



SCHOOL OF HEALTH AND REHABILITATION SCIENCES DEPARTMENT OF SPORTS MEDICINE AND NUTRITION

Sports Medicine Graduate Course Descriptions

HRS 2867 Pathokinesiology of Orthopedic and Athletic Injuries (3 credits)

This course will provide a detailed and sequential approach to understanding the static and dynamic structures responsible for joint stability. The biomechanical and sensory role of articular structures will be discussed related to primary and secondary restraints to joint stability. Discussion will be divided into specific structures providing stability to the knee, ankle, shoulder, and other joints, focusing on the pathokinesiology of specific orthopedic injuries. The course will include current concepts and theory related to neuromuscular control of these conditions and the role of rehabilitation in reestablishing functional stability. (Instructor: Mary Murray, MA, ATC)

HRS 2868 Seminar in Sports Medicine (3 credits)

The course will present focused discussion of contemporary issues related to research and clinical practice within the evolving field of sports medicine. The student will be presented information related to the most recent technological advances in the field and be provided with expert analysis of future directions in sports medicine health care. A variety of current issues and technical advancements in sports medicine will be presented including: professional preparation, basic science research in orthopaedics, medical, legal, and ethical issues related sports, updates in orthopaedic surgery, current concepts in rehabilitation, and other areas of interest pertaining to the discipline of sports medicine (Instructor: John P. Abt, PhD, ATC)

HRS 2869 Anatomical Basis of Sports Medicine (3 credits)

This course will include dissection of the human cadaver and will emphasize the musculoskeletal, articular, nervous, and vascular systems. Dissection experience will be related to the role of anatomical structures in orthopedic injury, evaluation, and rehabilitation. (Instructor: John P. Abt, PhD, ATC)

HRS 3896 Research Seminar in Sports Medicine (3 credits)

The course will present a focused discussion of contemporary issues related to research and clinical practice within the evolving field of sports medicine. The student will be presented information related to the most recent research related to the fields of athletic training, sports medicine, and orthopedic surgery. The goal of the course is for each student to be able to affectively obtain, read, synthesis, write, discuss, critique, present, and appreciate scientific research related to sports medicine. (Instructor: Timothy C. Sell, PhD, PT)

HRS 3898 Laboratory Techniques in Sports Medicine I (3 credits)

This course provides a graduate level experience in the laboratory techniques used in the assessment of the mechanical, neuromuscular, and anatomical bases of human movement. The purpose of the course is to expand the prerequisite knowledge in basic biomechanics and apply it to investigate basic human movements. Students will be introduced to current techniques of biomechanical analysis including the use of signal processing techniques, motion analysis, force plates, accelerometers, balance/postural stability assessment, ground reaction force analysis, and inverse dynamics. Students will also learn the basics of programming so as to be able to process data in an autonomous manner. (Instructor: Timothy C. Sell, PhD, PT)

HRS 3897 Laboratory Techniques in Sports Medicine II (3 credits)

This is an advanced graduate level course into the mechanical, neuromuscular, and anatomical bases of human movement and a continuation of Laboratory Techniques in Sports Medicine I. The purpose of the course is to expand the prerequisite knowledge in basic biomechanics and associated methodology as applied to sports medicine. Students will learn quantitative techniques in electromyography, proprioception, strength testing (isokinetic and hand held dynamometry, body composition, and the energetics of human movement. (Instructor: Timothy C. Sell, PhD, PT)

HRS 3895 Directed Readings in Neuromuscular Aspects of Sport Injury (3 credits)

The course contains in depth study, readings, and critical discussion related to the role of the sensorimotor system in providing joint stability and how these sensorimotor mechanisms are altered with orthopedic sport injury. (Instructor: John P. Abt, PhD, ATC)

HRS 2908 Advanced Musculoskeletal Assessment and Injury Prevention (3 credits)

The first part of the course will present the assessment and evaluation techniques necessary to accurately diagnose and prevent musculoskeletal injury. The student will be presented with the necessary information regarding the tissue(s) involved (anatomy/functional anatomy); the signs and symptoms in relationship to the injury and tissue(s); and the evidence for determining the most sensitive and specific assessment evaluation and assessment techniques/tools. Course content will also include presentation of musculoskeletal imaging and differential diagnosis case studies. The second part of the course will include lecture/demonstrations by the students.
(Instructor: Marry Murray, MA, ATC)

HRS 2017 Injury Epidemiology (3 credits)

This introductory course in injury epidemiology will address injury epidemiology, and concepts in basic epidemiology and biostatistics related to injury surveillance, prevention and control. The epidemiological perspective of injuries will address the concepts in the Haddon's matrix and classic epidemiologic triad; current injury epidemiology research needs and injury as a public health issue. Topics addressed will include epidemiology of injuries in developed and developing countries, and injuries in vulnerable populations.
(Instructor: Mita T. Lovalekar, MBBS, PhD, MPH)