

## School of Continuing Studies

### Exercise and Sport Sciences

*For full-time students admitted before the Fall 2005 semester only.*

*Courses in EXSS will not be taught after the 2007 spring semester.*

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#### Faculty:

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Exercise science is a full-time program designed to introduce students to the interdependence between mind and body during physical activity. It is intended to address not only the anatomical, biomechanical, and physiological consequences of exercise on the body but also the social and psychological context within which physical activity is pursued. The major's mission is to investigate the effect of physical activity on the lives of individuals who engage in it at all levels of proficiency, i.e., from performance enhancement to wellness for the masses. The major serves as undergraduate preparation for students planning to pursue graduate work in exercise physiology, biomechanics, sport psychology, sport sociology, physical therapy, medicine, or allied health. It also serves to facilitate employment upon graduation in areas such as corporate wellness, cardiac and pulmonary rehabilitation, or personal training. In order to facilitate each student's chosen path of study, three tracks are available, e.g., 1) exercise physiology/wellness, 2) motor behavior/sport psychology, and 3) premedicine.

### BACHELOR OF SCIENCE

Students who wish to pursue a Bachelor of Science degree in exercise science must earn a minimum of a C- in each of the following prerequisite courses prior to being admitted into the

major program: Cell & Molecular Biology 101; Ecology and Evolutionary Biology 101; Chemistry 107/117 and 108/118; Exercise Science 180; and any mathematics course.

Students seeking a Bachelor of Science in exercise science must complete:

- proficiency requirements in English (7 credits composed of English 101 and one additional class fulfilling the writing requirement, e.g., any designated LAS writing course, any English literature course, or any approved UC writing Course)
- Mathematics (6-8 credits)
- Foreign Language/Culture (completion of the second level of any foreign language or two courses designated as meeting non-Western culture requirements).

*In addition, students must fulfill:*

#### Supporting Requirements

- 3 credits of any oral communication course
- 3 credits of any computer application course

#### General Distribution Requirements

- 12 credits in Humanities
- 12 credits in Social Sciences
- 12 credits in the Natural Sciences.

In each of the General Distribution categories, the student must take courses from at least two different academic departments.

Within the interdisciplinary Exercise Science major, students are required to complete 20 credits of core courses, six courses leading to a minimum of 18 credits of Kinesiology Concentration electives, and 15-24 credits of an academic minor of his or her choosing, unless the student is double majoring or already possesses a degree (in which case the requirement for a minor is waived).

The Exercise Science core consists of:

- Exercise Science 303/313, 304/314, 310, 311, 315, and 407.

Courses within the Kinesiology Concentration are:

- Exercise Science 222, 223, 290, 316, 317, 320, 322, 377, 401, 402/413, 405, 407, 412, 418, 420, 433, 457, 464, and 472.

The total number of credits required for completion of the Bachelor of Science degree in Exercise Science is 124 and must include an academic minor selected by the student comprised of at least 15 credits. The Exercise Science major also adheres to The School of Continuing Studies Residency Requirement that requires one year of full time enrollment.

Program design must be undertaken in consultation with faculty within the Department of Exercise and Sport Sciences.

### **MINORS IN EXERCISE SCIENCE**

Two minor programs are offered by the Department of Exercise and Sport Sciences. Both require a minimum GPA of 2.000 upon completion. A minor in exercise science is comprised of a minimum of 19 credits that include three required courses (Exercise Science 303/313, 311, 315) and three elective courses to be selected from the remaining core and kinesiology concentration electives within the department's inventory. A minor in personal training is comprised of 18 credits that include three required courses (Exercise Science 290, 315, 311) and three elective courses to be selected from Exercise Science 180, 233, 317, 377, and 433.

### **MINOR IN ALLIED HEALTH**

The minor in allied health is open only to the School of Continuing Studies students. Students interested in either premedical or in prephysical therapy, should contact the Department of Exercise and Sport Sciences for advice about the minor.

### **ADMISSION TO EXERCISE SCIENCE MAJOR**

Admission into the university and to the exercise and sport sciences major is competitive. Entering freshmen can seek admission directly into the university and the EXSS major either on-line or by contacting the Admissions Office and by completing the application form, specifically by choosing the School of Continuing Studies/EXSS major. Entering freshmen opting for the full-time EXSS major through The School of Continuing Studies must meet the same admissions requirements as students entering the College of Arts and Sciences. Once admitted to the university, freshmen who select this option will be granted Provisional Admission into the major. This status will continue until their junior year when formal admission into the major must be met. Formal Admission into the major requires: 1) a minimum overall

GPA of 2.3 or better, 2) total credits required for junior status, 3) completion of the EXSS Major Pre-requisite courses at the "C-" level or better, 4) consultation with an EXSS adviser, and 5) completion of the Declaration of Major form.

