

Exercise Science (EXSC)

EXSC 1097 Fitness for Life 2

TE

Provides information, tools, and skills to aid students in engaging in an active, healthy lifestyle throughout life. Offers the opportunity to learn about exercise program design, physiological adaptations that underlie fitness, and strategies to maintain an active lifestyle across the lifespan. Features access to high quality exercise facilities. Requires participation in exercise 2-3 days per week outside of the scheduled class activities. Stresses comprehensive principles in health, wellness, physical activity, and fitness assessment. Canvas Course Mats \$70/McGraw applies

EXSC 2500 Sports Medicine 3

* Prerequisite(s): EXSC Majors: ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), all with a C- or higher and (MATH 1050 or MATH 1055). PETE and REC Majors: ZOOL 1090.
* Prerequisite(s) or Corequisite(s): ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055). PETE Majors: PETE 2700 with a C- or higher and (MATH 1050 or MATH 1055). REC Majors: REC 2200.

Explores the field of Sports Medicine. Provides instruction on injury management, including knowledge, skills and abilities in preventing, identifying, treating and rehabilitating sport related injuries. Teaches appropriate vocabulary, injury mechanisms, and the nature of tissue response to training, trauma and treatment.

EXSC 270G Foundations of Exercise Science 3

* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L) all with a C- or higher, and (MATH 1050 or MATH 1055)

Introduces the study of the Exercise Sciences and discusses the global influence on the development of the field. Studies the national and international history and philosophy of the field of Exercise and sport science. Analyzes problems in areas covered under the umbrella of Exercise Science and Physical Education. Explores related career and employment opportunities in this area.

EXSC 3270 Exercise Testing and Prescription 3

* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), all with a C- or higher, and (MATH 1050 or MATH 1055), and University Advanced Standing

* Prerequisite(s) or Corequisite(s): ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), and EXSC 270G

Evaluates key concepts related to exercise testing, prescription, and program design for healthy populations. Examines concepts in team, group, and individualized exercise assessment and programming. Emphasizes principles in exercise physiology, health promotion, fitness assessment and prescription. Prepares students to sit for certification exams upon course completion. Course fee of \$20 for supplies.

EXSC 3400 Statistical Analysis in Exercise Science 3

* Prerequisite(s): (MATH 1050 or higher) and University Advanced Standing

Provides an introduction to statistics, as well as the role of statistics in experimental design that is necessary to evaluate data collected from measurements commonly used in exercise science, health, physical education and recreation.

EXSC 3500 Kinesiology 3

* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), all with a C- or higher and MATH 1050 or MATH 1055. PETE Majors: ZOOL 1090 and PETE 2700 both with a C- or higher and MATH 1050 or MATH 1055. REC Majors: ZOOL 1090 and REC 2200 both with a C- or higher and STAT 1040 or STAT 1045 or MATH 1050 or MATH 1055. All: University Advanced Standing

* Prerequisite(s) or Corequisite(s): ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), and EXSC 270G

Studies human movement. Includes the structure of the human body and fundamental mechanics. Emphasizes kinesiological and mechanical analysis.

EXSC 3550 Motor Learning and Control WE 3

* Prerequisite(s): EXSC Majors: ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), all with a C- or higher and (MATH 1050 or MATH 1055). PETE Majors: ZOOL 1090 and PETE 2700 both with a C- or higher and (MATH 1050 or MATH 1055). REC Majors: ZOOL 1090 and REC 2200 both with a C- or higher and (STAT 1040 or STAT 1045 or MATH 1050 or MATH 1055). All: University Advanced Standing

* Prerequisite(s) or Corequisite(s): ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G

Examines motor and cognitive characteristics of individuals involved in learning or performing motor skills. Examines conditions that influence learning. Analyzes how humans learn complex movement skills and control voluntary, coordinated movement. Analyzes the basic psychological processes involved in learning and control of movement and their effect on instruction and practice conditions for the learner. Studies motor development and its effect on skill acquisition. Course fee of \$14 for equipment, software applies.

