EXERCISE SCIENCE (EX)

EX-101 - Introduction to Exercise Science (3 cr)
Introduction to Exercise Science is designed to provide students with knowledge and scientific principles underlying physical activity, exercise physiology and human performance. This course will introduce students to physical fitness and sports science. Topics include behavior modification, physiology and assessment of physical fitness, incorporation exercise into health and general well-being, and the field of personal fitness training. The course focuses on general exercise and sports science related wellness principles, including nutrition and weight management, stress management, exercise needs throughout the lifecycle, chronic disease prevention and management, and fitness training to support a healthy lifestyle approach. Course Level Objectives: 1. Demonstrate a thorough understanding of the principles of exercise science, kinesiology, nutrition, and community health 2. Develop practical skills in fitness training, exercise programming, injury prevention and emergency medical applications 3. Demonstrate understanding of the principles of holistic health and wellness, with a focus on promoting physiological and mental health 4. Develop interpersonal, communication and leadership skills essential for leading health and fitness initiatives in collaboration with diverse healthcare professionals across corporate, community and other wellness settings

EX-110 - Foundations of Personal Fitness and Training (3 cr)
Foundations of Personal Fitness and Training covers scientific principles that govern physical fitness and wellness. The course promotes a keen understanding of the value of physical fitness. Specific areas of study include Cardiovascular exercise and care, safe exercise protocols, building muscle strength and endurance, injury prevention, fitness skills and FITT benchmarks, goal setting, nutrition, and diet (vitamins and minerals, food labels, evaluation product claims), and stress management. The course requires routine participation in stimulated based physical activities. The concept of wellness, or striving to reach optimal levels of health, is the cornerstone of this course and is exemplified by one of the course objectives with students designing their own personal fitness program. Course Level Objectives: 1. Describe total fitness, including appropriate fitness practice 2. Apply principles and guidelines for appropriate fitness and exercise 3. Recognize stress and stress reduction practices 4. Evaluate fitness products and services 5. Explain basic principles of exercise physiology & the relationship between nutrition and physical wellness and performance 6. Develop initial components for personal fitness program such as personal philosophy, specific strengths and skills, and training experience or any relevant background (e.g. athletics) 7. Indicate where and how to find resources to enhance mental performance as it relates to physical fitness and training 8. Identify governing bodies and professional organizations that encompass areas for physical fitness, training, nutrition and diet, and wellness
Prerequisite: TAKE EX-101;

EX-200 - Principles of Kinesiology (3 cr)
This course is an introduction to the field of kinesiology, focusing on the study of human movement and its various subdisciplines. Students will explore the fundamental principles of kinesiology, physical education, principles of physical activity and fitness, and professional career options within the field. This course includes an overview of biomechanisms and introduces concepts related to injury prevention. Additionally, this course includes practical elements that integrate the disciplines of athletic training, exercise science, physical education, and sport management. Course Level Objectives: 1. Describe the role and importance of physical activity in society and how kinesiology relates to health, sports, occupational performance, and growth and development 2. Identify the three types of muscles found in the human body and the general locations where they are found 3. Students will be able to describe the characteristics of muscles and injuries to muscles 4. Define biomechanics, explain its importance, and describe how it improves performance and reduces injury risk 5. Define key terms related to energy balance and body composition, and explain their relationship to physical activity, health promotion, fitness, and performance 6. Analyze the physiological, biomechanical, and behavioral influences of energy balance and body composition in relations to participation in physical activity 7. Evaluate and monitor energy balance and body composition and apply these principles to physical activity and kinesiology contexts 8. Define aerobic physical activity and its relationship to health and human performance 9. Analyze physiological, behavioral, and biomechanical responses to aerobic exercise, including principles of overload, specificity, and adaptation while exploring methods for evaluating aerobic fitness and applying these principles across kinesiology subdisciplines 10. Identify the skeletal system and body movements as it depends on a specific joint in the body 11. Describe the health benefits, disease prevention, and quality of life improvements associated with kinesiology 12. Identify methods for evaluating and monitoring strength and conditioning activities, and apply principles such as overload, specificity, and adaptation across kinesiology subdisciplines
Prerequisite: TAKE EX-101;

