



School of Kinesiology

# Course Descriptions

## *2009-2010*

*(10/08/2009)*

Athletic Training

Movement Science

Physical Education

Sport Management

Kinesiology (graduate level and study abroad)

## Athletic Training Course Descriptions

UPDATED 10/08/09

Prerequisites are listed *in italics*.  
Terms offered are CAPITALIZED.

**AT 115. Prevention and Care of Athletic Injuries (3).** *AT major or permission of instructor.* This course introduces clinical approaches to the prevention and treatment of injuries common to active lifestyles, including acute and overuse injuries. This class is designed to give a general overview of all aspects of athletic training. **WINTER TERM ONLY. Instructor(s): Palmieri-Smith**

**AT 117. Prevention and Care of Athletic Injuries Lab (1).** *AT major or permission of instructor; students must be concurrently enrolled in AT 115.* This course is designed to introduce techniques used in risk management and the prevention and care of athletic injuries and illnesses. Emphasis is placed upon skills necessary to manage and prevent injuries common to active lifestyles, including acute and overuse injuries. Provides students with a laboratory experience in which skills relative to risk management and injury prevention are practiced. **WINTER TERM ONLY. Instructor(s): Pickerman**

**AT 200. Clinical Experience in Athletic Training A (1-3).** *Declared AT major; sophomore standing.* This experience is designed to expose the student to experiences common to the practice of athletic training and to allow the student to demonstrate clinical proficiency in the areas of risk management and acute care. **FALL TERM ONLY. Instructor(s): Czajka**

**AT 205. Clinical Experience in Athletic Training B (1-3).** *Declared AT major; sophomore standing.* This experience is designed to expose the student to experiences common to the practice of athletic training and to allow the student to demonstrate clinical proficiency in the areas of risk management and acute care. **WINTER TERM ONLY. Instructor(s): Czajka**

**AT 210. Clinical Evaluation of Upper Extremity Athletic Injuries (3).** *AT 115, AT 117.* This course is designed to help students develop the knowledge, skills, and abilities necessary to evaluate and assess injuries to the upper extremity and spine. The content covered in this course prepares students for the NATABOC Certification Examination and is critical for development as a competent health care professional. **FALL TERM ONLY. Instructor(s): Palmieri-Smith**

**AT 212. Clinical Evaluation of Upper Extremity Athletic Injuries Lab (1).** *AT 115, AT 117; students must be concurrently enrolled in AT 210.* This course provides students with a laboratory experience in which upper extremity orthopedic evaluation skills are practiced. **FALL TERM ONLY. Instructor(s): STAFF**

**AT 215. Clinical Evaluation of Lower Extremity Athletic Injuries (3).** *AT 115, AT 117, AT 210, AT 212; previous course in anatomy.* This course is designed to help students develop the knowledge, skills and abilities necessary to evaluate and assess injuries to the lower extremity. **WINTER TERM ONLY. Instructor(s): Czajka**

**AT 217. Clinical Evaluation of Lower Extremity Athletic Injuries Lab (1).** *AT 115, AT 117, AT 210, AT 212; previous course in anatomy; students must be concurrently enrolled in AT 215.* This course is designed to provide students with a laboratory experience in which lower extremity orthopedic evaluation skills are practiced. **WINTER TERM ONLY. Instructor(s): Thomas**

**AT 300. Clinical Experiences in Athletic Training C (1-3).** *Admission to Athletic Training Program; junior standing.* This experience is designed to expose the student to experiences common to the practice of athletic training and to allow the student to demonstrate clinical proficiency in the

areas of injury prevention, assessment, and management. **FALL TERM ONLY. Instructor(s): Czajka**

**AT 305. Clinical Experiences in Athletic Training D (1-3).** *Admission to Athletic Training Program; junior standing.* This experience is designed to expose the student to experiences common to the practice of athletic training and to allow the student to demonstrate clinical proficiency in the areas of injury prevention, assessment, and management. **WINTER TERM ONLY. Instructor(s): Czajka**

**AT 310/PHYSED 310. Applied Human Anatomy and Physiology (5).** Designed to give the student a basic understanding of the structural and functional organization of the human body. Analyzes the relationships of the human body at the biochemical, cellular, tissue, organ, and systems level, emphasizing the applications to physical education. **WINTER TERM ONLY. Instructor(s): McLean**

**AT 313. Special Topics (1-4).** New courses in development can be introduced provisionally into the curriculum under this number. The current course description, if applicable, is available from the program chair. **FALL OR WINTER, AS ARRANGED.**

**AT 326. Fundamentals of Strength and Conditioning** is now **PHYSED 326.**

**AT 350. Therapeutic Modalities (3).** *AT major or permission of instructor; previous course in anatomy.* This course is designed to introduce students to the knowledge, skills and values important to plan, implement, and evaluate the efficacy of therapeutic modalities in the treatment of injuries and illnesses of athletes and others involved in physical activity. **FALL TERM ONLY. Instructor(s): Czajka**

**AT 352. Therapeutic Modalities Lab (1).** *Previous course in anatomy; AT major or permission of instructor; students must be concurrently enrolled in AT 350.* This course is designed to introduce students to the knowledge and skills important to the application of therapeutic modalities in the treatment of injuries and illnesses of athletes and others involved in physical activity. **FALL TERM ONLY. Instructor(s): Shinavier**

**AT 360. Therapeutic Rehabilitation of Athletic Injuries (3).** *AT 350; previous course in anatomy.* AT 360 will provide knowledge to students regarding the physiology of musculoskeletal trauma and its subsequent effects on tissues as a basis for rehabilitation. Therapeutic exercise techniques and the development of rehabilitation programs will be covered. **FALL TERM ONLY. Instructor(s): Czajka**

**AT 362. Rehabilitation of Athletic Injuries Lab (1).** *AT 350; previous course in anatomy; students must be concurrently enrolled in AT 360.* AT 362 is designed to provide students with a laboratory experience in which techniques used in the rehabilitation of musculoskeletal injuries can be applied. **FALL TERM ONLY. Instructor(s): STAFF**

**AT 375. Pathophysiology for the Allied Health Professions (3).** *Previous course in anatomy and physiology.* This course is designed to provide students with a basic understanding of the cellular and molecular mechanisms responsible for disease processes. **WINTER TERM ONLY. Instructor(s): Czajka**

**AT 400. Clinical Experiences in Athletic Training E (1-3).** *Admission to Athletic Training Program; senior standing.* This experience is designed to expose the student to experiences common to the practice of athletic training and to allow the student to demonstrate clinical proficiency in the areas of risk management, therapeutic exercise, and general medical conditions. **FALL TERM ONLY. Instructor(s): Czajka**

**AT 402. Teaching Experience for AT Students (1-3).** *Permission of instructor; junior/senior status; minimum B+ in related AT/PE core courses recommended.* Undergraduate students participating in this course are responsible for (1) aiding regularly assigned teaching faculty in a particular course; (2) providing tutorial help for undergraduate students enrolled in the course they are assisting in; (3) meeting regularly with discussion and/or laboratory sessions; (4) participating with teaching faculty in instructional activities. May be repeated once in a different area or with a different professor. Credits count as Kinesiology elective credit. **FALL/ WINTER/ SPRING/ SUMMER. Instructor(s): STAFF**

**AT 403. Internship in Athletic Training (1-4).** *Junior/senior status; permission of instructor.* Students will be required to complete a field experience related to the academic discipline of Athletic Training. Experiences are typically completed outside of The University of Michigan Athletic Department and The School of Kinesiology. S/U grading only. **FALL/ WINTER/ SPRING/ SUMMER. Instructor(s): Reck**

**AT 405 Clinical Experiences in Athletic Training F (1-3).** *Admission to Athletic Training Program; senior standing.* This experience is designed to expose the student to experiences common to the practice of athletic training and to allow the student to demonstrate clinical proficiency in the areas of risk management, therapeutic exercise, and general medical conditions. **WINTER TERM ONLY. Instructor(s): Czajka**

**AT 410. Athletic Training Administration (3).** *AT major; senior standing.* This course is designed to educate students on the management and administration of health care to physically active individuals. The class is a culminating experience to prepare students to become entry-level professionals. By completing this class, students should demonstrate mastery in health care management concepts and display the values in health care administration consistent with the Code of Ethics of the National Athletic Trainers Association and Standards of Practice for Athletic Trainers. **FALL TERM ONLY. Instructor(s): Mendias**

**AT 420. Pharmacology for the Allied Health Professions (3).** *Previous course in anatomy and physiology.* This course is designed to provide students with a basic understanding of pharmacology emphasizing drug law, routes of administration, basic pharmacokinetics, and the specific pharmacology of drugs commonly used in physical medicine. **FALL TERM, AS ARRANGED. Instructor(s): Mendias**

**AT 488. Independent Study AT (1-2).** *Junior standing, permission of instructor.* Students work with an individual professor on a mutually agreed-upon project that may include readings, research or other academic experience. **FALL/ WINTER/ SPRING/ SUMMER. SEE FACULTY ADVISOR. Instructor(s): STAFF**

## Movement Science Course Descriptions

UPDATED 10/08/09

Prerequisites are listed *in italics*.  
Terms offered are CAPITALIZED.

