University of Michigan

Division of Kinesiology

Course Descriptions

2004-2005

Prerequisites are listed in italics preceding each course description

Athletic Training Courses (AT)

AT 251. Clinical Experiences in Athletic Training (1). *Admission to the Athletic Training Program; PHYSED 316, AT 260; or permission of instructor*. Athletic Training Students (ATS) will be clinically instructed and evaluated on the application of selected clinical skills and techniques related to the prevention, assessment, and management of sports-related injuries. The student will be expected to apply the clinical skills learned during this course in his/her field experience. Application of skills will aid in the development and mastery of the entry-level clinical competencies and proficiencies. **FALL TERM ONLY.**

AT 252. Clinical Experiences in Athletic Training B (1). *Admission to Athletic Training Program; AT 251, AT 360; or permission of instructor*. Continuation of clinical experiences begun in AT 251. **WINTER TERM ONLY.**

AT 260. Introduction to Athletic Training (2). This course is designed to provide students with an introduction to the athletic training profession. Material related to the prevention, assessment, treatment, and rehabilitation of sports-related injuries is covered. **WINTER TERM ONLY.**

AT 261. Introduction to Athletic Training Laboratory (1). *Students must be concurrently enrolled in AT 260.* Provides students with a laboratory experience in which skills relative to risk management and injury prevention are practiced. **WINTER TERM ONLY.**

AT 300. Human Anatomy (4). *MOVESCI 110.* This is a functional anatomy course for students interested in movement science. All organ systems of the human body are covered. Special emphasis is placed on systems involved in coordinating, supporting, and performing movement. **WINTER TERM ONLY.**

AT 351. Clinical Experiences in Athletic Training C (1). *Admission to Athletic Training Program; AT 252, AT 362; or permission of instructor*. Continuation of AT 251 and AT 252. **FALL TERM ONLY.**

AT 352. Clinical Experiences in Athletic Training D (1). *Admission to Athletic Training Program; AT 351, AT 460; or permission of instructor.* Continuation of AT 251, AT 252, and AT 351. **WINTER TERM ONLY.**

AT 360. Prevention and Care of Athletic Injuries (3). 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. **FALL TERM ONLY.**

AT 361. Prevention and Care of Athletic Injuries Laboratory (1). *AT major or permission of instructor*, *Students must be concurrently enrolled in AT 360.* This course is designed to

introduce techniques used in 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. **FALL TERM ONLY.**

AT 362. Advanced Prevention and Care of Athletic Injuries (3). *AT 360* Advanced principles and techniques in the prevention and care of athletic injuries and illnesses. Emphasis placed upon tissue pathology, acute and emergency care, general medical conditions, and pharmacology. **WINTER TERM ONLY.**

AT 363. Advanced Prevention and Care of Athletic Injuries Laboratory (1). *AT 360, AT major or permission of instructor, Students must be concurrently enrolled in AT 362.* This course is designed to introduce advanced techniques in the prevention and care of athletic injuries and illnesses. Emphasis is placed upon skills necessary to assess general medical conditions and follow proper pharmacology related procedures. **WINTER TERM ONLY.**

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.**

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

AT 451. Clinical Experiences in Athletic Training E (1). *Admission to Athletic Training Program; AT 352, AT 462; or permission of instructor.* Continuation of AT 251, AT 252, AT 351, and AT 352. **FALL TERM ONLY.**

AT 452. Clinical Experiences in Athletic Training (1). *AT Major; AT 451, AT 463; or permission of instructor.* Continuation AT 251, AT 252, AT 351, AT 352, and AT 451. **WINTER TERM ONLY.**

AT 458. Clinical Evaluation of Upper Extremity Athletic Injuries (3). *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 upper extremity and spine. **FALL TERM ONLY.**

AT 459. Clinical Evaluation of Upper Extremity Athletic Injuries Laboratory (1). *AT 360; AT major or permission of instructor*; *Previous course in anatomy; Students must be concurrently enrolled in AT 458* Provides students with a laboratory experience in which upper extremity orthopedic evaluation skills are practiced. **FALL TERM ONLY.**

AT 460. Clinical Evaluation of Lower Extremity Athletic Injuries (3). *AT 360; 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.