EX-210 - Prevention and Care of Athletic Injuries (3 cr)
This course is designed to provide entry-level knowledge regarding the prevention and treatment of athletic injuries. This includes the recognition of signs and symptoms of injuries that occur during exercise, physical activity or athletic participation. Care and prevention of sports injuries including practical application of wound dressing, basic taping, bandaging, padding, and basic athletic training skills will be presented. The course includes the foundations of sport trauma, mechanism characteristics, classification, prevention, evaluation, and management of specific sports injuries. Prevention of athletic injuries, including protective equipment, safe facilities and proper supervision of practice and contests. Recognition, referral and follow-up of injuries in athletics. Course Level Objectives: 1. Appraise current literature regarding sport-related injury prevention and management 2. Differentiate common signs and symptoms between common sports-related injuries 3. Differentiate injury mechanisms between common sports-related injuries 4. Recognize the importance of prevention strategies used to reduce sport-related injuries 5. Describe the proper first aid and management of common sports-related injuries
Prerequisite: TAKE EX-110;

EX-250 - Exercise Programming (3 cr)
This course provides an overview of basic exercise techniques for successful exercise programing. Students will gain a deeper understanding of how to train the body to move more efficiently and how to teach movement and exercises to a variety of clients. Emphasis is placed on providing students with guidelines and strategies to teach safe and effective exercises, to recognize and to correct improper technique, and to know the primary musculature involved in each exercise. Students will learn test selection and evaluating results to form an appropriate regime and apply the periodization theory to cardiovascular, strength, and agility training. Course Level Objectives: 1. Identify the scientific bases of exercise programming, not limited to but including exercise physiology, human anatomy, biomechanics, care and prevention of injuries, safety and emergency procedures, and first aid for exercise settings 2. Design safe and effective exercise programs based on client needs and goals 3. Practice appropriate safety measures for fitness activities 4. Demonstrate use of administrative content, and facilities and equipment information in exercise programming. 5. Name rest and recovery strategies in connection with periodization and training cycles 6. Define awareness of safety and hydration principles for training in challenging environments including (but not limited to) extreme cold, extreme heat, and high altitude 7. Identify technological applications and resources to assist clients with exercise and training regimens 8. Demonstrate injury prevention through stretching techniques and appropriate equipment usage
Prerequisite: TAKE EX-210;

EX-290 - Exercise Science Practicum (3 cr)
Students will learn and experience facility management, assessments, individual and group training sessions, and exercise prescription during clinical hours. Students perform as interns in the capacity of a for a period of fourteen weeks at the rate of fourteen hours per week. The internship is primarily an apprenticeship experience which provides the student with an opportunity to apply their knowledge and skills obtained in the classroom to a variety of professional environments in addition to "on-the-job" training in a career of their choice. The practicum is an intensive field experience in an approved exercise facility. This course requires the application of theory and its practical use in a clinical setting. The course requires 160 contact hours under the supervision of an agency professional and a university faculty member. The practicum is expected to be completed within one semester's time. This course is designed to combine classroom seminar with student experiences in a fitness setting within the community. Course Level Objectives: 1. Define, describe, and comply with standard precautions and OSHA guidelines in the performance of the duties in Exercise Science 2. Perform the duties within the limitations set by the clinical site 3. Demonstrate in-depth knowledge and understanding of the theories related to Exercise Science; use this to then construct well-rounded, safe and effective programming 4. Integrate classroom learning with on-the-job experiences by demonstrating the ability to apply the knowledge skills gained in the classroom to the various clinical units assigned 5. Demonstrate interpersonal skills, professional behavior, appearance, and attitude efficiently and effectively 6. Practice working as a team member and understanding of the role he/she is to play on the exercise office team
Prerequisite: TAKE EX-210;