Alexandria Technical and Community College

EXSC 1640: Anatomy, Biomechanics, and Exercise Physiology II

A. COURSE DESCRIPTION

   Credits: 3
   Lecture Hours/Week: 2
   Lab Hours/Week: 2
   OJT Hours/Week: *.*

   Prerequisites:
   This course requires the following prerequisite
   BIOL 1416 - Essentials of Anatomy and Physiology

   Corequisites: None
   MnTC Goals: None

   This course provides the learner with the knowledge and skills required in the area of anatomy and physiology as related to the scope of practice for an Exercise Specialist. The focus is on cardiorespiratory physiology and the nervous system. This course includes lab activities in the measurement of VO2, power, and blood lactate. Prerequisite: BIOL1416.

B. COURSE EFFECTIVE DATES: 04/24/2019 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

   1. Describe the structure and function of the musculature system in the human body.
   2. Explain the major physiological principles of muscle metabolism, contraction theories, recruitment patterns, structural adaptations, and central fatigue.
   3. Illustrate the primary components of muscle structural anatomy.
   4. Summarize the role of hormones in muscle function and adaptation.
   5. Summarize the major components of the cardio-respiratory system.
   6. Explain the adaptation mechanisms that govern improvements in the cardiorespiratory system as a result of proper exercise.
   7. Summarize the principles of proper nutritional intervention as related to exercise induced muscular and cardiorespiratory system enhancements.
   8. Outline the major impacts of age and current health status on the ability of the human body to adapt properly to exercise programming.

D. LEARNING OUTCOMES (General)

   1. The learner will identify selected musculature and understand the concepts behind muscle contraction, muscle fatigue, and muscle rebuilding.
   2. The learner will understand the relation of the endocrine, cardiovascular, and respiratory systems to exercise physiology.
   3. The learner will understand the concepts relating biomechanics and exercise physiology to age, health history, safety, exercise supplements and exercise programming.

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

   None

F. LEARNER OUTCOMES ASSESSMENT

   As noted on course syllabus
G. SPECIAL INFORMATION

None noted