AT 461. Clinical Evaluation of Lower Extremity Athletic Injuries II Lab (1). *AT 360; AT major or permission of instructor; previous course in anatomy; Students must be concurrently enrolled in AT460* This course is designed to provide students with a laboratory experience in which lower extremity orthopedic evaluation skills are practiced.

AT 462. Therapeutic Modalities (3). *AT 360; 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 ONLY.**

AT 463. Therapeutic Rehabilitation of Athletic Injuries (3). *AT 462; Previous Course in Anatomy..* AT 463 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. Taken with AT 466. **FALL TERM ONLY.**

AT 464. Athletic Training Administration (3). *AT major or permission of instructor.* 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.**

AT 465. Therapeutic Modalities Lab (1). *AT 462; Previous Course in Anatomy; AT major or permission of instructor; Students must be concurrently enrolled in AT 462.* 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. **FALLTERM ONLY.**

AT 466. Rehabilitation of Athletic Injuries Lab (1). *AT major or permission of instructor; Students must be concurrently enrolled in AT 463.* AT 466 is designed to provide students with a laboratory experience in which techniques used in the rehabilitation of musculoskeletal injuries can be practiced. **FALL TERM ONLY.**

AT 488. 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**

Movement Science Courses (MOVESCI)

MOVESCI 110. Biological and Behavioral Bases of Human Movement (4). *Required of all Kinesiology students.* 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.**

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.**

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 ONLY.**

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.**

MOVESCI 250. Statistics and Research Methods in Movement Science (4). Principles and theories of Movement Science. Also covers topics related to reading and understanding research, and issues related to measurement in Movement Science. **FALL/WINTER.**

MOVESCI 280. Kinesiology 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.**

MOVESCI 305. Topical Seminar (1-3). The current course description, if applicable, is available from the program chair. **AS ARRANGED.**

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 Department Chair. **AS ARRANGED.**

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.**

MOVESCI 330. Biomechanics of Human Movement (4). *MOVESCI 110; MEDADM 401 or MOVESCI 230; Math 105 or 115; Physics 125 or 140.* Applies fundamental biomechanical principles to the human musculoskeletal system. Topics include musculoskeletal mechanics, tissue biomechanics, and quantitative analysis of human movement. **WINTER ONLY.**

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.**

MOVESCI 380. Problems in Movement Science (1-3). *MOVESCI Major; 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 SEE FACULTY ADVISOR.**

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.**

MOVESCI 382. Honors Reading in Movement Science (1-3). *Upper division standing with minimum overall GPA of 3.00; permission of instructor*. Directed readings on topics in Movement Science under the guidance of faculty. **FALL/WINTER/SPRING/SUMMER. SEE FACULTY ADVISOR.**

MOVESCI 384. Honors Research in Movement Science (1-3). *Upper division standing with minimum overall GPA of 3.00; permission of instructor*. Research experience under guidance of faculty. **FALL/WINTER/SPRING/SUMMER. SEE FACULTY ADVISOR.**

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. SEE FACULTY ADVISOR.**

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. *Credits count as Kinesiology elective credit.* **FALL/WINTER/SPRING/SUMMER. SEE FACULTY ADVISOR**

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. SEE FACULTY ADVISOR**

MOVESCI 412/KINESLGY 412. Scientific Training and Conditioning of Athletes (3). Students draw upon core knowledge, scientific and coaching literature, and discussions with coaches to develop training and conditioning programs for different types of athletes based on scientific principles. **AS ARRANGED.**

MOVESCI 421/KINESLGY 421. Disorders of Voluntary Movement (3). *MOVESCI 320.* An introduction to a variety of common disease conditions affecting cognitive and neural aspects of motor performance. Emphasis is placed on relating structure to function and the application of motor control principles in describing motor disturbances. **ONCE A YEAR, FALL OR WINTER.**

MOVESCI 422/KINESLGY 422. Motor Learning (3). *MOVESCI 320.* 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.**