**MOVESCI 110. Biological and Behavioral Bases of Human Movement (3).** An introduction to exercise physiology, biomechanics and motor control. Students gain an appreciation of the study of human movement from a scientific perspective. **FALL/WINTER. Instructor(s): Drew, Katch, Anaka**

**MOVESCI 230. Human Musculoskeletal Anatomy (4).** This course focuses on functional anatomy of the human musculoskeletal system. Students will learn the names and major landmarks of the major bones, the structure and kinematic characteristics of the major joints, as well as the names and functions of all the major muscles in the human body. The course format includes both lecture and laboratory experiences. After taking this course, students will be able to describe human movement in anatomical terms and to identify the specific muscles responsible for controlling human movements. **FALL/WINTER. Instructor(s): Gross, Drew**

**MOVESCI 240 / PHYSED 265. Introduction to Fitness and Health (3).** Introduces fundamental theories, applications and personal experiences necessary for a comprehensive understanding of relationships between fitness and physical activity to overall health and wellbeing throughout the lifespan. This course is designed to equip students for lifelong understanding of themselves as integrated physiological, psychological and sociological entities. **FALL/WINTER. Instructor(s): Katch**

**MOVESCI 241. Exercise, Nutrition and Weight Control (3).** Study of body mass regulation including the understanding of food, digestion, metabolism and different intervention strategies such as diet and exercise. Students learn assessment and prescription principles and techniques. **FALL/WINTER. Instructor(s): Katch**

**MOVESCI 250. Statistics (3).** This course is designed to provide students with knowledge and experience with statistics and the scientific method. Frequency distributions, descriptive statistics for summarizing measures of central tendency and variability, measures of association, variance, statistics for testing hypotheses, and statistics used to evaluate validity and reliability will be emphasized. Students will participate in several lab projects requiring the use of statistics. **FALL/WINTER. Instructor(s): D. Ulrich, Esposito**

**MOVESCI 280. Undergraduate Research Opportunity (1-4).** *Permission of instructor; first or second year student.* The UROP program enables students to work one-on-one or with a small group of students with faculty members conducting research. Students spend on average 9-10 hours per week working on their research projects. Students receive 1 credit per 3 hours of work per week. Students participating in the program are also required to attend bi-weekly research peer group meetings, meet monthly with a peer advisor, read research-related articles (e.g., research ethics, research in specific disciplines, research methods) and keep a research journal. **FALL/WINTER. Instructor(s): STAFF**

**MOVESCI 290. Field Experience in Movement Science (1-8).** *Freshman, sophomore standing; permission of instructor.* Provides an opportunity for supervised observation and participation in a variety of school, university, clinical or business settings related to Movement Science. **FALL/WINTER. Instructor(s): STAFF**

**MOVESCI 305. Topical Seminar (1-3).** The current course description, if applicable, is available from the program chair. **FALL OR WINTER, AS ARRANGED. Instructor(s): STAFF**

**MOVESCI 313. Special Topics (1-4).** New courses in development can be introduced provisionally into the curriculum under this number. The current course description, if applicable, is available from the program chair. **FALL OR WINTER, AS ARRANGED.**

**Fall 2009 Offering:**

Section 002-005: **Scientific Writing (3).** Instructor(s): **Sonnega**

**Winter 2010 Offerings:**

Section 001-004: **Scientific Writing (3).** Instructor(s): **Sonnega**

Section 005: **Motion Capture and Animation for Biomechanics (3).** Instructor(s): **Gross**

**MOVESCI 320. Motor Control (4).** *MOVESCI 110; MEDADM 401 or MOVESCI 230; MOVESCI 250; PHYSIOL 201.* Introduces students to the neural and behavioral basis of motor control. It covers nervous system structures involved in planning, executing and learning movements, as well as the principles of motor control that apply to locomotion, reaching and grasping, eye movements and more complex skills. **FALL/WINTER. Instructor(s): Brown, Seidler**

**MOVESCI 330. Biomechanics of Human Movement (4).** *MOVESCI 110; MEDADM 401 or MOVESCI 230; MATH 105 or 115; PHYSICS 125, 135 or 140.* Applies fundamental biomechanical principles to the human musculoskeletal system. Topics include musculoskeletal mechanics, tissue biomechanics, and quantitative analysis of human movement. **FALL/WINTER. Instructor(s): Palmer**

**MOVESCI 340. Exercise Physiology (4).** *MOVESCI 110; MEDADM 401 or MOVESCI 230; PHYSIOL 201; MOVESCI 250; CHEM 130 recommended.* Physiological principles of exercise. Topics include: bioenergetics, energy expenditure, functions of the cardiovascular, pulmonary, neuromuscular and neuroendocrine systems, muscle, renal function, training, environmental influences, ergogenic aids, nutrition, weight control, and body composition. **FALL/WINTER. Instructor(s): Horowitz, Bodary**

**MOVESCI 380. Problems in Movement Science (1-3).** *Permission of instructor.* Students work with a faculty member to study the application of knowledge and principles from the Movement Sciences to specific "real-life" problems such as those found in the workplace, health care and rehabilitation, or physical performance in recreation, music and the arts. **FALL/ WINTER/ SPRING/ SUMMER. Instructor(s): STAFF**

**MOVESCI 381. Community Service Learning (1-3).** *Permission of instructor.* An introduction to the values of learning via community service. The academic credit is for learning not for service. The community experience ought to enhance academic learning and civic learning at the same time. This course is an experiential field course involving community service as it relates to Movement Science. Students will be assigned to work with community-based organizations on projects to improve the human well-being. Activities may include tutoring, community outreach and education, sports, arts and crafts, etc. Students meet once per week to discuss the practicum experience while integrating theory with practice. Assignments may include maintaining a journal, readings, a paper(s), or a poster/oral presentation. **FALL/WINTER. Instructor(s): STAFF**

**MOVESCI 382. Honors Reading (1-3).** *Upper division standing; permission of instructor.* Directed readings on topics in Movement Science under the guidance of faculty. **FALL/ WINTER/ SPRING/ SUMMER. Instructor(s): STAFF**

**MOVESCI 384. Honors Research (1-3).** *Honors status; permission of instructor.* Research experience under guidance of faculty. **FALL/ WINTER/ SPRING/ SUMMER. Instructor(s): STAFF**

**MOVESCI 390. Field Experience in Movement Science (1-8).** *Upper division standing; permission of instructor.* Provides an opportunity for supervised observation and participation in a variety of school, university, clinical or business settings related to Movement Science. **FALL/WINTER.**

**Instructor(s): STAFF**

**MOVESCI 402. Teaching Experience for MOVESCI Students (1-3).** *Permission of instructor; junior/senior status; minimum B+ in related MOVESCI core courses recommended.*

Undergraduate students participating in this course are responsible for (1) aiding regularly assigned teaching faculty in a particular course; (2) providing tutorial help for undergraduate students enrolled in the course they are assisting in; (3) meeting regularly with discussion and/or laboratory sessions; (4) participating with teaching faculty in instructional activities. May be repeated once in a different area or with a different professor. **FALL/WINTER. Instructor(s): STAFF**

**MOVESCI 403. Internship (1-4).** *Upper division standing; permission of instructor.* Field experiences in activities related to the academic discipline of Movement Science. Experiences are typically outside of the facilities of the Department of Movement Science. S/U grading only. **FALL/WINTER/ SPRING/ SUMMER. Instructor(s): Reck**

**MOVESCI 421/KINESLGY 421. Disorders of Voluntary Movement (3).** *MOVESCI 320 or permission of instructor.* An introduction to a variety of common diseases or conditions such as cerebral palsy, stroke, multiple sclerosis, and Parkinson's Disease which affect voluntary movement. Emphasis is placed on relating structure to function and the application of motor control principles in describing conditions characterized by sensorimotor deficits. This course will be of interest to students considering careers in neurorehabilitation or other health-related fields. **FALL OR WINTER, AS ARRANGED. Instructor(s): Brown**

**MOVESCI 422/KINESLGY 422. Motor Learning (3).** *MOVESCI 320 or permission of instructor.* Covers theories including conventional information, progressing theories, and connectionist (neural networks) models, theories of motor learning, the effects of different practice regimens, feedback, context and other effects of learning environments. Also considers the neural basis of motor learning and adaptation in humans. **FALL OR WINTER, AS ARRANGED. Instructor(s): STAFF**

**MOVESCI 423/KINESLGY 423. Sensorimotor Development (3).** *MOVESCI 320 or permission of instructor.* The purpose of this course is to study major concepts and principles fundamental to the development of sensorimotor behavior from fetal to late childhood. The overall question for this class is: How and why patterns of motor behavior change? We will study subsystems that affect behavior in real time and over developmental time. This course is intended for pediatric practitioners as well as people interested in basic science issues. We will study the origins of new motor patterns as well as the improvement of motor performance with special emphasis in the development of the nervous system from fetal to early childhood life. We will discuss observable and "classic" changes in motor skill that occur over time, and we will examine and discuss methods to assess motor performance. **FALL OR WINTER, AS ARRANGED. Instructor(s): B. Ulrich**

**MOVESCI 424/KINESLGY 424. Human Movement & Aging: Changes in Sensorimotor Control (3).** *MOVESCI 320 or permission of instructor.* This course focuses on age-related changes in human movement, particularly as they relate to upper limb control. Changes in the sensory, neuromuscular, and central neural systems will be addressed, as well as the development of adaptive strategies and the application of various therapeutic techniques to enhance motor performance. Disease conditions such as Parkinson's and Alzheimer's, commonly associated with the elderly, will also be discussed. While being primarily a survey course, recent experimental findings will be incorporated where appropriate. This course is relevant for those students considering careers in health care delivery with an emphasis on older populations. **FALL OR WINTER, AS ARRANGED. Instructor(s): Brown, Seidler**

**MOVESCI 425/PHYSED 425/KINESLGY 425. Motor Behavior and Developmental Disabilities (3).** *Junior or senior standing.* This course is designed to provide students with a thorough understanding of the factors that contribute to the motor behavior characteristics of children with developmental disabilities. Application of this knowledge to designing and implementing quality pediatric motor development and physical activity programs will be emphasized. A research-to-practice model will be employed. Students will learn how to assess the current level of movement skill development. **FALL/WINTER. Instructor(s): D. Ulrich, MacDonald**