Students transferring from other institutions or other divisions within the Tulane University community must meet the same Formal Admission criteria described above. Once admitted into the University, students transferring from other institutions must initiate a transcript evaluation through the EXSS adviser's office. Those transferring from another division or college from within the University must initiate an interdivisional transfer into The School of Continuing Studies through the office of the Dean of their respective unit.

### **COURSE OFFERINGS**

#### **EXSS 104 First Aid and CPR (2)**

The course is designed to address the care and treatment of respiratory and cardiac emergencies as well as the first-aid procedures for bleeding, shock, stroke, burns, bone fractures, poisoning, and other injuries. Successful completion of the course will certify the students in American Red Cross Standard First Aid and Community CPR, which includes adult, child, and infant CPR skills.

#### **EXSS 107 Wilderness First Aid (2)**

Most first-aid courses are designed for those with rapid access to EMS. This course provides skills for extended care since wilderness first-aiders may have to spend extended amounts of time with an injured person. Wilderness first aid has a distinct focus in its attention to environmental demands placed on care giving under adverse conditions that affect both rescuer and victim. Upon completion of this course, students will have earned a National Safety Council Wilderness First Aid card as well as an American Heart Association CPR card. This course is taken in lieu of UESS 104.

#### **EXSS 110 Emergency Medical Services – Basic (3)**

This 124-hour class serves as an introduction to emergency medicine. Course topics include but are not limited to anatomy/physiology, respiratory/cardiac emergencies, trauma, EMS systems, rescue, and diabetic emergencies. Basic skills addressed include trauma assessment, oxygen therapy, splinting, life-threatening wound management, and automatic defibrillator use. A 10-hour segment with a private, local ambulance service is

required. Course includes: two-year CPR certification and preparation for certification with the National Registry of Emergency Medical Technicians.

**EXSS 180 Fundamentals of Health and Fitness (3)**

This course is designed to teach the importance of physical activity and its relationship to health and a better quality of life. Emphasis is placed on the components of total fitness: physical, social, emotional, and intellectual. Content provides scientific information to guide students in developing personalized exercise programs to achieve the highest potential for total well-being. This is a basic course in health and fitness education designed for the general student body.

**EXSS 222 Mind/Body Health (3)**

Health is influenced by physical, social, emotional, spiritual, and intellectual determinants. In this course, the interaction between these determinants as they relate to the onset, progression, and recovery of disease is explored. The aim is to provide an overview of the mind/body connection in relation to health in general.

**EXSS 233 Nutrition and Health (3)**

This course is intended to bridge the gap between the theory and practice of nutritional science. Emphasis is given to the basic food constituents and their physiological relationships within the body. Topics will include but are not limited to: the fundamental principles of normal nutrition, the interaction between diet and energy expenditure, the metabolism of micro-nutrients, gender differences, changes in nutrient needs throughout the life cycle, computer-assisted nutritional analyses, and web-based nutritional sites.

**EXSS 290 Kinesiology for the Performing Arts (3)**

This course is designed to cover the underlying anatomical structures of the human body, the mechanics of movement, nutrition, human physiology and the broad scope of psychosocial influences on people in the performing arts. It will also examine peripheral issues surrounding performance by reviewing traditional as well as nontraditional medical approaches to prevention and rehabilitation from injury. In short, this course presents a review of published work pertaining to the scientific understanding of the performing arts.

**EXSS 303 Human Anatomy and Physiology I (3)**

Prerequisite: CELL 101 or CHEM 107/117. The first of two sequenced courses intended to address human anatomy and

physiology. This course explores the musculoskeletal system and physiological subsystems that support human movement. Special emphasis is given to the chemical basis of life, cells and cellular metabolism, histology and tissues, and the endocrine, skeletal, and neurological systems. Corequisite: EXSS 313.

**EXSS 304 Human Anatomy and Physiology II (3)**

Prerequisite: EXSS 303/313 or instructor approval. The second in a sequence of courses intended to address human anatomy and physiology. Special emphasis is given to the respiratory, digestive, cardiovascular, lymphatic and reproductive systems; nutrition and metabolism; water, electrolyte, and acid base balance; and human growth and development. Corequisite: EXSS 314.

**EXSS 310 Biomechanics of Exercise and Sport (3)**

Prerequisite: EXSS 303, MATH 115. An investigation into the principles of physics (e.g., Newtonian mechanics) as they relate to human movement. Topical areas include force and motion relationships, mechanics in aquatics, applications to motor development, quantitative analysis of locomotion and research instrumentation.

