Minnesota State University Moorhead

PE 421: Physiology of Exercise

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 3

Lab Hours/Week: 0

OJT Hours/Week: *.*

Prerequisites:
PE 321 - Human Physiology

Corequisites: None

MnTC Goals: None

A study of the function of those body systems most directly affected by and involved in exercise. Physiological consideration in human movement such as thermal regulation, performance at altitude and underwater, drugs and other ergogenic aids, and designing of specialized training programs will be pursued.

B. COURSE EFFECTIVE DATES: 06/01/1995 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

D. LEARNING OUTCOMES (General)

1. Describe physiology and the differences between acute and chronic physiological responses to exercise.
2. Describe the cardiovascular response to exercise.
3. Describe the endocrine response to exercise.
4. Describe the physical performance and physiological function of the young athlete.
5. Describe the physiological responses to exercise in the heat and cold.
6. Describe the prevention of cardiovascular disease through physical activity.
7. Describe the structure and function of skeletal muscle and discuss the differences between slow-twitch and fast-twitch muscle fibers.
8. Discuss the importance of nutrition on athletic performance.
9. Discuss the physical performance and physiological changes that occur during the aging process.
10. Discuss the principles of exercising in hyperbaric environments, hypobaric environments and microgravity environments.
11. Discuss the principles of pulmonary diffusion, gas exchange, and pulmonary ventilation response to exercise.
12. Discuss the relationship between obesity, diabetes, and physical activity.
13. Explain body composition and how does it affect sports performance.
14. Explain the different energy systems, and the relationship to exercise fatigue.
15. Identify the principles of exercise prescription.
16. Identify the principles of resistance training and muscle soreness.
17. Identify the principles overtraining, detraining, and tapering for peak performance.
18. List the cardio respiratory adaptations to training.
19. List the metabolic adaptations to aerobic and anaerobic training.
20. List the physiological responses of females to exercise.
21. Outline the effects of pharmacological, hormonal and nutritional agents on athletic performance.
22. Outline the role of the CNS and PNS in physical activity and reflex activity.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted