2017-2018 Exercise Science Course Descriptions

Exercise Science

EXS 100 Introduction to Exercise Science. Introduction to the field of exercise science including aspects of human performance, clinical exercise physiology and strength training and conditioning. Includes basic components of program design, training and assessment while placing the students in a variety of professional field settings. 2 Semester Hours.

EXS 110 Exercise Physiology. The goal of this course is to introduce students to the foundational principles of exercise physiology with a particular emphasis on nutrition, metabolism, energetics, and body composition. 4 Semester Hours.

EXS 111 Exercise Physiology II: The goal of this course is to gain an understanding of system physiology and the effects of physical activity on the human body by building on EXS 110. Emphasis will be placed on cardiovascular, pulmonary, musculoskeletal, neural, and endocrine systems' responses during a rested state and to human performance of varying types and intensities. Prerequisite: EXS 110. 4 Semester Hours.

EXS 200 Sophomore Seminar: Professional Skills in Exercise Science. This course will give students an introduction to the skills necessary for professional success in the field of exercise science. Emphasis will be placed on written and oral communication within the field. The importance of involvement in professional organizations, such as the American College of Sports Medicine or the National Strength and Conditioning Association, will also be covered. 1 Semester Hour.

EXS 210 Exercise Physiology Practicum. This course will allow students to develop practical skills associated with human performance testing (aerobic, anaerobic, strength, power, body composition). Students will become familiar with proper protocols and equipment used in the field of exercise science, in the roles of technician and client. Additional fee applies. Prerequisite: EXS 110; and EXS 111 which may be taken concurrently with EXS 210 . 2 Semester Hours.

EXS 220 Foundations of Human Movement. A study of the science of human movement with emphasis on the structure and functioning of the movement mechanism, mechanical principles underlying human motion, and an analysis of basic motor skills. Prerequisite or concurrently: BIO 105 or BIO 210 or EXS 110. 4 Semester Hours.

EXS 230 Basic Pharmacology. This course will give the students understanding of medications commonly prescribed in the exercise science setting and commonly associated exercise responses. The student will become aware of indications, contraindications and side effects of drug therapy. Emphasis will range from drugs used for hypertension, diabetes, epilepsy, asthma, cardiac abnormalities, CVD, cardiac arrhythmias, orthopaedic problems and common illnesses. Prerequisite: BIO 105 or BIO 210. 4 Semester Hours.

EXS 250 Strength Training and Conditioning. This is a four hour lecture/laboratory course covering the physiological basis of strength and cardiovascular conditioning along with the fundamentals of designing comprehensive training programs for improving human performance. Students learn the kinesiological aspects of training, cardiovascular training, plyometrics, flexibility training and sport specific training for injury prevention. Prerequisite: EXS 220. 4 Semester Hours.

EXS 260 Scholarship in Exercise Science. This course is designed to facilitate discussion of current research topics in the field of exercise science utilizing scholarly journals. Research methodology, scholarly topics and actual findings will be introduced, examined and discussed. The culmination of the course will be the design and implementation of a research study, including familiarization with and utilization of proper format for submission to a scholarly journal. Prerequisite: EXS 110. 4 Semester Hours.

EXS 270 Foundation of Sports Nutrition and Ergogenic Aids. The objective of this course is to begin a discussion of what sports nutrition is and proceed to an in-depth review of some of the major concepts within the field of sports nutrition and examine some of the most popular sports supplements currently available on the market. Prerequisites: EXS 110. 4 Semester Hours.

EXS 280 Medical Terminology. Students will be introduced to medical word structures, with emphasis on word roots, prefixes, suffixes, and abbreviations while gaining an understanding of the rules for building and analyzing medical terms associated with body systems. Students will define and interpret terms relating to structure and function, pathology, diagnosis, and clinical procedures. Prerequisites: BIO 105 or BIO 210/BIO 211. 2 Semester Hours.

EXS 300 Junior Seminar: Ethics and Grant Writing. This course is meant to provide students with an overview of current ethical issues and the grant writing process as they relate to the field of exercise science. Discussions will be centered on the importance of sound ethical practices as they relate to the field of research, including informed consent and confidentiality concerns. Students will also be introduced to the process of grant writing and provided with opportunities to further develop the skills necessary to seek and apply for appropriate grants. 1 Semester Hour.

EXS 310 Advanced Exercise Physiology. The goal of this course is to provide students with an in-depth examination of exercise physiology. Particular emphasis will be placed on physiology at the cellular and molecular level as it relates to performance, training, and adaptations. Prerequisite: Junior standing and instructor approval. 4 Semester Hours.