**EXSS 311 Mental and Behavioral Aspects of Sport (3)**

Prerequisites: Psychology 100. This course presents an overview of theories pertaining to the psychology of sport and human performance as well as those addressing issues in exercise psychology, e.g., personality, group dynamics, aggression, attribution, achievement, psychophysiology, leadership styles, reinforcement, self-conceptualization, exercise adherence, motivation, and changes in lifestyle.

**EXSS 313 Human Anatomy and Physiology II Laboratory (1)**

The laboratory is designed to actively involve students in learning the gross anatomy of the musculoskeletal system supporting structures. Dissection and exploration of human cadavers are integral components of the lab experience. Subject matter will include but are not limited to the following: levels of organization, metabolism, histology, and the integumentary, skeletal, muscular and endocrine systems. Corequisite: EXSS 303.

**EXSS 314 Human Anatomy and Physiology II Laboratory (1)**

This laboratory is designed to actively involve students in learning the principles and applications of anatomy and physiology. Gross dissection and exploration of human cadavers are integral components of the lab experience. Subject matter will include the following: blood, the cardiovascular system, the lymphatic system,

the digestive system, and the reproductive system. Corequisite: EXSS 304.

### **EXSS 315 Physiology of Exercise (3)**

Prerequisite: UESS 180 or instructor approval. This course provides a detailed understanding of the physiology of exercise, e.g., how the body responds and adapts to exercise and physical activity at the skeletal, muscular, and neurohormonal level. An integrative systems approach to exercise will be presented. The bioenergetics of muscular work and the cellular mechanisms of muscle contraction will be emphasized and applied to issues of health and performance.

### **EXSS 316 Legal Aspects of Sport (3)**

An introduction to the application of law to the sports industry. Topics include tort negligence, safety and debilitating injuries, sport violence, antitrust and labor law in professional sports, and sports agents. The constitution is studied in its application of equal opportunity employment practices in sports management, drug testing of athletes, and the civil rights of student athletes.

### **EXSS 317 The Physical Dimensions of Aging (3)**

This course is designed to introduce students to the physiological, behavioral, and cognitive changes associated with aging. In particular, it focuses on the effects of exercise on the aging human system. Topics will include but are not limited to: what it means to become older, what a person can expect during the aging process, and what kind of control a person has over an aging body.

### **EXSS 320 Therapeutic Modalities in Sports Medicine (3)**

Prerequisites: UESS 315 or EXSS 313 or instructor approval. This course is designed for individuals interested in the treatment and rehabilitation of athletic injury. The theoretical foundations and scientific principles that support the use of therapeutic modalities in the physical medicine environment will be presented. Particular attention is given to the physical, mechanical, and chemical affects of therapeutic agents and techniques. Laboratory experiences will be incorporated into the lecture series.

### **EXSS 322 Peak Performance: Theories and Strategies (3)**

This course serves two purposes. It facilitates an understanding of the theoretical foundations underlying the 'flow experience' and the basic mental skills needed for human performance, e.g., concentration, self-talk, imagery, and self-mastery. Theories housed in both the natural and social sciences are thoroughly examined and, subsequently, applied to the development of the

basic mental skills that are used within various performance mediums such as athletics, academics, music, dance, medicine, and business.

### **EXSS 377 Wellness Programming for Special Populations (3)**

This course will enhance the student's ability to become a competent health and fitness instructor who is involved in preventive and rehabilitative exercise programs. The theoretical part of the course will discuss the physiological and psychological effects of exercise, the limits and benefits of exercise, and the implication of these on exercise guidelines aimed at a variety of special populations, e.g., the elderly, pregnant women, people with controllable diseases such as hypertension, diabetes, arthritis, and cardiovascular disease. The practical part of the course puts emphasis on safe and innovative class designs and formats, as well as the use of various forms of equipment.

### **EXSS 389 Service Learning (1-2)**

Provides students with an opportunity to earn academic credit for service-oriented projects that apply the discipline of exercise and sport sciences within the surrounding New Orleans community. Specific requirements will be determined by the instructor of record and the local site supervisor.

### **EXSS 399 Directed Study in Exercise and Sport Sciences (1-3)**

For study, research, and projects in programs of special interest not covered in normal course offerings. Liberal Arts credit by petition only.

### **EXSS 401 Health Related Fitness Programs and Assessments (3)**

Prerequisite: UESS 315. This course is designed to enhance theoretical knowledge and clinical abilities in exercise leadership and the administration of preventive and rehabilitative health/fitness programs. The course includes the knowledge base related to all of the competencies required for the American College of Sports Medicine Health Fitness Instructor Certification.

### **EXSS 402 Advanced Exercise Physiology (3)**

Prerequisite: UESS 315 or instructor approval. Corequisite: UESS 413. A continuation of UESS 315, the major focus of the course is on cardiovascular and respiratory physiology. Additional topics include exercise in extreme environments, exercise during pregnancy, and exercise and aging. Students will gain understanding of the integrative nature and broad application of exercise physiology as well as of the principles and techniques

applicable to athletic, clinical, and sedentary populations. Service learning component available.

