EXERCISE SCIENCE (EXSC)

EXSC 505 Foundations of Human Performance 3 Credit Hour(s)
This entry level graduate course will examine the physiological, biomechanical, measurement and evaluation, and program design theories and principles that are associated with numerous aspects of human performance.
Offered: Online

EXSC 510 Advanced Exercise Physiology 3 Credit Hour(s)
Prerequisite: Physiology/Exercise Physiology with a score of 3 or EXSC 505
Advanced study of physiological adaptations to acute and chronic exercise.
Offered: Resident and Online

EXSC 511 Advanced Exercise Physiology Lab 1 Credit Hour(s)
Prerequisite: Physiology/Exercise Physiology with a score of 3
Laboratory experience demonstrating acute physiological responses to exercise.
Offered: Resident and Online

EXSC 520 Statistical Analysis in Exercise Science 3 Credit Hour(s)
Prerequisite: Statistics or Equivalent with a score of 3 or EXSC 505
This course targets the development of understanding in statistical methodology as it relates to the field of exercise science. Students will be able to summarize, analyze, and interpret data using descriptive and inferential statistics.
Offered: Resident and Online

EXSC 525 Research Methods in Exercise Science 3 Credit Hour(s)
In this course students will be given the opportunity to develop their knowledge of the applied theories behind exercise science research methods. An emphasis will be placed on study design and approval, manuscript format and preparation, application of statistical analysis and data evaluation.
Offered: Resident and Online

EXSC 540 Advanced Strength Development 3 Credit Hour(s)
This course focuses on the principles of strength development as presented through the M.O.R.R. training system.
Offered: Resident and Online

EXSC 541 Advanced Speed and Agility 3 Credit Hour(s)
Resident Prerequisite: EXSC 540 (may be taken concurrently)
Online Prerequisite: EXSC 540
This course focuses on the principles of speed and agility development as presented through the M.O.R.R. training system.
Offered: Resident and Online

EXSC 542 Advanced Conditioning & Recovery 3 Credit Hour(s)
Resident Prerequisite: EXSC 540 (may be taken concurrently)
Online Prerequisite: EXSC 540
This course focuses on the principles of conditioning and recovery as presented through the M.O.R.R. training system.
Offered: Resident and Online

EXSC 545 Motor Learning and Performance 3 Credit Hour(s)
This course includes the philosophy and application of qualitative movement analysis as the foundation for exercise prescription within a standard operating procedure.
Offered: Resident and Online

EXSC 550 Advanced Biomechanical Analysis 3 Credit Hour(s)
Prerequisite: Biomchncs, physics/equivalent with a score of 3 or EXSC 505
This course involves the application of mechanical principles, quantitative analysis of human movement, and advanced study of biomechanical instrumentation systems. Critical analysis of current research in the field of biomechanics is also emphasized.
Offered: Resident and Online

EXSC 551 Advanced Biomechanical Analysis Lab 1 Credit Hour(s)
Prerequisite: EXSC 550 (may be taken concurrently)
In this course the student will apply kinetic and kinematic concepts through the use of biomechanical instrumentation for the advanced study of human movement.
Offered: Resident and Online

EXSC 610 Graded Exercise Testing and Electrocardiotherapy 3 Credit Hour(s)
Prerequisite: EXSC 510 and EXSC 511
This course provides the framework for the exercise physiologist to develop and apply the academic background for clinical exercise testing. Students will become competent in the physiological and pathophysiological responses of the body during various exercise testing protocols. Guidelines based on ACSM standards will be applied while vital signs are measured and evaluated during exercise testing. Cardiac physiology will be covered through electrocardiographic monitoring and interpretation.
Offered: Resident and Online

EXSC 633 Exercise and Physical Activity for People with Disabilities 3 Credit Hour(s)
This course is designed to investigate the background, opportunities, and challenges faced by people with disabilities as related to physical activity. Physical activity program planning, implementation, and evaluation for various impairments will be examined.
Offered: Online