**MOVESCI 426. Cognitive Neuroscience of Action (3).** *MOVESCI 320.* This course focuses on the neuropsychology of movement. Topics include: handedness, reading, motor timing, skill acquisitions and bimanual coordination. We will discuss both the strategies used to control these behaviors, and their underlying neural substrates. We will read and discuss papers that analyze movement kinematics, as well as function neuroimaging and neural recording research. **FALL, AS ARRANGED. Instructor(s): Seidler**

**MOVESCI 429/KINESLGY 429. Laboratory Rotation in Motor Control (1-3).** *MOVESCI 320; permission of instructor.* Students work in a professor's laboratory to learn research methods and participate in the scientific process. May be taken twice. **FALL/WINTER/SPRING/SUMMER, AS ARRANGED. Instructor(s): Brown, Seidler, B. Ulrich, D. Ulrich**

**MOVESCI 435. Biomechanics of Human Locomotion (3).** *MOVESCI 330 or permission of instructor.* The focus of the course is on understanding how humans walk and run. Topics will include kinematics, kinetics, neuromuscular activation patterns, energetics, and musculotendon mechanics. This course is taught in a Problem-Based Learning format, requiring students to integrate knowledge of muscle physiology, neuroscience, and biomechanics to analyze normal and pathologic human locomotion. Specific projects that students may work on include clinical gait analysis, lower limb prostheses, legged robots, and human exoskeletons. **FALL, AS ARRANGED. Instructor(s): Ferris**

**MOVESCI 439/KINESLGY 439. Laboratory Rotation in Biomechanics (1-3).** *MOVESCI 330; permission of instructor.* Students work in a professor's laboratory to learn research methods and participate in the scientific process. May be taken twice. **FALL/ WINTER/ SPRING/ SUMMER. Instructor(s): Ferris, Gross, McLean, Palmer, Palmieri-Smith**

**MOVESCI 441/KINESLGY 441. Exercise and Human Biology (3).** *MOVESCI 340 or permission of instructor.* Emphasizes an integrative view of exercise physiology that includes discussion of the neuroendocrine control mechanisms in homeostatic functions and in the adaptive responses of an organism to the challenge of exercise. **FALL OR WINTER, AS ARRANGED. Instructor(s): Borer**

**MOVESCI 442/KINESLGY 442. Hormones and Exercise (3).** *MOVESCI 340 or permission of instructor.* Review of the mechanisms of hormone release and hormone action; examination of the effects of different types of acute exercise (high resistance, intermittent, endurance), and of the adaptation to habitual exercise on release of endocrine paracrine, and autocrine humoral agents and the functional significance of such release. **FALL OR WINTER, AS ARRANGED. Instructor(s): Borer**

**MOVESCI 443/KINESLGY 443. Human Movement and Aging: Hormones and Nutrition (3).** *MOVESCI 340 or permission of instructor.* This course will address the interactions between nutrition, hormones, physical activity, and aging. The major themes of the course are the involvement of endocrine changes in disabilities associated with aging, contribution of sedentary lifestyle, and inappropriate food intake to the development of these disabilities, and the extent to which exercise can reverse them. In addition, the course will examine the role of hormones in

psychological and mental well-being and the capacity of exercise to facilitate these endocrine changes. **FALL OR WINTER, AS ARRANGED. Instructor(s): Borer**

**MOVESCI 449/KINESLGY 449. Laboratory Rotation in Exercise Physiology (1-3).** *MOVESCI 340; permission of instructor.* Students work in a professor's laboratory to learn research methods and participate in the scientific process. May be taken twice. **FALL/WINTER/SPRING/SUMMER. Instructor(s): Bodary, Borer, Cartee, Horowitz, Katch, Mendias**

**MOVESCI 471/KINESLGY 471. Physical Activity, Health and Disease (3).** *MOVESCI 340 or permission of instructor.* Students examine current social trends and policies related to the role exercise plays in maintaining health and wellness. Covers cardiovascular disease, lower back pain, obesity and weight control, muscular strength and endurance, mental health and stress, aging, longevity and quality of life. **FALL OR WINTER, AS ARRANGED. Instructor(s): Borer**

**MOVESCI 474. Worksite Wellness (3).** *MOVESCI 340 or permission of instructor.* Explores the concept of health behaviors and the prospective view of health risk and costs. Students will see how physical activity is integrated into a healthy lifestyle and how that benefits individuals, organizations and society. Examines strategies for changing employee health behaviors and worksite cultural norms, as well as implementation, marketing, cost-effectiveness and cost-benefit analysis of worksite wellness programs. **FALL OR WINTER, AS ARRANGED. Instructor(s): Edington**

**MOVESCI 488. Independent Study (1-3).** *Junior standing, permission of instructor.* Students work with an individual professor on a mutually agreed-upon project that may include readings, research or other academic experience. **FALL/WINTER/SPRING/SUMMER. Instructor(s): STAFF**

**MOVESCI 489. Senior Thesis (2-5).** *Senior standing; permission of instructor.* This research involvement typically spans at least two semesters and should involve a literature review of the research topic, data collection, analysis, and interpretation. The literature review, data, and interpretation of the research findings will be incorporated into a final written report, which will be assessed by the faculty mentor. The faculty mentor will determine specific details of the research experience. **FALL/WINTER/SPRING/SUMMER. Instructor(s): STAFF**

**MOVESCI 490. Senior Honors Thesis A (1-5).** *Senior standing, honors status, permission of instructor.* Students work with a professor to prepare an original research paper that includes a proposal, data collection and written article. **FALL/WINTER/SPRING/SUMMER. Instructor(s): STAFF**

**MOVESCI 491. Senior Honors Thesis B (1-5).** *Senior standing, honors status, permission of instructor.* Students work with a professor to prepare an original research paper that includes a proposal, data collection and written article. Total credits for MOVESCI 490 and 491 cannot exceed 5. **FALL/WINTER/SPRING/SUMMER. Instructor(s): STAFF**

## Physical Education Course Descriptions

UPDATED 10/08/09

Prerequisites are listed *in italics*.  
Terms offered are CAPITALIZED.

**PHYSED 140. Beginning Swimming (1).** *Students must pre-register in the U-Move Fitness Office (3064 CCRB).* Are you unable to float or swim? This class focuses on floating, rhythmic breathing, and stroke basics. Attendance mandatory. **FALL/WINTER/SPRING/SUMMER. Instructor(s): STAFF**

**PHYSED 141. Beginning Swimming II (1).** *Students must pre-register in the U-Move Fitness Office (3064 CCRB).* *PHYSED 140.* Can you float and swim but want more confidence in your abilities? Improve your techniques in front crawl, back crawl, sidestroke, and breaststroke. Attendance mandatory. **FALL/WINTER/SPRING/SUMMER. Instructor(s): STAFF**

**PHYSED 142. Intermediate Swimming (1).** *Students must pre-register in the U-Move Fitness Office (3064 CCRB).* *Must be able to swim 100 yards without stopping.* This class is suitable for those who can swim 50 yards without stopping. We will work on refining rotary breathing, improving stroke technique, and swimming endurance. Attendance mandatory. **FALL/WINTER/SPRING/SUMMER. Instructor(s): STAFF**

**PHYSED 143. Lifeguard Training (1).** *Students must pre-register in the U-Move Fitness Office (3064 CCRB).* *Must be able to swim 20 consecutive lengths of the pool and tread water for 5 minutes.* This course follows the American Red Cross format for Lifeguard Training providing instruction for both self-preservation and rescuing others. Students earn Red Cross certification upon successful completion of the course. **FALL/WINTER/SPRING. Instructor(s): Winkelseth**

**PHYSED 145. Tae Kwon Do I (1).** Students must pre-register in the U-Move Fitness Office (3064 CCRB). Students learn self-defense and Olympic-style fighting while cultivating the mind and body. Students are taught the basic foundation of "knowing yourself and knowing your opponent" in order to win on all occasions. They also learn micro and macro aspects of world philosophies. **FALL/WINTER. Instructor(s): Chong**

**PHYSED 216. First Aid and Safety Education (2).** This course teaches first aid, safety education, and CPR in relation to home, school, and community. Content strongly emphasizes safety principles as applied to activities of the gymnasium, playground, and athletic field. **FALL/WINTER. Instructor(s): STAFF**

**PHYSED 218. Emergency Response (2).** This course certifies students with the skills necessary for application and/or certification into careers in medicine as well as training them to be first responders at the scene of an emergency. Skill competencies include: CPR for the Professional Rescuer, measuring blood pressure, airway management, bleeding control and splinting, and the administration of an automated External Defibrillator, epinephrine pen, asthma inhaler, and oxygen. (Required for AT students regardless of previous CPR certifications) **FALL TERM ONLY. Instructor(s): STAFF**

**PHYSED 251. Technology in Physical Education (3).** This course engages undergraduate students in the use of technologies specifically applied to physical education. Technology skills developed throughout this course will be immediately usable for assignments in other courses, research internships, fieldwork, student teaching and ongoing professional development. **WINTER TERM ONLY. Instructor(s): Faust**

**PHYSED 252. Tests & Measurements in Physical Education (3).** This course is designed to help students possess knowledge of standards-based assessment in psychomotor, cognitive, and affective domains and have skills of designing, administering, and interpreting standards-based assessment for K-12 grade levels. **WINTER ONLY. Instructor(s): Chen**

**PHYSED 254. Gross Movement Skills in Children (3).** The course is designed to provide students with the essential knowledge and skills needed to identify, analyze, and evaluate children's gross motor skills and patterns. Students will learn the typical sequence of development in fundamental gross motor skills as well as factors causing deviations from these sequences. Students will learn how to assess the current developmental level of movement skills in children ages 2-8 years. Emphasis is placed on locomotor and ball skills used by children during play and games. Students will be given several opportunities to observe children during structured and unstructured play. **WINTER TERM ONLY, AS ARRANGED. Instructor(s): D. Ulrich, Winkelseth**