MOVESCI 423/KINESLGY 423. Sensorimotor Development (3). *MOVESCI 320.* The purpose of this course is to study major concepts and principles fundamental to the development of sensorimotor behavior from birth to adulthood. The overall question for this class is: How and why do patterns of motor behavior change? This course is intended for practitioners as well as people interested in basic science issues. We will discuss observable and "classic" changes in motor skill that occur over time, and we will study the origins of new motor patterns as well as the improvement of motor performance. We will address changes in subsystems that affect behavior in real time and over developmental time. We will examine and discuss methods to assess motor performance. **AS ARRANGED.**

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 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. **AS ARRANGED.**

MOVESCI 425/PHYSED 425/KINESLGY 425. Motor Behavior and Developmental Disabilities (3). 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 TERM ONLY.**

MOVESCI 429/KINESLGY 429. Laboratory Rotation in Motor Control (1-3). *MOVESCI 320.* 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. SEE FACULTY ADVISOR.**

MOVESCI 433/KINESLGY 433. Human Movement & Aging: Functional Ability (3). *MOVESCI 330.* This course focuses on changes in human movement with age. A special emphasis is placed on integrating neuromechanical findings to explain age-related changes in motor performance. The course format emphasizes critical thinking and includes reading primary literature. After taking this course, students will be able to understand and explain mobility changes commonly observed in the elderly. **EVERY OTHER FALL.**

MOVESCI 435/KINESLGY 435. Biomechanics of Human Locomotion (3). *MOVESCI 230; MOVESCI 330.* The focus of this course is on understanding how humans walk and run. Topics will include kinematics, kinetics, neuromuscular activation patterns, energetics, and musculotendon mechanics. The class 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. **AS ARRANGED.**

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. SEE FACULTY ADVISOR.**

MOVESCI 441/KINESLGY 441. Exercise and Human Biology (3). *MOVESCI 340.* 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. **WINTER TERM ONLY.**

MOVESCI 442/KINESLGY 442. Hormones and Exercise (3). *MOVESCI 340.* 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 TERM ONLY.**

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. **AS ARRANGED.**

MOVESCI 445/KINESLGY 445. Human Movement & Aging: Molecular Mechanisms (3). *MOVESCI 340; Biochemistry recommended.* This course will focus on emerging evidence for molecular mechanisms of aging and of age-associated changes in cardiovascular physiology. Distinction will be made between aging and disease processes. The role of exercise in positively impacting age-associated changes, as well as the mechanisms by which exercise exerts such effects, will be examined. **EVERY OTHER YEAR.**

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. SEE FACULTY ADVISOR.**

MOVESCI 471/KINESLGY 471. Physical Activity, Health and Disease (3). *MOVESCI 340.* 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 TERM ONLY.**

MOVESCI 474/KINESLGY 474. Worksite Wellness (3). *Graduate status; MOVESCI 340.* 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. **WINTER TERM ONLY.**

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. SEE FACULTY ADVISOR.**

MOVESCI 489. Senior Thesis (2-5). *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. SEE FACULTY ADVISOR.**

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. SEE FACULTY ADVISOR.**

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. SEE FACULTY ADVISOR.**

Physical Education Courses (PHYSED)

PHYSED 140. Beginning Swimming (1). *Students must pre-register in the UMove Office (1271 CCRB).* For students with no previous aquatic experience, or who do not put their faces in the water, or do not know how to float, will learn fundamental aquatic skills such as increasing water comfort, breath holding, floating, introductory front and back crawls, jumping in, and basic water safety skills and knowledge. Attendance mandatory.
FALL/WINTER/SPRING/SUMMER.

PHYSED 141. Beginning Swimming II (1). *Students must pre-register in the UMove Office (1271 CCRB).PHYSED 141.* For students who know basic skills such as putting their face in the water, floating, beginning kicking and beginning arm movement on front and back, improve technique for front and back crawls, endurance, comfort in deep water, and begin learning sidestroke, and elementary backstroke. Attendance mandatory.
FALL/WINTER/SPRING/SUMMER.

