PROGRAM FOR THE MS DEGREE IN NUTRITION & EXERCISE SCIENCES

Exercise Science Specialization

Requirements for Matriculation

These requirements are in addition to the general requirements for admission.

Admission Requirements:

1. An undergraduate degree in physical education, exercise science, or an equivalent area with a minimum GPA of 3.0.

2. Students without an undergraduate degree in one of the above areas must satisfy the following:
   a) An undergraduate degree with a minimum GPA of 3.0.

   b) Make up deficiencies as specified by the department.

3. Approval of the graduate advisor.

General Requirements for the MS Degree in Nutrition and Exercise Sciences

1. Students must complete **33** graduate credits with a minimum average of B (GPA of 3.0)

2. Students must complete a research project that culminates in a written research report (FNES 797), or pass a comprehensive examination in the major field of study. (Note: Students must select one of these options in FNES 796.)

3. All elective courses must be approved by the appropriate graduate advisor.

Required Courses for the Exercise Science Specialization

Required courses in the exercise science specialization include FNES 702, 720, 722, 725, 726, 729, 733, 734, 796, and 797, and one 3-credit elective from 707, 708, 719, 730, 740, 762, 770.

Students choosing the comprehensive exam option will replace FNES 797 with a second elective for a total of two electives courses (6 credits) from 707, 708, 719, 730, 740, 762, 770 or other courses as approved by the graduate exercise science advisor.

Course Descriptions

FNES 702. Statistical Methods in FNES. 2 rec., 1 lab. hr.; 3 cr. Prereq.: A course in elementary statistics. Application of descriptive, correlational and inferential statistical methods in one-, two- and multigroup comparisons in parametric and non-parametric independent and correlated sample distributions.

FNES 707. Cultural and Ethnic Foods. 2 lec., 2 lab. hr.; 3 cr. Prereq.: Undergraduate coursework in foods and nutrition. Study of the food patterns of varying cultures and ethnic groups, and of the nutritional, economic, and sociological implications of these patterns. Field trips included.

FNES 708. *VT Seminar in Health, Physical Education, and Movement Science. 2 hr. plus conf.; 3 cr. Topic announced each semester. May be repeated for credit for different topic.

FNES 711: *VT Contemporary Issues in FNES. 3 hr.; 3 cr. Prereq.: Permission of the department. Topics vary from semester to semester. Controversies and emerging topics of professional interest in FNES.

FNES 719. Cardiac Rehabilitation Programs. Overview of the concepts, design and implementa

tion of primary prevention and cardiac rehabilitation programs.

FNES 720. Exercise Physiology. 3 hr.; 3 cr. Understanding mechanisms underlying exercise at the cellular, tissue, organ and system levels. Emphasis given on critically evaluating scientific studies in exercise science.

FNES 722. Exercise, Energy Balance, and Body Composition. 3 hr.; 3 cr. Interrelationships between exercise energetics, energy balance, and body composition.

FNES 725. Measurement of Physical Fitness and Body Composition. 3 hr.; 3 cr. Prereq.: FNES 720. Laboratory and field methods for assessing the various aspects of physical fitness.

FNES 726. Internship in Adult Fitness and/ or Cardiac Rehabilitation. Hr. to be arranged; 3 cr. Prereq.: Completion of 24 cr. in the Exercise Science Program and/or permission of the instructor. In addition to regular seminar meetings on campus, the on-site hourly requirement varies according to the clinical nature of the internship program. This course will provide an in-depth, highly structured, practical experience in a formalized program dealing with fitness and health enhancement in healthy adult populations as well as populations involved in rehabilitative programs. The internship integrates the basic academic classroom and laboratory learning of the university setting and applies this knowledge to existing community, corporate, and/or clinically based programs.

FNES 729: Cardiovascular Disease, Electrocardiography and Stress Testing. 3hr.; 3 cr. Study of the pathophysiology of common cardiovascular diseases and the fundamentals of electrocardiography with special emphasis on its application to exercise stress testing.

FNES 730. Mechanical Analysis of Human Movement. 3 hr.; 3 cr. An analysis of the mechanics of human motion based upon the application of principles and laws of physics.

FNES 733: Physical Activity, Health, and Exercise Prescription I. 3hr.; 3 cr. Application of the current scientific evidence on exercise prescription for the improvement of cardiovascular function, musculoskeletal function and overall health. Understanding of the role of physical activity in chronic disease prevention and health promotion throughout the lifespan, including common methods used to evaluate physical activity. Health appraisal and risk assessment are included. In-depth study of program design principles for various special populations.

FNES 734: Physical Activity, Health, and Exercise Prescription II. 3hr.; 3 cr. Prereq.: FNES 733. Application of the current scientific evidence on exercise prescription and program design principles for the improvement of health in people with diseases and disorders of the neuromuscular system, immune system, musculoskeletal system, as well as those with chronic cardiovascular, respiratory and metabolic diseases. Exercise testing principles for each disease or disorder are included.

FNES 740. Motor Learning and Performance. 2 rec., 1 lab. hr; 3 cr. Psychological, physiological, and neurological principles that facilitate learning and performance of motor skills.

FNES 796. Research Methods in Nutrition and Exercise Sciences. 3 hr.; 3 cr. Prereq.: FNES 702. Research methods and design strategies, including development of research proposals used in analytical, descriptive, qualitative, and experimental research studies in nutrition and exercise sciences.

FNES 797. Research Project in Nutrition and Exercise Sciences. 3 hr.; 3 cr. Prereq.: FNES 796. Under the supervision of a faculty advisor, students carry out the research project planned in FNES 796 that culminates in a written research report.