**PHYSED 265/MOVESCI 240. Introduction to Fitness & Health (3).** This class provides fundamental theories, applications and personal experiences necessary for a comprehensive understanding of relationships between fitness, physical activity, and health and well-being through-out the lifespan. This course is designed to equip students for lifelong understanding of psychological and sociologic aspects of fitness and health. No prerequisites required. **FALL/WINTER. Instructor(s): Katch**

**PHYSED 270. Honors Reading (1-3).** *Freshman or sophomore student with minimum overall GPA of 3.0; permission of instructor.* Directed readings on Physical Education topics under the guidance of faculty. **AS ARRANGED. Instructor(s): STAFF**

**PHYSED 280. Undergraduate Research Opportunity (3).** *Permission of instructor; first or second year student.* The UROP program enables students to work one-on-one or with a small group of students with faculty members conducting research. Students spend on average 9-10 hours per week working on their research projects. Students receive 1 credit per 3 hours of work per week. Students participating in the program are also required to attend bi-weekly research peer group meetings, meet monthly with a peer advisor, read research-related articles (e.g., research ethics, research in specific disciplines, research methods) and keep a research journal. **FALL/ WINTER/ SPRING/ SUMMER. SEE FACULTY ADVISOR. Instructor(s): STAFF**

**PHYSED 290. Field Experience (1-8).** *Freshman or sophomore standing and designated area of concentration, permission of instructor.* Provides an opportunity for supervised observation and participation in a variety of school, university or business settings related to a student's major program of concentration. **FALL/WINTER/SPRING/SUMMER. SEE FACULTY ADVISOR. Instructor(s): STAFF**

**PHYSED 301. Coordinated School Health Programs (3).** Introduction to eight essential components of coordinated school health programs - health education; physical education; health services; nutrition services; counseling and psychological services; health school environment; health promotion for staff; parents and community involvement. Attention directed to national and state health initiatives, health behaviors and conditions that affect youth and strategies effective in helping young people lead healthier lives. **WINTER ONLY. Instructor(s): STAFF**

**PHYSED 305. Practicum in Elementary Teaching Methods (1).** *Concurrent enrollment in PE 354 is required.* This practicum is designed to provide pre-service teachers with "real" teaching experiences and to hone their teaching skills and reflective thinking abilities in public school settings. Researchers and scholars note that teacher education programs need to provide pre-service teachers with more school-based practicum experiences prior to their student teaching experience. Students learn how to teach content to school students best when they are

connecting what they have learned in classroom to actual teaching situations. **FALL/WINTER, AS ARRANGED. Instructor(s): Chen**

**PHYSED 306. Practicum in Health Teaching Methods (1).** *Concurrent enrollment in PHYSED 473 required.* Provides students with supervised opportunities to integrate theory and practice by working with teachers in the classroom. Students will observe Health Education classes in grades 7-12. S/U grading. **WINTER ONLY. Instructor(s): Winkelseth**

**PHYSED 310/AT 310. Applied Human Anatomy and Physiology (5).** Designed to give the student a basic understanding of the structural and functional organization of the human body. Analyzes the relationships of the human body at the biochemical, cellular, tissue, organ, and systems level, emphasizing the applications to physical education. **WINTER TERM. Instructor(s): McLean, Parekh, Thomas**

**PHYSED 313. Special Topics (1-3).** New courses in development can be introduced provisionally into the curriculum under this number. The current course description, if applicable, is available from the Department Chair. **AS ARRANGED. Instructor(s): STAFF**

**PHYSED 326. Fundamentals of Strength and Conditioning (3).** This course is designed to introduce concepts and techniques associated with strength training and conditioning. Emphasis will be placed on the knowledge base and skills necessary to develop sport specific strength and conditioning programs. The course will focus on the following subjects: the human body's adaptations/response to strength training and conditioning, how performance enhancing substances, nutrition, and eating disorders affect strength training and conditioning, implementing strength training and conditioning testing/training techniques, and basic policy and procedures of the strength and conditioning facility. Students will be required to design a sport-specific strength training program. Course is designed to aid in preparation for taking the National Strength and Conditioning Association's certification examination. **FALL TERM ONLY. Instructor(s): Pickerman**

**PHYSED 331. Biomechanics of Sport (3).** *MATH 105; PHYSICS 125 or 140; PHYSED 310.* Applies principles of biomechanics to the analyses of sport, training, and conditioning of athletes. Topics include analyses of projectile-related activities, aerodynamics in sport, balance related activities, throw and push patterns, and qualitative and quantitative analysis of sport activities. **FALL TERM ONLY. Instructor(s): T. Brown**

**PHYSED 332. Principles of Motor Behavior (3).** *PHYSED 310.* Principles of motor control, motor development and motor learning as they relate to the acquisition of fundamental locomotion and manipulative skills will be examined. Students will learn and apply motor behavior theories and concepts in a physical education setting. Teaching methods, skill assessment and testing, as well as interpretation of data needed in physical education curriculums, will be incorporated. **WINTER TERM ONLY. Instructor(s): George**

**PHYSED 336. K-12 Rhythm and Dance Activities (3).** This course includes basic concepts, teaching techniques and ideas for implementing experiences in rhythmic movement and dance to provide active learning for children in grades K-12. Content includes activities that produce rhythmic coordination, as well as developing teaching skills in a variety of dance styles and rhythmic movement. **FALL/WINTER/SPRING. Instructor(s): Van Volkinburg, Winkelseth**

**PHYSED 349. Water Safety Instructor (3).** *PHYSED 142.* The WSI course prepares you to instruct progressive swim lessons from Infant/Preschool through Advanced Swimming Skills. Material focuses on water safety education and stroke mechanics. You will also learn to facilitate the Longfellows Whales Tales program. This is a professional teacher preparation class requiring

written lesson plans, outside class observation, in class practice teaching assignments, and written tests. Attendance mandatory. **FALL/WINTER/SPRING. Instructor(s): Winkelseth**

**PHYSED 350. Tactical Approach to Invasion Games (3).** *Junior standing.* This course is designed to help students develop solid pedagogical content knowledge of teaching selected team sports to students at secondary levels. Students will become acquainted with a tactical games approach and incorporate the curriculum approach into their teaching the sports at local secondary schools settings. **FALL TERM ONLY. Instructor(s): Chen**

**PHYSED 353. Net/Wall Games and Fitness (3).** *Junior standing.* This course focuses on the teaching of racquet sports, health-related fitness skills, and lifetime activities. Students will learn how to implement and instruct tennis, badminton, pickleball, golf, bowling, lawn games, and weight training activities for secondary level students. **FALL TERM ONLY. Instructor(s): Winkelseth**

**PHYSED 354. Methods of Teaching K-5 PE (3).** *Junior standing; permission of instructor. Concurrent enrollment in PE 305 is required.* The NASPE physical education content standards, and Michigan physical education content standards serve as guidelines for this course. The elementary methods course aims at helping students gain a better understanding of developmentally appropriate elementary curriculum and instruction, develop students ability to design units and lesson plans aimed at facilitating children achieving desired learning outcomes, develop students skills to effectively teach educational games, educational gymnastics, and adventure-type cooperative activities to elementary students, and reflect on one's own teaching practices in terms of a sound educational philosophy. **FALL/WINTER. Instructor(s): Chen**

**PHYSED 370. Honors Reading (1-3).** *Junior or senior student with minimum overall GPA of 3.0; permission of instructor.* Directed readings on Physical Education topics under the guidance of faculty. **AS ARRANGED. Instructor(s): STAFF**

**PHYSED 373. Issues in Health and Wellness (3).** This course presents the major health issues that teachers encounter in today's school system. The physiological, psychological, social, and economic aspects of these issues will be discussed. **FALL ONLY. Instructor(s): STAFF**

**PHYSED 380. Honors Research (1-2).** *Upper division student with minimum overall GPA of 3.0, permission of instructor.* Basic and applied research experience in Physical Education under the guidance of faculty. **FALL/WINTER/SPRING/SUMMER. SEE FACULTY ADVISOR. Instructor(s): STAFF**

**PHYSED 390. Field Experience (1-8).** *Junior or senior standing and designated area of concentration, permission of instructor.* Provides an opportunity for supervised observation and participation in a variety of school, university or business settings related to a student's major program of concentration. **FALL/WINTER/SPRING/SUMMER. SEE FACULTY ADVISOR. Instructor(s): STAFF**

**PHYSED 402. Teaching Experience for PE Students (1-3).** *Permission of instructor; PE junior or senior; minimum B+ in related PE core courses recommended.* Undergraduate students participating in this course are responsible for (1) aiding regularly assigned teaching faculty in a particular course; (2) providing tutorial help for undergraduate students enrolled in the course they are assisting in; (3) meeting regularly with discussion and/or laboratory sessions; (4) participating with teaching faculty in instructional activities. May be repeated once in a different area or with a different professor. Credits count as Kinesiology elective credit. **FALL/WINTER/SPRING/ SUMMER. Instructor(s): STAFF**

**PHYSED 414/KINESLGY 414/EDUC 314. Directed Teaching Seminar (1-2).** *EDUC 307, EDUC 391, EDUC 392, PHYSED 444. Concurrent enrollment in PE 415 is required.* Drawing on the directed teaching experience, this seminar is designed to explore the theories and practices of physical education as students apply them in their directed teaching environments. **FALL/WINTER. Instructor(s): Van Volkinburg**

**PHYSED 415/KINESLGY 415/EDUC 315. Directed Teaching in Physical Education (6-12).** *PHYSED 444; EDUC 307; EDUC 391; EDUC 392. Concurrent enrollment in PHYSED 414 is required.* Designed to provide practical experience and to develop teaching competencies under the joint supervision of University and K-12 school personnel. **FALL/ WINTER. Instructor(s): Van Volkinburg**

