EXERCISE SCIENCE (EXSC)

EXSC 1111 - Self and Community in Healthcare Disciplines (PT, AT, EW)
1 Credit
This course is designed to prepare the first-year student to be successful at Saint Louis University and assist in the transition to college for first year students. This interactive course will cover topics including introduction to the Jesuit mission of Saint Louis University, academic and time management skills, values and career exploration, SLU history, and issues of diversity, equity and justice and well as awareness of self and others. Students will be introduced to resources at Saint Louis University as well as the policies and procedures of the Department of PT-AT as well as their individual program and Saint Louis University.
Attributes: UUC:Self in Community

EXSC 3230 - Exercise Physiology
3 Credits
This course examines types of exercise, muscle physiology and training regimens to improve muscle strength, power and endurance. Cardiovascular and pulmonary responses to exercise and training regimens will be included. Concepts of obesity and its management also will be covered.
Restrictions:
Enrollment limited to students in the Physical Thrp/Athletic Train department.

EXSC 4121 - Clinical Biomechanics
3 Credits
This course emphasizes the application of biomechanical principles to human movement. Kinematics, kinetics, mechanical properties of biological tissue, muscle actions, and joint structure and function are examined. The course helps prepare students to observe, describe, and discuss human movement and alignment using biomechanical terms.
Prerequisite(s): (PHYS 1220, PHYS 1310, PHYS 1330, or PHYS 1240)

EXSC 4122 - Instrumentation in Human Biomechanics Research
3 Credits
This course focuses on developing foundational knowledge for collecting, analyzing, and interpreting data from equipment used in human biomechanics research. Data acquired from force plates, three-dimensional camera systems, and wearable sensors during different movement tasks (e.g., walking, running, jumping) will be the primary focus.
Prerequisite(s): PHYS 1220

EXSC 4150 - Nutrition, Health, and Physical Performance
3 Credits
This course focuses on the impact of nutrition to health and physical performance. There is an emphasis on the function of macronutrients and micronutrients in physiology with emphasis on energy metabolism and dietary strategies to enhance performance. Application of principles is through discussion of case studies. (Offered fall semester)
Prerequisite(s): DIET 2080; (EXSC 3230 or DPT 3230)
Restrictions:
Enrollment limited to students in the Doisy College Health Sciences college.

EXSC 4170 - Exercise Testing and Prescription
3 Credits
This course focuses on exercise testing and prescription for healthy populations and special considerations such as children, older adults, pregnancy, and diseased populations. This course includes lab experiences for assessment methods for cardiovascular and muscular fitness, body composition and flexibility, and an examination of the principles for prescribing cardiovascular, strength, and flexibility exercise. Students will be prepared for and encouraged to take examinations by the American College of Sports Medicine (either that of the personal trainer or for clinical exercise physiologist).
Prerequisite(s): ((ANAT 1000, PPY 2540, and BIOL 4460) or DIET 5690)

EXSC 4241 - Clinical Research and Design
2 Credits
This course will introduce students to several types of clinical research designs including designs for group studies, epidemiological studies, and qualitative studies. Interpretation of selected statistical methods also will be included.
Prerequisite(s): STAT 1100
Restrictions:
Enrollment limited to students in the Physical Thrp/Athletic Train department.

Attributes: IPE - Research

EXSC 4260 - Enhancing Human Performance
3 Credits
This course exposes learners to practical applications of exercise program design for sport-specific client populations. Through participation in this course learners will be able to design cardiorespiratory, power, speed, agility, core, balance, and strength programs for clients who participate in individual or team sports. Learners will apply principles of reactive neuromuscular training (plyometric) and integrated speed training to help clients achieve their individual training goals.
Attributes: Nutrition, Health, Well Elective

EXSC 4910 - Internship / Fieldwork in Exercise Science
1-3 Credits (Repeatable for credit)
Supervised experience or internship in a cooperative program with business, government, community, clinical, or related establishments in exercise science, health, or health promotion. This fieldwork experience provides an ideal opportunity for students to gain skill and knowledge in areas not possible through other course work and co-curricular activities. Reflection activities enable the student to process the experience and connect fieldwork with curricular concepts and themes. The student will experience and reflect on team-based care and /or dynamics within their supervised experience identifying interprofessional and / or patient/client/family communication. Academic credit is awarded in proportion to the number of hours a student-intern completes. A student must work 150 hours to earn 3 credits (50 hours equals 1 credit hour).
Prerequisite(s): CORE 1000; CORE 1500*

* Concurrent enrollment allowed.
Attributes: IPE - Clinical Immersion, UUC:Reflection-in-Action

EXSC 5121 - Clinical Biomechanics
3 Credits
This course emphasizes the application of biomechanical principles to human movement. Kinematics, kinetics, mechanical properties of biological tissue, muscle actions, and joint structure and function are examined. The course helps prepare students to observe, describe, and discuss human movement and alignment using biomechanical terms.
Restrictions:
Enrollment limited to students in the Physical Thrp/Athletic Train department.

EXSC 5241 - Clinical Research and Design
2 Credits
This course will introduce students to several types of clinical research designs including designs for group studies, epidemiological studies, and qualitative studies. Interpretation of selected statistical methods also will be included. (Offered spring only)
Prerequisite(s): STAT 1100
Attributes: IPE - Research

EXSC 6122 - Instrumentation in Human Biomechanics Research
3 Credits
This course focuses on developing foundational knowledge for collecting, analyzing, and interpreting data from equipment used in human biomechanics research. Data acquired from force plates, three-dimensional camera systems, and wearable sensors during different movement tasks (e.g., walking, running, jumping) will be the primary focus.
Prerequisite(s): PHYS 1220