EXSC 3700 (Cross-listed with: ZOOL 3700) Exercise Physiology 3

* Prerequisite(s): EXSC Majors: ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), and EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055). PETE Majors: PETE 2700 and ZOOL 1090 with a C- or higher and (MATH 1050 or MATH 1055). All: University Advanced Standing

* Prerequisite(s) or Corequisite(s): ZOOL 2420 (or 242H), ZOOL 2425 (or 242L)

Studies acute and chronic physiological responses to exercise, as well as nutritional and environmental effects on these responses. Requires separate weekly laboratory. Canvas Course Mats \$70/McGraw applies.

EXSC 3705 (Cross-listed with: ZOOL 3705) Exercise Physiology Laboratory 1

* Prerequisite(s): University Advanced Standing

* Corequisite(s): EXSC 3700

Investigates acute and chronic physiological responses to exercise, as well as nutritional and environmental effects on these responses. Provides a hands-on experience where students conduct a variety of testing procedures, as well as analyze and interpret the various physiological responses. Course Lab fee of \$28 for materials applies.

Course Descriptions

EXSC 3730 **Biomechanics**

3

* Prerequisite(s): EXSC Majors: ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), and all with a C- or higher and (MATH 1050 or MATH 1055). PETE Majors: ZOOL 1090 and Pre or Co-requisite PETE 2700 both with a C- or higher and (MATH 1050 or MATH 1055). REC Majors: ZOOL 1090 and Pre or Co-requisite REC 2200 both with a C- or higher and (STAT 1040 or STAT 1045 or MATH 1050 or MATH 1055). All: University Advanced Standing
* Prerequisite(s) or Corequisite(s): ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G, and EXSC 3500

Emphasizes the application of engineering principles and technology in sports performance through interdisciplinary methodologies. Includes human gait analysis, locomotion, trunk biomechanics, computer modeling, and tissue biomechanics. Course fee of \$20 for equipment, supplies, and lab applies.

EXSC 3750 **Psychosocial Aspects of Human Performance**

3

* Prerequisite(s): University Advanced Standing.
* Prerequisite(s) or Corequisite(s): ZOOL 1090 or ZOOL 2320 (or 232H) and ZOOL 2325 (or 232L)

Provides students with the necessary skills and understanding to adequately deal with the psychological and social aspects of human and sport performance. Develops techniques and psychological skills to enhance performance and establish a learning and social environment that would enhance the effectiveness of coaches and maximize the skill and personal growth of athletes.

EXSC 3850 **Ethical Concerns in Exercise Science**

3

* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), and Pre or Co-requisite EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055) and University Advanced Standing

Surveys applied concepts of ethical codes and legal liability. Explores systems used by community and adventure education programs for aspects protective of participants, staff, and institutions.

EXSC 4000 **Clinical Exercise Physiology**

3

* Prerequisite(s): ZOOL 2420 (or 242H), EXSC 270G, and EXSC 3270 all with a C- or higher, and University Advanced Standing

Emphasizes information and skills related to exercise testing and prescription in healthy and clinical populations. Teaches American College of Sports Medicine (ACSM) exercise testing guidelines.

EXSC 4050 **Obesity Physiology and Physical Activity**

3

* Prerequisite(s): EXSC 270G and University Advanced Standing
* Prerequisite(s) or Corequisite(s): ZOOL 2420 and ZOOL 2425

Provides a broad understanding of the negative health impacts of obesity on physiology. Focuses on exercise modalities that are safe and appropriate as means to treat and ameliorate the negative health consequences of obesity. Canvas Course Mats \$48/HumanK applies.

EXSC 4100 **Physiology of Aging**

3

* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), and Pre or Co-requisite EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing.

Examines physiological changes which accompany the advancement of age, including age-related changes in body composition, musculoskeletal, cardiovascular, pulmonary, and endocrine systems. Addresses solutions to exercise barriers and adherence, physical activity and exercise recommendations for functional health.