**PHYSED 425/MOVESCI 425/KINESLGY 425. Motor Behavior and Developmental Disabilities (3).** *Junior or senior standing.* This course is designed to provide students with a thorough understanding of the factors that contribute to the motor behavior characteristics of children with developmental disabilities. Application of this knowledge to designing and implementing quality pediatric motor development and physical activity programs will be emphasized. A research-to-practice model will be employed. Students will learn how to assess the current level of movement skill development. **FALL/WINTER. Instructor(s): D. Ulrich, MacDonald**

**PHYSED 444/EDUC 444/KINESLGY 444. Methods of Teaching of Physical Education 6-12 (3).** *Two of the following: PE 350, 353, 336, 354. Concurrent enrollment in EDUC 307 and EDUC 391 is required.* This course studies the specific foundation of teaching methods, content, organization, and evaluation of physical education programs in schools. **WINTER TERM ONLY. Instructor(s): Van Volkinburg**

**PHYSED 470. Independent Study (1-3).** *Upper division status; permission of instructor.* Intended to encourage participation in appropriate experiences and learning of topics relevant to Physical Education that are not addressed sufficiently elsewhere in the curriculum. **AS ARRANGED. Instructor(s): STAFF**

**PHYSED 473/KINESLGY 473. School Health Programs (3).** *Concurrent enrollment in PHYSED 306 is required.* Upon successful completion of this course students will be qualified to implement lessons of the Michigan Model for Comprehensive School Health Education Grades 7-8. Modules include Nutrition, Physical Activity, Violence Prevention, Alcohol and Other Drugs, Tobacco, and HIV. **WINTER TERM ONLY. Instructor(s): Winkelseth**

**PHYSED 475/KINESLGY 475. HIV/AIDS, Other Communicable Diseases, and the Immune System (3).** This course will provide students with the basic information on: HIV/AIDS transmission and prevention; common communicable diseases including signs, systems and prevention; the immune system and its response to infection. **FALL TERM ONLY. Instructor(s): Winkelseth**

**PHYSED 490. Senior Honors Thesis (2).** *Senior standing; permission of instructor.* Students work with a professor to prepare an original research paper that includes a proposal, data collection and written article. **AS ARRANGED. Instructor(s): STAFF**

## Sport Management Course Descriptions

UPDATED 10/08/09

Prerequisites are listed *in italics*.  
Terms offered are CAPITALIZED.

**SM 101. Public and Small Group Communication (3).** *Required of all Kinesiology undergraduate students.* This course will explore the basic principles of persuasive speaking, focusing on content, organization, audience motivation, language and writing skills. **FALL/WINTER. Instructor(s): Donahue, Hultgren, LaRoche**

**SM 111. Historical and Sociological Bases of Human Movement (3).** *Required of all Kinesiology undergraduate students.* Examines the research related to the evolution of physical education and sport as well as sociological concepts of human movement and sport in American society. **FALL / WINTER / SPRING. Instructor(s): Basten, Watkins**

**SM 203. Introduction to Sport Management (3).** *Sophomore standing.* This course is designed to provide students with an overview of the basic organizational and business structure of the sport, fitness, and leisure industries. The content areas include Professional, Olympic, and intercollegiate, as well as the exercise/fitness promotion business sector. This course is intended to provide the foundation knowledge necessary for upper division courses in SM. **FALL / WINTER. Instructor(s): George**

**SM 217. Business Communication.** *Sophomore standing.* This course will help students improve their overall communication skills in the context of professional positions, while also teaching them how to write standard business documents: resumes, business letters, new releases, memorandums, meeting agendas, meeting minutes, business emails, brochures, short reports, long reports, informative abstracts, and executive summaries. **FALL / WINTER. Instructor(s): Donahue**

**SM 270. Honors Reading (1-3).** *Freshman or sophomore standing with minimum overall GPA of 3.00; permission of instructor.* Directed readings on topics in sport management under the guidance of faculty. **FALL / WINTER / SPRING / SUMMER. Instructor(s): STAFF**

**SM 280. Undergraduate Research Opportunity (1-4).** *Permission of instructor; first or second year student.* The UROP program enables students to work one-on-one or with a small group of students with faculty members conducting research. Students spend on average 9-10 hours per week working on their research projects. Students receive 1 credit per 3 hours of work per week. Students participating in the program are also required to attend bi-weekly research peer group meetings, meet monthly with a peer advisor, read research-related articles (e.g., research ethics, research in specific disciplines, research methods) and keep a research journal. **FALL / WINTER / SPRING / SUMMER. SEE FACULTY ADVISOR. Instructor(s): STAFF**

**SM 290. Field Experience (1-3).** *Freshman or sophomore standing. Permission of instructor.* Provides an opportunity for supervised observation and participation in a variety of school, university or business settings related to a student's major program of concentration. May be repeated for different experiences up to 6 credits. Credits count as SM electives. Field Experience paperwork required. **FALL/WINTER/SPRING/SUMMER. SEE INTERNSHIP COORDINATOR IN OSS**

**SM 313. Special Topics (1-3).** New courses in development are assigned this number. Current titles are listed in the Time Schedule. **AS ARRANGED. Instructor(s): STAFF**

**Fall 2009 and Winter 2010 offerings:**

Sec 001: **Sport Facilities, Real Economic Development, and the Rebuilding of Central Cities (3).** **Instructor(s): Rosentraub**

**SM 331. Economics of Sport (3).** *Junior standing.* Economic aspect of sports including fan demand, advertising, team output decisions, league conference organization, government and sport, and labor issues. **FALL/WINTER. Instructor(s): Fort**

**SM 332. Organizational Behavior in Sport (3).** *Junior standing.* Having a fundamental understanding of how individuals work in an organizational setting is an essential ability for managing sport organizations. This course examines through critical readings, analysis, assignments and class discussions organizational behavior dynamics and practices and their application to both business and sport environments. It deals with macro issues such as structure, centralization / decentralization, the environment, technology and alliances and how these issues impact an individual's functioning within an organization. The course also addresses micro behavioral science concepts such as motivation, conflict, leadership, decision-making, group dynamics, power, control and communication. Organizational Behavior in Sport Organizations is a required course in the fall term of the Level II Sport Management Curriculum. **FALL/WINTER. Instructor(s): Juravich**

**SM 333. Legal Aspects of Sports Administration (3).** *Junior standing.* Examines legal concepts related to sport management, including athletic participation and eligibility; constitutional due process; anti-trust exemptions; facility, coaching, and employment contracts; and tort law applications to participants and spectators. Actual cases are discussed. **FALL ONLY. Instructor(s): Clark**

**SM 341. Sport Finance (3).** This course is an introduction to the principles of finance and how these principles can be applied to the sports industry. It will cover such issues as financial statements, time value of money, investment valuations, risk, capital and how these issues relate to sport. **FALL/WINTER, AS ARRANGED. Instructor(s): Winfree, Salaga**

**SM 342. Strategy of Sport Organizations (3).** *Junior standing.* This course addresses issues to consider, and approaches to use, in deciding: (a) the strategic direction of sport organizations, and (b) how such strategic directions can be most effectively implemented. To make these decisions, managers must accurately assess (1) threats and opportunities in the organization's environment and (2) the organization's strengths and weaknesses. The models and perspectives to be reviewed are particularly relevant to the environment in which sport organizations currently find themselves; this is an environment which is changing at an unprecedented pace and in which accepted approaches for managing are changing quickly and dramatically. **WINTER ONLY, AS ARRANGED. Instructor(s): Babiak**

**SM 346. Principles of Marketing (3).** *Junior standing.* Intended for students with no previous exposure to marketing, this course introduces basic marketing concepts, advertising, consumer behavior, strategic planning and the marketing of sport, fitness and health as a consumer service. **WINTER ONLY. Instructor(s): Moore**

**SM 349. Research Methods for the Sport Industry (3).** *Junior standing.* The purpose of the course is to provide students with the appropriate skills and perspectives to conduct effective research on problems facing the decision-makers in the sport and fitness industries. The course will cover the basic methodological approaches to research, as well as contemporary methods to address the emerging demands of e-commerce and internet marketing strategies. **FALL/WINTER. Instructor(s): STAFF**

**SM 370. Honors Reading (1-3).** *Junior or senior standing with minimum overall GPA of 3.00; permission of instructor.* Directed readings on topics in Sport Management under the guidance of faculty. **FALL / WINTER / SPRING / SUMMER. Instructor(s): STAFF**

**SM 380. Honors Research (1-3).** *Upper division with minimum overall GPA of 3.00; permission of instructor.* Basic and applied research experiences in Sport Management under the guidance of faculty. **FALL / WINTER / SPRING / SUMMER. SEE FACULTY ADVISOR. Instructor(s): STAFF**

**SM 390. Field Experience (1-3).** *Junior or senior Standing. Permission of instructor.* Provides an opportunity for supervised observation and participation in a variety of school, university or business settings related to a student's major program of concentration. May be repeated for different experiences up to 6 credits. Credits count as SM electives. Field Experience paperwork required. **FALL / WINTER / SPRING / SUMMER. SEE INTERNSHIP COORDINATOR IN OSS**

**SM 402. Teaching Experience for Sport Management Students (1-3).** *Permission of instructor.* Undergraduate students participating in this course are responsible for: (1) aiding regularly assigned teaching faculty in a particular course; (2) providing tutorial help for undergraduate students enrolled in the course they are assisting in; (3) meeting regularly with discussion and/or laboratory sessions, where relevant; (4) participating with teaching faculty in instructional activities. May be repeated once in a different area or with a different professor. Credits count as Kinesiology elective credit. **FALL / WINTER. SEE FACULTY ADVISOR. Instructor(s): STAFF**