### **EXSS 405 Exercise Electrocardiography (3)**

Prerequisite: UESS 315 or instructor approval. A study of the physiological basis and analysis of normal and abnormal exercise electrocardiograms. Emphasis is given to the identification of selected ECG abnormalities during exercise testing. This course builds on the foundation laid by the other courses in exercise physiology.

### **EXSS 407 Motor Learning, Development and Control (3)**

Prerequisite: EXSS 304 or instructor approval. The course explores the observable movement behavior patterns of humans from early infancy to late adulthood. Concomitant physiological, psychological and anatomical stages of human development will serve as the foundation of the investigation. Students will study the various methods of learning movement skills and the latest theories that address the manner in which humans control their musculoskeletal systems.

### **EXSS 412 Research Design in Exercise Science (3)**

This course is designed to acquaint the student with research design, methodology and data analysis appropriate to the field of exercise science. Special attention is given to statistical analysis and methodology used to evaluate applied physiology, biomechanics, and psychology in an exercise and sport setting.

### **EXSS 413 Advanced Exercise Physiology Laboratory (1)**

Prerequisite: UESS 315 or instructor approval. Corequisite: EXSS 402. This course is designed to give students the knowledge and skills necessary to perform laboratory tests used in the study of exercise physiology. Students learn to operate equipment used to assess fitness and athletic performance, e.g., metabolic cart, electrocardiograph, lactate analyzer, oxygen saturation, body composition analysis. In addition, students will learn to develop exercise prescription programs as well as risk assessment and safety procedures involved in exercise testing.

### **EXSS 418 Philosophy of Sport (3)**

This course assists serious students in the development of their own philosophy of sport. The content of the course includes three main sections: 1) "How to do" philosophy, 2) an overview of various philosophical camps (e.g., materialism, dualism, humanism, zen, and existentialism), and, 3) the application of philosophy to sport. The ultimate objective of developing one's

own philosophy will be realized through library/Internet research, introspection and the acquisition of new knowledge.

### **EXSS 420 History of Western Sport (3)**

This course addresses the history of Western sport within a multidisciplinary context. To accomplish this, selected decades of U.S. history will serve as historical benchmarks that reflect the "signs of the times." Sporting headlines, global and national political events, as well as popular movies, music and literature will serve as the impetus for exploration. By investigating the stories behind each of these headlines, each student will develop a broader context within which a sport-related timeline resides. In this sense, sport is placed within a larger social context and serves as one of many social forces that converge to tell the story of our nation's past.

### **EXSS 433 Nutrition, Exercise and Sport (3)**

Prerequisite: UESS 315 or instructor approval. This course is designed for individuals interested in optimizing their health and performance (athletic, performing arts, wellness-related exercise, life) by applying current research findings from nutritional science to the design and implementation of an optimum dietary program. Its emphasis lies in using scientific evidence to understand the nutritional demands associated with wellness and/or sport training. Topics include but are not limited to: exercise bioenergetics, the biochemical and physiological processes of fuel utilization, the influence of nutrition on the mobilization and storage of fuel, and nutritional ergonomic aids.

### **EXSS 457 Internship (3)**

Departmental approval required. This supervised work experience is available to students in exercise science and will focus on areas of interest which correspond to the student's long-term professional goals. The internship will be coordinated between a departmental faculty member and an on-site supervisor. Opportunities locally, nationally, or internationally are available.

### **EXSS 464 Seminar: Current Issues in Sport (3)**

A comprehensive study of some of the major developments occurring in sport. Using sport as a medium for investigation, awareness of social, political, and economic systems is achieved and applied to current events in society as a whole. Examples of major topics include the economics of professional/collegiate sport, gender equity, management-labor relations, race relations, educational values of sport, sport for the masses.

**EXSS 472 Seminar in Sports Medicine (3)**

Prerequisite: EXSS senior status. This course is intended to facilitate professional discussion among students and faculty in a variety of subdisciplines within exercise and sport sciences and their real-life applications to human performance and wellness, e.g., exercise physiology, sport and exercise psychology, biomechanics, motor behavior, anatomy, wellness and health promotion. The seminar setting will require each student to prepare research findings to be used for discussions and debate concerning contemporary issues facing the field, its graduates, and professionals.

**EXSS 495 Independent Study in Exercise and Sport Sciences (3)**

For study, research, and projects in programs of special interest not covered in normal course offerings.

**EXSS 496, 497 Special Topics in Exercise and Sport Sciences (3, 3)**

Courses offered by visiting professors or permanent faculty for specific topics not included in other courses.