EXSC 4200 **Exercise Metabolism**

3

* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing

Examines how exercise affects the functioning of human and animal organisms at the molecular level. Focuses on the tools of basic principles of biochemistry and teaches how to use the tools to understand how exercise affects metabolism. Studies how to use biochemical tests to assess an exercising person's health and performance. Canvas Course Mats \$62/HumanK applies.

EXSC 4300 **Research Methods in Exercise Science and Outdoor Recreation WE**

3

* Prerequisite(s): EXSC Majors: ZOOL 2320 (or 232H), ZOOL 2420 (or 242H), and Pre or Co-requisite EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055). REC Majors: ZOOL 1090 and Pre or Co-requisite REC 2200 both with a C- or higher and (STAT 1040 or STAT 1045 or MATH 1050 or MATH 1055). All: University Advanced Standing.

Introduces students to key research in their field. Emphasizes analytical and interpretive skills. Develops scientific writing skills. Promotes design and utilization of comprehensive research methodologies commonly applied in Exercise Science and Outdoor Recreation.

EXSC 4400 **Physical Activity Promotion in the Community**

3

* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing

Emphasizes concepts related to physical activity promotion in the community. Critically reviews literature associated with physical activity programming in communities including barriers to physical activity participation, behavioral change theory, and social, environmental, and biological factors that influence physical activity behavior. Promotes application of concepts developed in class through introductory supervised field experience.

EXSC 4500 **Advanced Sports Nutrition**

3

* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G and Pre or Co-requisite EXSC 3700 and 3705 all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing

Designed to provide exercise science students a comprehensive understanding of basic nutritional principles as they relate to sports. Canvas Course Mats \$57/HumanK applies.

EXSC 4550 **Principles of Strength and Conditioning**

3

* Prerequisite(s): EXSC 3500 and EXSC 3700 and EXSC 3705 all with a C- or higher and University Advanced Standing

Evaluates knowledge of physiological principles and training techniques used in strength and conditioning. Investigates guidelines from the National Strength and Conditioning Association (NSCA). Prepares students for several sections of the NSCA Certified Strength and Conditioning Specialist exam.

EXSC 4600 **Advanced Biomechanics**

3

* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing
* Prerequisite(s) or Corequisite(s): EXSC 3730

Teaches the application of mechanical principles to the development of motor skills. Includes research and technology utilized in the field of biomechanics.

EXSC 4650
Applied Sports Science

3

* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G, EXSC 3500, EXSC 3700, EXSC 3705, and (MATH 1050 or MATH 1055), all with a C- or higher, and University Advanced Standing

Introduces students to tasks commonly completed by sports scientists. Students will learn how and when to use state-of-the-art technology to collect and analyze human performance data and disseminate the results.

EXSC 4700
Advanced Gross Motor Assessment

3

* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G, EXSC 2500 and EXSC 3500 all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing

Provides the students with advanced instruction on and the development of knowledge, skills and abilities to be able to safely and effectively evaluate and interpret / qualify gross motor function. Includes but is not limited to surface anatomy, boney and soft tissue palpation, Range of Motion (ROM), muscular strength, neurologic enervation and stress tests of supportive structures.

EXSC 481R
Internship in Exercise Science

1 to 8

* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing

Provides students with hands-on professional experience in the field of exercise science. May be repeated for a maximum of 8 credits toward graduation. Graded credit/no credit.

EXSC 489R
Undergraduate Research for Exercise Science

1 to 4

* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing

Provides students the opportunity to conduct research under the mentorship of a faculty member. Students will put in practice the theoretical knowledge gained in prior major courses. Students will create a significant intellectual or creative product that is characteristic of the Exercise Science discipline and worthy of communication to a broader audience. May be repeated for a maximum of 8 credits toward graduation.

EXSC 4950
Senior Seminar

2

* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing

Emphasizes critical evaluation of classic and current research in Exercise Science. Promotes research and writing skills within the discipline of Exercise Science. Promotes student centered learning and supports specialization within the field of Exercise Science.