**SM 403. Internship in Sport Management (1-3).** *Internships must be approved by the internship coordinator in the Office of Student Services.* The internship is designed to provide practical experience in the sports-related industries according to individual interests and goals for students completing the Sport Management program. May be repeated for different experiences up to 6 credits. Credits count as SM electives. Internship paperwork required. **FALL / WINTER / SPRING / SUMMER. SEE FACULTY ADVISOR. Instructor(s): Reck**

**SM 431. Sports and the Media (3).** *Junior standing.* Examines the relationships that exist between the media and sports in America, including the roles newspapers, magazines, radio, and television have assumed as commercial enterprises in reporting sports. Also examines development, organization, objectives and performance of the media as well as the technology they use. Studies economic and legal issues as they pertain to the administration of sports programs. **WINTER ONLY. Instructor(s): Madej, Watkins**

**SM 432. Human Resource Management in Sport (3).** *Junior standing.* Human resources are argued to be an organization's most important asset. Effectively managing human resources enables an organization to survive and thrive in today's competitive environment. This course is designed to provide students with an understanding of the functions, the basic concepts, and the principles of Human Resource Management, and prepare them for their first sport related employment as either manager or employee. The course will explore HRM theories, research and discuss current issues, trends and practices emphasizing the fundamentals of managing individuals and groups. **WINTER ONLY. Instructor(s): Babiak**

**SM 433. Sport and Public Policy (3).** *Junior standing.* This is an upper-level course on the ways that politics, policy management, and comparative political systems affect national and international sports. It explores how public policies are formulated at the local, national, and international level, and examines the variety of issues and debates in the major areas of sport. **FALL ONLY. Instructor(s): Watkins**

**SM 434. Sport Ethics (3).** *Junior standing.* Our complex and rapidly changing environment imposes new demands on managers of sport organizations. An increased pressure to address

ethical issues is one of the new demands. While there are no simple prescriptions describing how ethical issues should be dealt with, the purpose of this course is to indicate how managers can more effectively address them. The course provides some essential components of the student's management tool kit -- concepts, models, and techniques to use in managing ethical dilemmas.

**FALL / WINTER. Instructor(s): Basten**

**SM 435. Sport and the Consumer (3).** *Junior standing.* Sport is a business like no other. There are six important consumer groups that make this business a success. These include: the participant, the spectator, the volunteer the advertiser, the sponsor, and the affinity consumer. These groups have power that makes sports the big business that it is. In this course we will study the role each group plays and the forces impacting their equity to sports. It's a look inside the world of sports business and shows you how it works. **FALL / WINTER. Instructor(s): Basten**

**SM 436. Race Relations, Cultural Images, and Sport (3).** *SM 111; Junior standing.* This course examines, informs, and analyzes the historical and contemporary experiences of ethnic groups in sport and society. While Latinos, Samoan-Americans, Jewish-Americans, Native-Americans, and Asian-Americans will be addressed, the focus will be on the experience of African-Americans in integrating sport. **FALL / WINTER. Instructor(s): King**

**SM 437. Psychological Aspects of Sport and Exercise (3).** *Junior standing .* This course examines the needs and purposes of psychology in sport, exercise, and physical activity, outlines the field, and examines research focusing on the motivational bases and social processes in sport, exercise, and physical activity. Students also learn to apply scientific principles to real life situations. **FALL ONLY. Instructor(s): George**

**SM 438. Sports Economics Policy (3).** *SM 331 Advisory Prereq.* Understanding and analyzing the internal and external regulatory environment of North American sport leagues. Internally, leagues control their business models as well as the behavior of member owners. Externally, leagues interact with local, state, and federal governments. Students will work for a minor league sports team. Furthermore, each student will be asked to comment on the impacts of 1) the introduction of revenue sharing in his/her league and 2) a change in the federal tax law on the value of depreciation for the owner of his/her team. Basic economic and business tools allow students to generate hypotheses about these questions. **FALL or WINTER. Instructor(s): Fort**

**SM 439. Sponsorship Linked Marketing (3).** *SM 346 Advisory Prereq.* The central goal of this course is to provide the student with both a theoretical and an applied understanding of the values and limits to sponsorship-linked marketing. Various areas of sponsorship will be considered including sports, arts, and causes. Although a managerial perspective of the sponsor will be maintained, views from both the sponsor and sponsee will be considered. The course takes an integrated marketing communications perspective and treats sponsorship as a contributor to an overall communications platform. In the process of developing this understanding the course will utilize basic concepts across a number of disciplines in an integrative fashion. **FALL or WINTER, AS ARRANGED. Instructor(s): Cornwell**

**SM 444. Sales Management in the Sport Industry (3).** *SM 346; Junior standing.* This course is designed to provide students with the theory, the conceptual framework and the managerial practices associated with sales management in the sport industry. Course covers (a) strategic sales Force management, (b) the personal selling process - relationship selling process, prospecting, planning the sales call, and successful sales presentation methods, (c) the organizing, staffing and training of the sales force, and (d) sales force operations. **FALL ONLY. Instructor(s): Moore**

**SM 446. Brand Strategy and Advertising Campaigns (3).** *SM 346; Junior standing.* Designed for students who have been exposed to introductory marketing, this course offers a thorough introduction to the basic elements of the promotional mix; the strategic planning process for

advertising; segmentation and positioning; media planning; and publicity management. Students will be challenged to interpret these marketing concepts and to formulate creative applications to the sport and fitness marketing industry. **FALL / WINTER. Instructor(s): Moore**

**SM 470. Independent Study (1-2).** *Junior standing; permission of instructor.* Students work with an individual professor on a mutually agreed-upon project that may include readings, research or other academic experience. **FALL / WINTER / SPRING / SUMMER. SEE FACULTY ADVISOR.**  
**Instructor(s): STAFF**

**SM 490. Senior Honors Thesis (1-2).** *Senior standing with an overall minimum GPA of 3.2; permission of instructor.* Students work with a professor to prepare an original research paper that includes a proposal, data collection and written article. *Students may take two credits per semester, no more than four total.* **FALL / WINTER / SPRING / SUMMER. SEE FACULTY ADVISOR.**  
**Instructor(s): STAFF**

## Kinesiology Course Descriptions (graduate level and study abroad)

UPDATED 10/08/09

Prerequisites are listed *in italics*.  
Terms offered are CAPITALIZED.

**KINESLGY 302. Kinesiology Study Abroad (1-18).** *Permission of instructor.* Students planning to study for fall, winter, spring, or summer on School of Kinesiology approved programs should register under Kinesiology. Separate course sections will be listed for each different study abroad destination. **FALL/ WINTER/ SPRING/ SUMMER. Instructor(s): STAFF**

**KINESLGY 402. Teaching Experience for Kinesiology Students (1-3).** *Graduate status; permission of instructor.* Students participating in this course are responsible for: (1) aiding regularly assigned teaching faculty in a particular course; (2) providing tutorial help for undergraduate students enrolled in the course they are assisting in; (3) meeting regularly with discussion and/or laboratory sessions, where relevant; (4) participating with teaching faculty in instructional activities. May be repeated once in a different area or with a different professor. Credits count as Kinesiology elective credit. **FALL/WINTER. Instructor(s): STAFF**

**KINESLGY 414/PHYSED 414/EDUC 314. Directed Teaching Seminar (1-2).** *Graduate status; KINESLGY 444/PHYSED 444/EDUC 307; EDUC 391, EDUC 392; concurrent enrollment in KINESLGY 415.* Drawing on the directed teaching experience, this seminar is designed to explore the theories and practices of physical education as students apply them in their directed teaching environments. **FALL/WINTER. Instructor(s): Van Volkinburg**

**KINESLGY 415/PHYSED 415/EDUC 315. Directed Teaching in Physical Education (6-12).** *Graduate status; KINESLGY 444/PHYSED 444/EDUC 307; EDUC 391; EDUC 392. Concurrent enrollment in KINESLGY 414.* Designed to provide practical experience and to develop teaching competencies under the joint supervision of University and K-12 school personnel. **FALL/WINTER. Instructor(s): Van Volkinburg**

**KINESLGY 421/MOVESCI 421. Disorders of Voluntary Movement (3).** *Graduate status; MOVESCI 320 or permission of instructor.* An introduction to a variety of common diseases or conditions such as cerebral palsy, stroke, multiple sclerosis, and Parkinson's Disease which affect voluntary movement. Emphasis is placed on relating structure to function and the application of motor control principles in describing conditions characterized by sensorimotor deficits. This course will be of interest to students considering careers in neurorehabilitation or other health-related fields. **FALL or WINTER, AS ARRANGED. Instructor(s): Brown**

**KINESLGY 422/MOVESCI 422. Motor Learning (3).** *Graduate status; MOVESCI 320 or permission of instructor.* Covers theories including conventional information, progressing theories, and connectionist (neural networks) models, theories of motor learning, the effects of different practice regimens, feedback, context and other effects of learning environments. Also considers the neural basis of motor learning and adaptation in humans. **AS ARRANGED. Instructor(s): STAFF**

**KINESLGY 423/MOVESCI 423. Sensorimotor Development (3).** *Graduate status; MOVESCI 320 or permission of instructor.* The purpose of this course is to study major concepts and principles fundamental to the development of sensorimotor behavior from fetal to late childhood. The overall question for this class is: How and why patterns of motor behavior change? We will study subsystems that affect behavior in real time and over developmental time. This course is intended for pediatric practitioners as well as people interested in basic science issues. We will study the origins of new motor patterns as well as the improvement of motor performance with special emphasis in the development of the nervous system from fetal to early childhood life. We will

discuss observable and "classic" changes in motor skill that occur over time, and we will examine and discuss methods to assess motor performance. **FALL OR WINTER, AS ARRANGED. Instructor: B. Ulrich**

