

Course Outline for: EXSC 2305 Exercise Physiology**A. Course Description:**

1. Number of credits: 3
2. Lecture hours per week: 3
3. Prerequisites: None
4. Corequisites: None
5. MnTC Goals: None

This course introduces students to the scientific basis of exercise and/or athletic performance. Specifically, students will study the human body's physiological adaptation to external stressors such as work, exercise and environmental conditions. This information will be directly related to the basis of health and fitness conditioning for athletes, non-athletes and special populations, and to a greater understanding of athletic performance limitations.

B. Date last reviewed/updated: February 2023**C. Outline of Major Content Areas:**

1. ACSM Guidelines and Exercise Prescription for Health and Fitness
2. Muscular and Neurological Control of Movement and Adaptations to Physical Training
3. Basic Energy Systems during Exercise at Varying Intensities and Metabolic Adaptations to Physical Training
4. Cardiovascular, Respiratory, and Hormonal Control during Exercise and Adaptations to Physical Training
5. Cardiovascular Disease and Physical Inactivity
6. Body Composition and Physical Performance
7. Nutrition, Obesity, Diabetes and Physical Activity
8. Benefits and Limitations of Sport Training
9. Thermoregulation and Exercise

D. Course Learning Outcomes:

Upon successful completion of the course, the student will be able to:

1. Recognize the important role of exercise physiology in physical education and health status.
2. Recognize the cellular-to-organ biological responses of the cardiorespiratory and ventilatory systems during exercise.
3. Demonstrate knowledge of the neuromuscular response to exercise during various physical activities.
4. Determine limitations of the metabolic, neuromuscular, cardiorespiratory, and ventilatory systems during exercise at varying intensities and with various environmental conditions.

5. Understand the hormone endocrine system and its role in exercise metabolism and fluid balance.
6. Explain metabolic energy pathways as they apply to varying intensities of exercise
7. Identify and describe the functions, recommendations and guidelines for nutrients.
8. Describe digestion, absorption, transport, eliminations, and metabolism of nutrients.
9. Explain how food choices affect overall health and wellness.
10. Discuss nutritional needs throughout the lifespan.
11. Measure body composition and recognize healthy body composition values for health status and athletic performance.
12. Identify the relationship of physical inactivity to specific illnesses and diseases.
13. Demonstrate an understanding of the components of physical fitness as measured through practical in-class activities.

E. Methods for Assessing Student Learning:

Methods for assessment may include, but are not limited to, the following:

1. Class attendance
2. Literary research skills and written professional documents
3. Written exams
4. Practical lab activities and written reports

F. Special Information:

None