

## Proposal for a Minor in Exercise and Movement Science (EMS)

Department of Exercise and Movement Science

College of Arts and Sciences

### **The Proposed Minor**

The Department of Exercise and Movement Science at the University of Oregon offers students the opportunity to explore and understand the functional and structural mechanisms that underlie human performance in all of its manifestations from fundamental motor skills to sustained and demanding exercise. The objective to this proposal is to provide an Exercise and Movement Science minor that is targeted to non-Exercise and Movement Science majors. The minor will be particularly well suited to students majoring in biology, general science, and chemistry. The minor will have a strong applied emphasis that will prepare students to meet the challenges of rapidly evolving demands in working environments such as medical/clinical settings. The degree will carry a minimum of 24 upper division credits, 20 of which must be completed at the University of Oregon. This requirement will ensure students receive exposure to a variety of courses that will focus on the role of movement and exercise in human biological development and adaptation across the life span.

Most students in Exercise and Movement Science move on to additional study and seek some type of credential beyond the degree. Many of the graduates from the Exercise and Movement Science department continue on to pursue careers in the allied health professions. Students graduating with a minor in Exercise and Movement Science, in addition to their major field of study, will have the necessary scientific foundation for postgraduate study in medicine, nursing, dentistry, optometry, chiropractic, physical therapy, occupational therapy, massage therapy and athletic training.

### **Rationale**

For many years, students have been inquiring about a minor in Exercise and Movement Science at the University of Oregon. Students are requesting a minor in Exercise and Movement Science in order for them to have a balanced background in the science of human movement and provide skills useful in research and medical/clinical settings.

With the added option of a minor, students would be able to contribute to the community by serving in various settings where community health education approaches are employed to improve health and well-being.

### **Proposed Requirements**

Minimum of 24 upper division credits, 20 of which must be completed at the University of Oregon are required. All courses must be taken graded.

ANAT 311 Human Anatomy I: Bones, Muscles, Nerves (3). Gross human anatomy; the skeletal, muscular and neural systems. Lectures, laboratory. Prereq: BI 212 or 264 or instructor's consent.

ANAT 312 Human Anatomy II: Systems of the Body (3). The circulatory, respiratory, digestive and urogenital systems. Lectures, laboratory. Prereq: ANAT 311.

ANAT 314 Human Anatomy I: Laboratory (2). Laboratory experiences in gross anatomy of skeletal muscle and bones. Includes media-based instruction and a cadaver laboratory. Pre/coreq: ANAT 311 or equivalent.

ANAT 315 Human Anatomy II: Laboratory (2). Laboratory experiences in circulatory, respiratory, digestive, and urogenital systems. Includes media-based instruction and a cadaver laboratory. Prereq: ANAT 314; coreq: ANAT 312.

HPHY 313 Human Physiology I: Nerve, Muscle, Senses (3). Physiological principles as they operate in normal function. Neuronal resting and action potentials, muscle

contraction, synaptic transmission, sensory transduction, special senses, neural reflexes and central processing of information. Lectures, laboratory. Prereq: BI 212 or 264 or instructor's consent. College anatomy strongly recommended.

HPHY 314 Human Physiology II: Homeostatic Mechanisms (3). Circulatory, respiratory, digestive, metabolic, immune, endocrine, and reproductive physiology. Lectures, laboratory. Prereq: HPHY 313.

HPHY 316 Human Physiology I: Laboratory (2). Physiological principles as they operate in normal function. Neuronal resting and action potentials, muscle contraction, synaptic transmission, sensory transduction, special senses, neural reflexes, and central processing of information. Pre/coreq: HPHY 313 or equivalent.

HPHY 317 Human Physiology II: Laboratory (2). Circulatory, respiratory, digestive, metabolic, immune, endocrine, and reproductive physiology. Prereq: HPHY 316; coreq: HPHY 314.

Two additional courses from those listed below:

EMS 371 Physiology of Exercise (4). Physiological effects of muscular exercise, physical conditioning and training, significance of these effects for health and performance in activity programs. Prereq: HPHY 313, 314.

EMS 333 Motor Control (4). Introduction to the processes of control and coordination in the performance of motor skills. Neurophysiological, mechanical, and cognitive bases of motor skill acquisition.

EMS 335 Motor Development (4). The development of motor skill: understanding the integration of neurophysiological, morphological, and cognitive function in producing changes in motor skills across the life span.

EMS 361 Sports Medicine (4). Analysis of exercise as a physical stressor and resulting bodily adaptations. Prereq: ANAT 311, 312.

EMS 381 Biomechanics (4). Mechanics applied to the analysis of human movement. Emphasis on developing abilities to analyze human movement quantitatively. Prereq: MATH 111, 112; PHYS 201.

### **Regularity of Course Offerings**

These courses are offered every year, according to the following schedule. A number of the courses are also offered in the summer.

- ANAT 311: Offered Fall term
- ANAT 312: Offered Winter term
- HPHY 313: Offered Fall term
- HPHY 314: Offered Winter term
- EMS 371: Offered Spring Term
- EMS 333: Offered Spring term
- EMS 335: Offered Winter term
- EMS 361: Offered Winter term
- EMS 381: Offered Fall term

### **Budgetary Consequences**

Since the proposed minor program consists of courses that are already offered each year by existing faculty, there will not be any additional cost to the University of Oregon. On

the contrary, the addition of a minor degree in Exercise and Movement Science will allow more students to be served, which in turn, will increase funding for the college as a whole.

### **Students Served**

As previously noted, the minor will be available to non-EMS majors only. Particularly, we are targeting students that are majoring in biology, general science or chemistry, who wish to broaden their studies to include courses related to human physiological and clinical issues that are part of the study of exercise and movement science.

### **Conclusion**

The objective to this proposal is to provide an Exercise and Movement Science minor that is targeted to non-Exercise and Movement Science majors, particularly to students majoring in biology, general science, and chemistry. For many years, students have requested a minor in Exercise and Movement Science in order for them to have a balanced background in the science of human movement and provide skills useful in research and medical/clinical settings. With the added option of a minor, students would be able to contribute to the community by serving in various settings where community health education approaches are employed to improve health and well-being. It is for these reasons that we believe this program will be successful at the university and in our department.