**KINESLGY 424/MOVESCI 424. Human Movement & Aging: Changes in Sensorimotor Control (3).** *Graduate status; MOVESCI 320 or permission of instructor.* This course focuses on age-related changes in human movement, particularly as they relate to upper limb control. Changes in the sensory, neuromuscular, and central neural systems will be addressed, as well as the development of adaptive strategies and the application of various therapeutic techniques to enhance motor performance. Disease conditions such as Parkinson's and Alzheimer's, commonly associated with the elderly, will also be discussed. While being primarily a survey course, recent experimental findings will be incorporated where appropriate. This course is relevant for those students considering careers in health care delivery with an emphasis on older populations. **FALL OR WINTER, AS ARRANGED. Instructor(s): Brown, Seidler**

**KINESLGY 425/MOVESCI 425/PHYSED 425. Motor Behavior and Developmental Disabilities (3).** *Graduate status.* This course is designed to provide students with a thorough understanding of the factors that contribute to the motor behavior characteristics of children with developmental disabilities. Application of this knowledge to designing and implementing quality pediatric motor development and physical activity programs will be emphasized. A research-to-practice model will be employed. Students will learn how to assess the current level of movement skill development. **FALL / WINTER. Instructor(s): D. Ulrich, MacDonald**

**KINESLGY 429/MOVESCI 429. Laboratory Rotation in Motor Control (1-3).** *Graduate status; MOVESCI 320; permission of instructor.* Students work in a professor's laboratory to learn research methods and participate in the scientific process. May be taken twice. **FALL/WINTER/SPRING/SUMMER. Instructor(s): Brown, Seidler, B. Ulrich, D. Ulrich**

**KINESLGY 435/MOVESCI 435. Biomechanics of Human Locomotion (3).** *Graduate status; MOVESCI 330 or permission of instructor.* The focus of the course is on understanding how humans walk and run. Topics will include kinematics, kinetics, neuromuscular activation patterns, energetics, and musculotendon mechanics. This course is taught in a Problem-Based Learning format, requiring students to integrate knowledge of muscle physiology, neuroscience, and biomechanics to analyze normal and pathologic human locomotion. Specific projects that students may work on include clinical gait analysis, lower limb prostheses, legged robots, and human exoskeletons. **FALL, AS ARRANGED. Instructor(s): Ferris**

**KINESLGY 439/MOVESCI 439. Laboratory Rotation in Biomechanics (1-3).** *Graduate status; MOVESCI 330; permission of instructor.* Students work in a professor's laboratory to learn research methods and participate in the scientific process. May be taken twice. **FALL/WINTER/SPRING/SUMMER. Instructor(s): Ferris, Gross, McLean, Palmer, Palmieri-Smith**

**KINESLGY 441/MOVESCI 441. Exercise and Human Biology (3).** *Graduate status; MOVESCI 340 or permission of instructor.* Emphasizes an integrative view of exercise physiology that includes discussion of the neuroendocrine control mechanisms in homeostatic functions and in the adaptive responses of an organism to the challenge of exercise. **FALL OR WINTER, AS ARRANGED. Instructor(s): Borer**

**KINESLGY 442/MOVESCI 442. Hormones and Exercise (3).** *Graduate status; MOVESCI 340 or permission of instructor.* Review of the mechanisms of hormone release and hormone action; examination of the effects of different types of acute exercise (high resistance, intermittent, endurance), and of the adaptation to habitual exercise on release of endocrine paracrine, and autocrine humoral agents and the functional significance of such release. **FALL OR WINTER, AS ARRANGED. Instructor(s): Borer**

**KINESLGY 443/MOVESCI 443. Human Movement and Aging: Hormones and Nutrition (3).**

*Graduate status; MOVESCI 340 or permission of instructor.* This course will address the interactions between nutrition, hormones, physical activity, and aging. The major themes of the course are the involvement of endocrine changes in disabilities associated with aging, contribution of sedentary lifestyle, and inappropriate food intake to the development of these disabilities, and the extent to which exercise can reverse them. In addition, the course will examine the role of hormones in psychological and mental well-being and the capacity of exercise to facilitate these endocrine changes. **FALL OR WINTER, AS ARRANGED. Instructor(s): Borer**

**KINESLGY 444/PHYSED 444/EDUC 444. Methods of Teaching Physical Education 6-12 (4).**

*Graduate status; two of the following: PHYSED 336, PHYSED 350, PHYSED 353, PHYSED 354.* Concurrent enrollment in EDUC 307 is required. Studies the specific foundation of teaching methods, content, organization, and evaluation of physical education programs in schools.

**WINTER TERM ONLY. Instructor(s): Van Volkinburg**

**KINESLGY 449/MOVESCI 449. Laboratory Rotation in Exercise Physiology (1-3).**

*Graduate status; MOVESCI 340; permission of instructor.* Students work in a professor's laboratory to learn research methods and participate in the scientific process. May be taken twice.

**FALL/WINTER/SPRING/SUMMER. Instructor(s): Bodary, Borer, Cartee, Horowitz, Katch**

**KINESLGY 471/MOVESCI 471. Physical Activity, Health and Disease (3).**

*Graduate status; MOVESCI 340 or permission of instructor.* Students examine current social trends and policies related to the role exercise plays in maintaining health and wellness. Covers cardiovascular disease, lower back pain, obesity and weight control, muscular strength and endurance, mental health and stress, aging, longevity and quality of life. **FALL OR WINTER, AS ARRANGED.**

**Instructor(s): Borer**

**KINESLGY 473/PHYSED 473. School Health Programs (3).**

*Graduate status.* This course provides a comprehensive working knowledge of support services and programs available for the child and coordinated through the school. Three major components of school health programs are examined: school health services, school health instruction, and the school environment. **WINTER ONLY. Instructor(s): Winkelseth**

**KINESLGY 474/MOVESCI 474. Worksite Wellness (3).**

*Graduate status; MOVESCI 340 or permission of instructor.* Explores the concept of health behaviors and the prospective view of health risk and costs. Students will see how physical activity is integrated into a healthy lifestyle and how that benefits individuals, organizations and society. Examines strategies for changing employee health behaviors and worksite cultural norms, as well as implementation, marketing, cost-effectiveness and cost-benefit analysis of worksite wellness programs. **FALL OR WINTER, AS ARRANGED. Instructor(s): Herman**

**KINESLGY 475/PHYSED 475. HIV/AIDS, Other Communicable Diseases, and the Immune System (3).**

*Graduate status.* This course will provide students with the basic information on: HIV/AIDS transmission and prevention; common communicable diseases including signs, systems and prevention; the immune system and its response to infection. **FALL ONLY. Instructor(s): Winkelseth**

**KINESLGY 500. Topical Seminar (1-3).**

*Graduate status; permission of instructor.* New courses in development can be introduced provisionally into the curriculum under this number. The current course description, if applicable, is available from the program chair. **AS ARRANGED.**

**Instructor(s): STAFF**

**KINESLGY 503. Legal Aspects of Sport (3).** *Graduate status.* This is a comprehensive review of legal aspects affecting sport, recreation, and fitness industries. The range of review includes civil procedure; contracts: employment, leases, waivers; tort liability for coaches, administrators, employees, and independent contractors; 14th Amendment Due Process and Equal Protection; product liability; and statutory regulation including Title VII, Title IX, ADA, Anti-Trust, and IRS code. **WINTER TERM ONLY. Instructor(s): Pollick**

**KINESLGY 505. Disability Studies (1-3).** *Graduate status.* An interdisciplinary approach to disability studies, including focus on the arts and humanities, natural and social sciences, and professional schools. Some topics include history and culture representation of disability, advocacy, health, rehabilitation, built environment, independent living, public policy. Team taught with visiting speakers. Accessible classroom with real-time captioning. **AS ARRANGED.**  
**Instructor(s): STAFF**

**KINESLGY 506. Managing a Professional Sport Franchise (2).** *Graduate standing.* In an effort to provide students with the conceptual and pragmatic background necessary to understand the various functional areas of a professional sport franchise, the course will address the following topics: the evolution and state of professional sports; different types of ownership; the structure and operations of front offices; team economics and decision-making; relationships among leagues, teams players, and unions; player salaries and collective bargaining agreements; corporate marketing and sponsorship; ticket sales and branding; public relations and communications; broadcast agreements; the staging of professional sports events. **WINTER TERM ONLY. Instructor(s): STAFF**

**KINESLGY 509. Financial Management for the Sport Industry (3).** *Graduate status.* This course is designed to provide graduate students who have never had a course in finance with a general understanding of the fundamental principles of financial management and the manner in which these principles are applied to organizations in the private corporate sector as well as the not-for-profit sector. Course material will be focused on the financial operations of organizations in the sport industry. **FALL OR WINTER, AS ARRANGED. Instructor(s): Winfree**

**KINESLGY 510. Experimental Courses in Biomechanics (1-3).** *Graduate standing.* Graduate-level Biomechanics courses in development are assigned this number. Current titles are listed in the Time Schedule. **FALL OR WINTER, AS ARRANGED. Instructor(s): STAFF**

**KINESLGY 511. Experimental Courses in Exercise Physiology (1-3).** *Graduate standing.* Graduate-level Exercise Physiology courses in development are assigned this number. Current titles are listed in the Time Schedule. **FALL OR WINTER, AS ARRANGED. Instructor(s): Cartee**

**KINESLGY 512. Experimental Courses in Motor Control (3).** *Graduate standing.* Graduate-level Motor Control courses in development are assigned this number. Current titles are listed in the Time Schedule. **FALL OR WINTER, AS ARRANGED. Instructor(s): Seidler**

**KINESLGY 513. Experimental Courses in Sport Management (1-3).** *Graduate standing.* Graduate-level Sport Management courses in development are assigned this number. Current titles are listed in the Time Schedule. **AS ARRANGED.**

