Department of: Health and Leisure

Course Title: HL 621 – Exercise in Health and Disease

I. Catalog Description: The role of exercise in the prevention and rehabilitation of cardiopulmonary diseases. Emphasis on patient/client education, programming, and assessment. (3)

II. Prerequisites: Graduate standing, admittance to the graduate program in Nutrition and Exercise Science, or consent of instructor.

III. Course Objectives: Upon completion of this course, the student should be able to:

A. Analyze the relationship between lifestyle and cardiopulmonary disease processes.

B. Employ appropriate test methodologies for the detection of disease symptoms and/or determination of functional capacity.

C. Interpret and explain normal and abnormal exercise test results using metabolic and electrocardiographic data.

D. Design appropriate exercise interventions for the prevention of cardiopulmonary diseases.

E. Design appropriate exercise therapies for the rehabilitation of cardiopulmonary diseases.

F. Implement appropriate educational programs for individuals at high risk for cardiopulmonary diseases.

G. Implement appropriate educational programs for individuals with a known cardiopulmonary disease.

IV. Expectations of the Student:

A. Each student will complete all examinations and assignments

B. Each student will complete all laboratory exercises

C. Each student will complete a research paper

V. Course Content (Hours)**:**

A. CARDIOPULMONARY DISEASE PROCESSES
   1. Cardiovascular Disease (3)
      a. pathophysiology of coronary artery disease(CAD) and hypertension

b. primary and secondary risk factors
c. physical activity, CAD, and hypertension

2. Chronic Obstructive Pulmonary Disease (COPD) (3)
   a. pathophysiology of COPD
      i. ventilatory impairments, abnormalities of gas exchange, CV impairments, muscular impairments, symptomatic limitations (dyspnea)
   b. risk factors
   c. etiology of COPD
   d. effects on the exercise response functional classifications
3. Obesity and Weight Control (2)
   a. pathophysiology of obesity
   b. prevalence and economic consequences
   c. etiology of obesity

B. PRESCRIPTION FOR PROGRAMS OF PREVENTION AND REHABILITATION

1. Medical Screening and Evaluation Procedures (10)
   a. screening, medical evaluation, and consent
   b. selection of test for evaluation
   c. diagnostic exercise testing
   d. interpretation of graded exercise test results
   e. evaluation and interpretation of health-related fitness components
2. Prescribing Exercise for the Apparently Healthy (9)
   a. preliminary considerations
   b. client centered approaches
   c. selection of appropriate modes
   d. designing programs for improvement and maintenance of health-related fitness
   e. specific programming for weight control
   f. specific programming for low back
3. Prescribing Exercise for Rehabilitation of the Cardiac and Pulmonary Patient (10)
   a. associated risks
   b. inpatient and outpatient rehabilitation
   c. supervised and unsupervised programs
   d. emergency care and procedures
   e. comprehensive cardiac rehabilitation programs
      i. phases I through III exercise and educational programming
      ii. progression, modes, criteria for discharge
4. Special Considerations (8)
   a. special needs
   b. injury prevention
   c. environmental concerns
   d. age and gender considerations
   e. adherence and motivation

Total Hours: 45

VI. Textbooks:

A. Roberts, S. O., Robergs, R. A. & Hanson, P. (1997*). Clinical Exercise Testing and Prescription: Theory and Application*. Boca Raton, FL: CRC Press.

B. Durstine, J. L. (Ed.) (1997). *American College of Sports Medicine's Exercise Management for Persons with Chronic Diseases and Disabilities*. Champaign, IL: Human Kinetics.

VII. Basis for Student Evaluation

A. Examinations (60%)

B. Research Paper (25%)

C. Assignments (15%)