EXSC 635 Exercise Prescription for Special Populations: Cardiac and Pulmonary Disorders 3 Credit Hour(s)
Prerequisite: EXSC 510
This course provides the foundational understanding for the pathophysiological processes of various common chronic conditions. A clinical understanding of limitations and special needs will be provided, which allows the exercise scientist to appropriately interact and serve the cardiopulmonary client.
Offered: Resident and Online

EXSC 637 Exercise Prescription for Special Populations: Chronic Health Conditions 3 Credit Hour(s)
Prerequisite: EXSC 510 and EXSC 635 (may be taken concurrently)
This course provides the foundational understanding for the pathophysiological processes of various common chronic conditions. A clinical understanding of limitations and special needs will be provided, which allows the exercise scientist to appropriately interact and serve the clinical client.
Offered: Resident and Online

EXSC 640 Public Health and Physical Activity 3 Credit Hour(s)
This course focuses on the integration of public health and exercise science. The techniques used to measure physical activity, the effects of physical activity on health, and strategies for physical activity promotion will be examined. The scientific findings and applications that led to the emergence of the field of physical activity and public health are also examined.
Offered: Online

EXSC 650 Promoting Physical Activity in the Community 3 Credit Hour(s)
Online Prerequisite: EXSC 640 (may be taken concurrently)
This course will examine the promotion of physical activity in the community setting. The techniques, theories, and strategies for physical activity promotion will be examined.
Offered: Online

EXSC 660 Fitness Assessment and Programming 3 Credit Hour(s)
This course is a study of the laboratory and field tests used for assessing physical fitness components as well as principles of exercise prescription. Test results are used in developing individualized exercise prescriptions to improve cardiorespiratory fitness, muscular fitness, body weight and body composition, and flexibility.
Offered: Resident and Online

EXSC 665 Physiology of Sport Performance and Conditioning 3 Credit Hour(s)
This course will provide students with an opportunity to further understand the physiological adaptations of the human body's various systems that occur in response to specific exercise and sports performance training sessions.
Offered: Online

EXSC 670 Physiological Interactions of Performance Enhancing Substances 3 Credit Hour(s)
This course provides the foundational understanding of the physiological interactions of performance enhancing substances. An in depth understanding of how specific performance enhancing substances affect performance, the physiological pathway that elicits change, practical application and any side effects will be provided.
Offered: Online

EXSC 680 Occupational and Environmental Physiology 3 Credit Hour(s)
Online Prerequisite: EXSC 665
This course focuses on the holistic occupational stressors, mediating factors, and recovery modalities for tactical populations.
Offered: Online

EXSC 689 Thesis Proposal and Design 3 Credit Hour(s)
Prerequisite: EXSC 525
This course is designed as a secondary step towards a graduate level thesis; following EXSC 525 - Research Methods in Exercise Science. The student continues with their selected topic of interest and solidifies a research proposal. The process is designed to deepen the comprehension of research methods, expand the knowledge of current evidence based understanding and enhance skills necessary for scholarly writing.
Offered: Resident and Online

EXSC 690 Thesis Defense 3 Credit Hour(s)
Prerequisite: EXSC 689
The Thesis Defense is the culminating event for the student's education through the research conducted as a continuation of prior coursework. The research will be the foundation for the written report and oral defense of the selected thesis. A final copy of a publishable manuscript is submitted to a thesis defense committee for review prior to a formal defense by way of presentation and responses to verbal inquiry by the defense committee.
Offered: Resident and Online

EXSC 699 Internship 1-6 Credit Hour(s)
Prerequisite: EXSC 510 and EXSC 511 and EXSC 520 and EXSC 525 and EXSC 550 and EXSC 551 and HLTH 645
This course involves practical work experience in an approved exercise or fitness-related agency, or similar setting/facility supervised by a qualified professional. Selection of the internship site should coincide with academic track selected and intended career path.
Registration Restrictions: Complete all other Masters of Exercise Science coursework
Offered: Resident and Online