(EX) EXERCISE SCIENCE

Courses

EX 101. Introduction to Nutrition. 3 Hours.
This course serves as an introduction to nutritional concepts and to the interconnections of health, nutrition, weight, and physical activity. This course is particularly appropriate for students with no science background.

EX 106. Introduction to Exercise Science. 3 Hours.
This is an introductory course to exercise science. Topics for the course include acute and chronic physiological responses to exercise, nutrition, biomechanics, and physical fitness. The course also covers concepts related to health and statistics.

EX 107. Foundations of Functional Fitness, Nutrition, & Wellness. 3 Hours.
In this foundational course, students examine the history and evolution of nutrition and fitness in individual and community health and explore the multi-dimensional elements of wellness, including the underlying basic biology and chemistry. Students identify assessment methods used to quantify baseline nutrition, fitness, and health levels and the application of population and individual interventions to modify behavior.

EX 110. Personal Fitness. 3 Hours.
This course is intended to introduce students of all majors on best approaches to fitness. Appropriately utilizing the concepts of exercise science, students will gain insights on how to develop an individualized exercise program through assessment, design and implementation. Various technologies such as fit-bit, coach's eye, image capture and video will be used to practices fitness concepts. Through an online format this course promotes personal training approaches to improve understandings of fitness. Offering the course in this format allows for students to mimic best fitness approaches such as working out at times that fit the students' schedule, choosing the location of their workout, developing practices that may be utilized and progressed, and keeping a digital record.

EX 234. Nutrition. 3 Hours.
This course examines the basic nutritional principles (biological, chemical and regulatory mechanisms) and foundations of nutritional requirements throughout the life cycle; the relationship between nutrition and disease; and the nutritional concepts associated with specific dietary recommendations. Prerequisite(s): CH 180 or CH 181.

EX 330. Exercise Physiology. 3 Hours.
This course examines changes within the human body due to the effects of acute and chronic exercise. The student is challenged to expand both their knowledge of and appreciation of human physiological reaction, regulation, and adaptation to exercise. Prerequisite(s): BY 120 or BY 222.

EX 340. Anatomical Basis of Kinesiology. 3 Hours.
This course involves studying the mechanics of human body movements and the interrelationships of bones, joints, and muscles. Prerequisite(s): BY 120 or BY 222.

EX 353. Principles of Strength and Cardiovascular Conditioning. 3 Hours.
This course provides students with an opportunity to develop an in-depth understanding of the principles of strength training and conditioning. By critically analyzing current research, students utilize an evidence-based approach to develop and justify conditioning programs and techniques for a broad range of sports and activities. Prerequisite(s): EX 340.

EX 356. Nutrition for Health and Exercise Performance. 3 Hours.
This course focuses on the current concepts of nutrition, the integration of these concepts into human health, and the role of nutrition in the enhancement of fitness and exercise performance. Students will be introduced to the underlying biochemical mechanisms of nutrition and apply the evidence-based nutritional information to improve health and exercise performance. Prerequisite(s): BY 222.

EX 360. Biomechanics & Kinesiology in Human Performance. 3 Hours.
This course examines the application of anatomical and physiological principles of kinesiology and physical movement. Topics include the scientific study of human movement, analysis of motor skills, and programs of exercise and evaluation of human performance. Prerequisite(s): BY 222 or BY 120.

EX 363. Group Exercise Instruction, Design & Management. 3 Hours.
This class teaches the skills needed to design, instruct and manage a fitness or wellness class/program based on organizational and individual needs. These skills include ensuring the safety and efficacy of group exercise endeavors and addressing members' social dynamics, physical activity types, expertise levels, and environmental/emergency situations. Students learn evidence-based best practices regarding instruction techniques, choreography principles, exercise class components (warm-up, endurance, and cool-down components), group facilitation, and class management (intensity, pacing, duration) in an exercise setting. Students are also required complete an online Adults CPR/AED Online course through American Red Cross. Prerequisite(s): EX 107.

EX 368. Gut Microbes, Diet & Health. 3 Hours.
In this course, students delve into the science of gut health and Nutrigenomics as a predictor of physical and mental well-being. They study nutritional interventions like using probiotics, prebiotics and superfoods and their effects on gut health, digestive disorders, and other diseases. By the end of the course, students are able to explain the dynamic microbiome, bacteria/host relationship, identify factors and situations that affect gut health, explain how dietary practices affect disease outcomes, and conduct an analysis of published work regarding dietary interventions. Prerequisite(s): EX 234.

EX 401. Exercise Testing and Interpretation. 3 Hours.
This course explores how fitness assessments can be used to quantify health and performance. Through a variety of hands-on experiences students will utilize statistical approaches to successfully interpret measured values so that a more complete view of an individual's overall health and performance may be gained. Prerequisite(s): BY 222 and EX 340.

EX 402. Exercise Training for Health and Performance. 3 Hours.
The lecture component of the course is aimed at the physical basis and physiological basis for developing and implementing a fitness program. The laboratory component of the course is aimed at program development and program implementation for fitness and/or performance. Utilizing course concepts, students will design and implement an exercise program. Prerequisite(s): BY 222 and EX 401.

EX 403. Prevention and Management of Chronic Disease. 3 Hours.
This course considers the molecular and cellular basis of chronic disease. From biochemistry and immunology perspectives, emphasis will be placed on how exercise and nutrition may be used to prevent and manage chronic disease. Specific conditions discussed will include: obesity, diabetes, hypertension, atherosclerosis, chronic fatigue syndrome and aging. Prerequisite(s): BY 222.

EX 410. Motor Learning in Human Performance. 3 Hours.
This course explores the application of learning and performance of motor skills. Topics include the scientific study of motor skills and abilities, motor control, attention and memory, motor skill learning, instruction and augmented feedback, and practice conditions. Prerequisite(s): BY 222 or BY 120.

EX 429. Specialized Therapeutic Exercise Programs. 3 Hours.
This class teaches students to anticipate, implement, and monitor the needs of those engaged in specialized therapeutic exercise programming and instruct clients on proper form and technique. Students learn types of therapeutic exercises, common considerations and contraindications for each, specific therapeutic exercise tools (like functional fitness assessments, Range of motion or Time Up and Go), and how to instruct individuals and groups to perform therapeutic exercises with proper modifications, technique and form. By the end of the course, students are able to implement medical professionals therapeutic exercise prescription orders and adapt to individual needs accordingly. Prerequisite(s): EX 363.

EX 439. Nutrition, Disease & Lifespan. 3 Hours.
The Recommended Dietary Allowances for nutrients change based on developmental phases and are affected by specific diseases. In this class, students categorize and prioritize nutritional needs and behaviors based on life stage issues and integrate them into appropriate dietary considerations and practices. By the end of the course, students evaluate and design nutritional plans from five categories of disease using developmental science, understanding of disease models, and behavioral interventions across individuals' lifespans. Prerequisite(s): EX 234.