***Fall 2009 offering:***

Sec 001: **Sport Economics (3). Instructor(s): Fort**

**KINESLGY 514. Strategic Management in Sport (3).** *Graduate standing.* This course addresses issues to consider, and approaches to use, in determining: (a) the strategic direction of sport organizations and (b) how such strategic directions can be most effectively implemented and managed. To make these decisions, managers must accurately assess and take into account (1)

threats and opportunities in the organization's environment, (2) the organization's strengths and weaknesses, and (3) the values of top management. **FALL TERM ONLY. Instructor(s): Staff**

**KINESLGY 519. Sport Management in Depth (2).** *Graduate status and completion of three SM Masters core courses.* The course will allow students in the Sport Management Masters Program to develop expertise in a particular area (or sub-area) of sport management (e.g., marketing, sponsorship, legal issues, ethics, finance, strategy of sport, strategic alliances, facilities management, diversity). This program component will be carried out on an individual basis by the student under the direction of a three-person committee: one SM faculty member, a University of Michigan faculty member who is not in SM, and a practicing manager. **AS ARRANGED. Instructor(s): STAFF**

**KINESLGY 520. Graduate Seminar in Motor Control (3).** *Graduate status, but seniors with outstanding academic record may be admitted; MOVESCI 320; permission of instructor.* Focuses on current issues in movement control from either a neurophysiological or behavioral viewpoint. Students will present assigned readings and will write a paper on an approved topic. **FALL OR WINTER, AS ARRANGED. Instructor(s): Brown**

**KINESLGY 530. Graduate Seminar in Biomechanics (3-6).** *Graduate status, but seniors with outstanding academic record may be admitted; MOVESCI 330; permission of instructor.* Focuses on current theoretical and practical issues in the biomechanics of movement. Students will present assigned readings and will write a paper on an approved topic. **FALL OR WINTER, AS ARRANGED. Instructor(s): Gross**

**KINESLGY 532. Managing Human Resources and Organizational Behavior in the Sport Industry (3).** This course examines through critical readings, analysis, assignments and class discussions human resource management and organization behavior dynamics and practices and their application to the business of sport. It deals with macro issue such as structure, centralization/decentralization, and culture, and how these issues impact an individual's functioning within an organization. The course also addresses micro behavioral science concepts such as motivation, conflict, leadership, decision-making, group dynamics, power, control, and communication. **FALL OR WINTER, AS ARRANGED. Instructor(s): Babiak**

**KINESLGY 533/BME 533. Neuromechanics (3).** *Graduate standing.* This course focuses on interaction of the nervous and musculoskeletal systems during human and animal movement with a focus on basic biological and engineering principles. Topics will include neuromechanical control of movement, neurorehabilitation, biorobotics, and computer simulations of neuromechanical systems. **FALL, AS ARRANGED. Instructor(s): Ferris**

**KINESLGY 540. Advanced Exercise Physiology (3).** *Graduate status, but seniors with an outstanding academic record may be admitted; MOVESCI 340, or permission of instructor.* Physiological principles of exercise for students who already have a strong background in exercise physiology. Topics include: regulation of energy metabolism, cardiovascular physiology, neuromuscular and neuroendocrine systems, skeletal muscle, exercise training, environmental influences, nutrition, weight control, and the impact of exercise on health and disease. **FALL TERM ONLY. Instructor(s): Horowitz**

**KINESLGY 542. Exercise and Nutrition (3).** *Graduate status; MOVESCI 340; EIH LTH 630 or permission of instructor.* Biochemical and physiological processes of fuel mobilization and storage in response to exercise and the modification of those processes by nutritional variables. **FALL OR WINTER, AS ARRANGED. Instructor(s): Borer**

**KINESLGY 545. Metabolic Responses to Exercise (3).** *Graduate standing; MOVESCI 340 or equivalent.* This course focuses on the influence of acute and chronic exercise on energy

metabolism. Topics include mechanisms regulating carbohydrate, lipid and protein metabolism; adaptations with exercise training; insulin signaling & action; the relationship between metabolism and fatigue. The format emphasizes class discussion. Students will present on a relevant topic chosen in consultation with the instructor. **FALL OR WINTER, AS ARRANGED.**

**Instructor(s): Cartee**

**KINESLGY 550. Marketing Management for the Sport Industry (3).** *Graduate status.* This course applies the fundamental concepts in marketing management to managerial decision making in the sport industry. Included in the course are the following: (1) customer orientation to marketing, (2) consumer (or fan) behavior analysis, (3) market segmentation strategies, (4) market research methods, (5) brand management strategies, (6) marketing mix strategies, (7) the development of a strategic marketing plan. **FALL TERM ONLY. Instructor(s): Cornwell**

**KINESLGY 551. Theory of Sport and Consumer Behavior (3).** *Graduate status.* Focuses on analyzing the consumption behavior of six important consumer groups: the participant, the spectator, the volunteer, the advertiser, the sponsor, and the affinity consumer. In this course we study the major theories that help us understand the consumption behavior of each group. **AS ARRANGED. Instructor(s): STAFF**

**KINESLGY 572. Fitness Evaluation and Exercise Prescription (3).** *Graduate status; MOVESCI 340 or permission of instructor.* Study and practice of concepts and techniques for evaluating physical fitness. Topics include health and medical histories, liability concerns, blood pressure, graded exercise stress testing, ECG recording and basic interpretation, strength assessment, body composition analysis, pulmonary function tests, CHD risk-factor analysis and health risk appraisal. Lab results and case studies are used to practice writing exercise prescriptions following existing standards of practice. **FALL OR WINTER, AS ARRANGED. Instructor(s): STAFF**

**KINESLGY 600. Graduate Seminar in Movement Science (1).** *Graduate status.* Graduate students give presentations on their own research related to movement science. The emphasis is on communication across movement science disciplines (i.e. biomechanics, exercise physiology, and motor control) and presentation skills. Can be repeated for credit. **WINTER TERM ONLY.**

**Instructor(s): STAFF**

**KINESLGY 606. Seminar: Selected Topics in Kinesiology (2).** *Graduate status.* Includes advanced reading and seminar discussion of research on selected topics in exercise physiology, motor control, biomechanics or sports management and communication. May be repeated for a total of 6 credit hours. **FALL OR WINTER, AS ARRANGED. Instructor(s): STAFF**

**KINESLGY 615. Philosophy of Science and Research in Kinesiology (3).** *Graduate status.* Topics include the nature of scientific inquiry, theories of knowledge acquisition; empirical vs. theoretical research; basic vs. applied research; induction and deduction; doubts and alternatives; objectivity of science; facts, laws and theories; pseudo-science; causation and mechanism; formulation of problems, research design and use of statistics. **WINTER TERM ONLY. Instructor(s): Watkins**

**KINESLGY 616. Professional Skills for Research Scientists (3).** This course covers the professional skills necessary to be successful as a research scientist. Specific content will include writing and reviewing grant applications, writing and reviewing journal manuscripts, giving research presentations, applying for jobs, and assessing careers in and out of academia. Course grade will be based on several assignments such as making a research presentation, writing a grant proposal, reviewing a journal manuscript, and writing an application for faculty position. **WINTER TERM ONLY, AS ARRANGED. Instructor(s): Ferris**

**KINESLGY 619. Thesis Research (1-6).** *Graduate status.* The thesis experience allows masters students to design and conduct a research study, analyze the data, and write a publication-quality

report on the findings and implications of the research. **FALL/WINTER/SPRING/SUMMER.**

**Instructor(s): STAFF**

**KINESLGY 640. Experiments in Human Exercise Physiology (3).** *Graduate status; MOVESCI 340 or permission of instructor.* Students review classic studies in energy metabolism, body mass regulation, exercise training, respiratory and circulatory mechanisms in exercise physiology. **FALL OR WINTER, AS ARRANGED. Instructor(s): Katch**

**KINESLGY 680. Practicum in Kinesiology (1-6).** *Graduate status.* An opportunity for concentrated graduate study in certain phases of Kinesiology and closely allied areas. Typically provides a review of current research, and analysis of new developments and trends. Uses cooperative approach in which authorities from related fields will cover the operating phases of their work. **FALL/WINTER/SPRING/SUMMER. Instructor(s): STAFF**

**KINESLGY 682. Independent Reading in Kinesiology (1-2).** *Graduate status; permission of instructor.* Advanced reading on topics in Kinesiology under faculty direction. **FALL/WINTER/SPRING/SUMMER. Instructor(s): STAFF**

**KINESLGY 684. Independent Research in Kinesiology (1-6).** *Graduate status; permission of instructor.* Advanced basic and applied research under faculty guidance. **FALL/WINTER/SPRING/SUMMER. Instructor(s): STAFF**

**KINESLGY 685. Research Rotation in Kinesiology (3-6).** *Graduate status; permission of instructor.* One research rotation is required of each Ph.D. student in Kinesiology. The rotation can be taken in or outside of Kinesiology but not with the student's advisor. The rotation will be conducted in 1 or 2 semesters. The minimum expectation is that the student will complete a project that contributes to the research of the supervisor, and culminates in a written document. **FALL/WINTER/SPRING/SUMMER. Instructor(s): STAFF**

**KINESLGY 686. Internship in Kinesiology (1-6).** *Graduate status; permission of instructor.* Field experiences in activities related to the academic discipline of Kinesiology. **FALL/WINTER/SPRING/SUMMER. Instructor(s): STAFF**

**KINESLGY 990. Dissertation, Pre-Candidacy (1-8).** *Graduate status; permission of instructor.* **FALL/WINTER/SPRING/SUMMER. Instructor(s): STAFF**

**KINESLGY 995. Dissertation, Candidacy (8 full terms; 4 half terms).** *Graduate status; permission of instructor.* **SEE FACULTY ADVISOR. Instructor(s): STAFF**