EXS 320 Exercise Testing and Prescription. A study of the standards for exercise testing and prescription. An emphasis will be placed on both preventive exercise programs for apparently healthy individuals and rehabilitative programs for cardio respiratory diseased persons. Prerequisite: EXS 210. 4 Semester Hours.

EXS 330 Cardiac Rehabilitation. An introduction to the field and business of cardiac rehabilitation. This course heavily focuses on populations at risk of having cardiac-related diseases, disorders, or episodes and how to reinstate activities of daily living post-cardiac event and secondary prevention strategies. Special attention is paid to cardiac physiology, common cardiac issues and arrhythmias, and interpretation of electrocardiograms. This course is primarily designed for those students wishing to pursue either graduate school in the field of clinical exercise physiology or those seeking employment in a hospital based rehabilitation setting. Prerequisites: EXS 110. 4 Semester hours.

EXS 340 Corporate and Worksite Wellness. Components of administering and managing corporate and worksite fitness and wellness programs are examined. Topics covered include paradigms in health promotion, health and exercise program planning, facility planning and design, program management, policies and procedures, staffing, equipment, ethics, safety and legal issues and marketing. Prerequisite: Junior standing or instructor permission. 4 Semester Hours.

EXS 350 Scientific Inquiry. In this course, students learn to evaluate elements of research design, to perform and interpret descriptive statistics, to perform and interpret ANOVA, to evaluate critical features of a research journal article, integrate research findings and formulate a clinically significant research hypothesis. Prerequisites: Junior standing or instructor permission. 4 Semester Hours.

EXS 360 Special Populations. This course is designed to explore the role of the exercise specialist and special populations. There is an emphasis placed on working with geriatric populations and addressing issues concerning health and disease in this group. A review of physiological and psychological changes with age will be examined along with disease states such as: cancer, cardiopulmonary, obesity, Parkinson's, Alzheimer's, osteoporosis, among others. Prerequisite: EXS 320. Co-requisite: EXS 361, EXS 362, EXS 363, EXS 364, or EXS 365 IDE: Special Populations. 4 Semester Hours.

EXS 361 IDE: Senior Exercise. This field experience will provide students with an opportunity to design and implement appropriate fitness programs for an older-adult population with minimal health complications. Co-requisite: EXS 360 Special Populations. IDE may be completed without co-requisite if EXS 360 has been successfully completed and with Director approval. 1 Semester Hour.

EXS 362 IDE: Senior Residential. This field experience provides students with an opportunity to design and implement appropriate fitness programs for older-adult populations with minor health complications. Co-requisite: EXS 360 Special Populations. IDE may be completed without co-requisite if EXS 360 has been successfully completed and with Director approval. 1 Semester Hour.

EXS 363 IDE: Adult Exercise. This field experience provides students with an opportunity to design and implement appropriate fitness programs for apparently healthy adults. Co-requisite: EXS 360 Special Populations. IDE may be completed without co-requisite if EXS 360 has been successfully completed and with Director approval. 1 Semester Hour.

EXS 364 IDE: Healthy Campus. This field experience provides students with an opportunity to work within the University of Mount Union's corporate wellness program. Duties may include, but are not limited to administering biometric and fitness assessments for faculty and staff participants and contributing original articles to the program's newsletter. Prerequisite: Co-requisite is EXS 360 (Special Populations); IDE may be completed without co-requisite if EXS 360 has been successfully completed and with Director approval. 1 Semester hour.

EXS 365 IDE: Youth and Adolescents. This field experience provides students with an opportunity to design and implement appropriate fitness programs for youth and adolescents. Co-requisite: EXS 360 Special Populations. IDE may be completed without co-requisite if EXS 360 has been successfully completed and with Director approval. 1 Semester Hour.

EXS 370 Environmental Physiology. A multidisciplinary approach to human adaptation and factors influencing human movement in diverse micro- and macro-environments. Factors considered include temperature, altitude, precipitation, under-water weightlessness, light, noise and socio-cultural. Health and safety in locomotion, rehabilitation, sport/recreation and occupational contexts are emphasized. Prerequisites: Junior standing or instructor permission. 4 Semester Hours.

EXS 380 Exercise Leadership. This course is designed to provide students with the opportunity to design and lead group exercise sessions. Students will be become familiar with the development processes associated with designing a group fitness class before creating and offering their own fitness class. Pre-requisite: EXS 110 and Junior Standing. 2 Semester Hours.

