- Discuss the functional capacity of the cardiovascular system and individual differences

Unit #4: (SLO 5,7,8)

- Investigate the structure and function of Skeletal Muscle
- Comprehend the neural control of human movement
- Examine the endocrine system and its various response to different exercise modalities
- Describe volume, rest, and load prescription principles for anaerobic and aerobic training
- Describe volume, rest, and load recommendations for muscular strength
- Identify special aids to exercise training and determine the efficacy and safety of them
- Apply principles of aerobic and anaerobic training (lab)
- Identify special training considerations for exercise in high altitudes
- Discuss precautions to take when training in extreme thermal stress
- Describe the impact of physical activity on health and aging
- Identify proper exercise physiology principles for cancer, cardiovascular, and pulmonary rehabilitation

Evaluation of student learning: The course SLOs evaluated with the following activities.

Class participation – 10%

- Student attendance to all lectures and laboratory sessions is required.
- Students will be required to participate in individual and group (2-4 panelists/group) discussions that will promote identification, description, interpretation, discovery, and/or justification of their beliefs/findings relevant to class topics.

Laboratory Work – 30%

- The student will be required to complete several practical applications of the lecture material (laboratory activities). The completion of these activities will require research, assessment evaluation, analysis, and results discussion. The designated point values for each lab will vary depending on the difficulty level and the amount of work required.

Tests (4) – 40%

- Four tests will be utilized to evaluate student comprehension of the material. Each test will be an objective and subjective assessment of student learning up to that period of the semester. The tests will entail classification, computation, definition, discussion, identification, listing, naming, and/or contrasting of course appropriate material.

Final Examination – 20%

- The Final will be an objective and subjective assessment of student learning for the entire semester. The Final will entail classification, computation, definition, discussion, identification, listing, naming and/or contrasting of course appropriate material.

GRADING POLICY

A	376-400
A-	360-375
B+	347-359
B	334-346
B-	320-333
C+	307-319
C	280-306
D	240-279
F	0-239

The lab assignments, tests, and Final are to be completed as scheduled. Exceptions will be made for approved illnesses, religious holidays, and/or personal issues at the discretion of your instructor. **Otherwise, any test/exam (not completed) or assignment (not submitted at the beginning of the class on the due date) will not be accepted.**