EXS 381 IDE: Fitness Assistant. This field experience provides students with an opportunity to further develop skills necessary for working in a clinical setting. Emphasis will be placed on equipment orientation, program design and implementation, and tracking progress of clients. Prerequisite: EXS 380. 1 Semester Hour.

EXS 382 IDE: Sport Performance Coach. This field experience provides students with an opportunity to further develop testing skills necessary for working with athletes or athletic teams. Prerequisite: EXS 320. 1 Semester Hour.

EXS 390 Lifespan Nutrition. This course will provide students with an introduction to nutrition concepts as they apply to lifetime wellness. Topics of study will include nutritional standards for different phases of life, nutrients, maternal-child nutrition, weight management, eating disorders, altered nutrition during aging, and disease treatment and prevention. Prerequisites: EXS 110 and HED 250 or instructor permission. 4 Semester Hours.

EXS 400 Senior Seminar: Contemporary Issues. This course will introduce students to current contemporary issues as related to the field of exercise science. The class will be discussion-based, with the latest and most relevant topics in the field of exercise science and related areas as the primary focus. 1 Semester Hour.

EXS 410 Senior Comps. The objective of this course is to reinforce concepts of exercise science, human anatomy and physiology, and performance testing. The course will culminate with a comprehensive exam covering these materials. Prerequisite: EXS 360. 1 Semester Hour.

EXS 420 Senior Applied Thesis. This capstone course for clinical track students allows for the incorporation of all knowledge, skills, and abilities with regards to exercise testing and prescription for various populations. Prerequisite EXS 410. 4 Semester Hours.

EXS 470 Senior Research Thesis. This capstone course for graduate track students emphasizes research design and in-depth research of a selected exercise science topic of the student's choosing. The research/presentation will count as the thesis for exercise science majors. Prerequisites: EXS 350 and Senior Standing. 4 Semester Hours.

EXS 471 IDE: Senior Research Thesis Data Collection. This course is an independent research and/or study project in which the student will collect data from a previously designed study. It is an extension of EXS 470 and is offered to students who have a desire to pursue undergraduate research in preparation for graduate-level education. Prerequisites: EXS 470. 2 Semester Hours.

EXS 481 IDE: Faculty Research Assistant. This course is an independent research and/or study project. It is offered to students who have a desire to pursue additional experience as an undergraduate researcher in preparation for graduate-level education. Prerequisites: Instructor approval. 1 Semester Hour.

EXS 482 IDE: Faculty Research Assistant II. This course is an independent research and/or study project. It is offered to students who have a desire to pursue additional experience as an undergraduate researcher in preparation for graduate-level education. Prerequisite: Instructor approval. 1 Semester Hour.

EXS 483 IDE: Faculty Research Assistant III. This course is an independent research and/or study project. It is offered to students who have a desire to pursue additional experience as an undergraduate researcher in preparation for graduate-level education. Prerequisite: Instructor approval. 1 Semester Hour.

EXS 490 Advanced Nutrition for the Health Sciences. Advanced Nutrition for the Health Sciences introduces and reinforces student knowledge of scientifically-based topics including a more advanced look at digestion and metabolism of nutrients, nutritional genomics, epigenetics, clinical nutrition, and functional foods and bioactives. The course will explore issues of safety and efficacy and health claims such as those pertaining to popular diets, nutraceuticals, and how they may apply to various populations. Evidence-based nutrition practice and societal regulation of the application of this scientific evidence is also addressed. Prerequisite: A minimum of one 100-300 level course covering nutrition, digestion, or metabolism: BIO 105, BIO 210/211, CHE 110, EXS 110, EXS 270, HED 250, or EXS 390, or instructor permission. 4 Semester Hours.

EXS 491 IDE: Laboratory Assistant. This course is an independent project. It is offered to students who have a desire to gain experience in the classroom in preparation for graduate-level education. Prerequisite: EXS 210, junior standing and instructor approval. 1 Semester Hour.

EXS 492 IDE: Laboratory Assistant II. This course is an independent project. It is offered to students who have a desire to gain experience in the classroom in preparation for graduate-level education. Prerequisite: EXS 320 and instructor approval. 1 Semester Hour.

EXS 499 Internship. An experience-based course in which the student spends a specified amount of time with a sport-related medical or allied health agency or organization in order to gain experience and to understand the application of exercise science. Supervision will be jointly provided by the cooperating organization and the University departmental staff. Prerequisites: Junior standing and permission of the instructor. 1- 12 Semester Hours.