PHYSED 142. Intermediate Swimming (1). *Students must pre-register in the UMove Office (1271 CCRB).Must be able to swim 100 yards without stopping*. For students who can swim 100 yards but under 2000 yards in an hour learn and improve technique and endurance for freestyle, backstroke, breaststroke, elementary backstroke, and sidestroke. Depending on class interest, open turns, flip turns and diving may also be included. Attendance mandatory
FALL/WINTER/SPRING/SUMMER.

PHYSED 143. Lifeguard Training (1). *Students must pre-register in the UMove Office (1271 CCRB).Ability to swim 20 consecutive lengths of the pool and to tread water five minutes*. Follows the American Red Cross format for Lifeguard Training. Provides instruction for both self-preservation and rescuing others. Students earn Red Cross certification upon successfully completing the course. **FALL/WINTER/SPRING.**

PHYSED 145. Tae Kwon Do I (1). *Students must pre-register in the UMove Office (1271 CCRB).* Fundamentals of martial arts (Korean style). Improves physical fitness, confidence, self-esteem, and the ability to defend yourself. **FALL/WINTER.**

PHYSED 252. Tests & Measurements in Physical Education (3). Teaches students the theory, validation, administration and interpretation of physical fitness, motor, cognitive and affective skill and behavior tests in physical education and adult physical fitness/activity programs. **WINTER TERM ONLY.**

PHYSED 254. Fundamental 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 fundamental 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.**

PHYSED 265. Fitness, Wellness and Lifestyle Management (3). Increases a student's awareness of and provides instruction pertaining to fitness, wellness and lifestyle management. Shows the student how to make healthy lifestyle choices. Guides the student toward an understanding of an integration of the six interrelated dimensions of wellness: physical, emotional, social, intellectual, environmental and spiritual. Requires the student to develop a personal wellness program. **FALL TERM**

PHYSED 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.**

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.**

PHYSED 306.Practicum in Health Teaching Methods (2). 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. This course should be taken concurrently with PHYSED 473. **WINTER ONLY.**

PHYSED 310. Applied Human Anatomy and Physiology (5). *MOVESCI 110.* 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. **FALL/WINTER.**

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.**

PHYSED 316. First Aid and Safety Education (2). First aid and safety education in relation to home, school, and community. Strongly emphasizes safety principles as applied to activities of the gymnasium, playground, and athletic field. (Required for AT students regardless of previous CPR certifications) **FALL/WINTER.**

PHYSED 326. Fundamentals of Strength and Conditioning (3). *PHYSED 310.* Personal Training will help students attain the skills necessary for developing personal fitness programs for others and self. Emphasis will be placed on the essential components of fitness/activity, cardiovascular and muscle training, and evaluation of home exercise equipment. Students will be required to design a personal exercise program for another student. Course is designed to prepare students to take personal training certification examinations. **FALL TERM ONLY.**

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.**

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.**

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.**

PHYSED 349. Water Safety Instructor (3). *PHYSED 143.* Students learn stroke mechanics, lifeguarding, CPR, and first aid skills and teaching strategies to earn American Red Cross Water Safety, Lifeguarding, CPR, and First Aid instructor certifications. Professional teacher preparation class requiring written lesson plans, outside of class observations, in class practice teaching assignments, and written tests. Attendance mandatory. **FALL/ SPRING.**

PHYSED 350. Selected Secondary Team Activities (3). *Junior standing.* This course will study basic progressions and teaching skills of soccer, track and field, volleyball, basketball and other selected activities applicable to junior high, middle school and senior high school levels of education. **FALL TERM ONLY.**

PHYSED 353. Individual Sports and Selected Activities (3). *Junior standing*. Focuses on a variety of movement, fitness and sport activities with an emphasis on mainstreaming techniques for the secondary level of education. Students will design various strategies and techniques for implementation. **FALL TERM ONLY.**

PHYSED 354. Theory and Practice of Elementary Physical Education (3). *Junior standing; permission of instructor.* Students will develop competency in: linking objectives to elementary physical education offerings; communicating essential content to be taught in physical education (motor, physical fitness, cognitive, and personal-social skills), acquiring resource materials that

will be useful in future elementary teaching situations, mastering classroom structure and organizational details for teaching elementary physical education, knowing how to teach a minimum of 50 physical education activities and teaching elementary physical education. **BOTH FALL 05 & WINTER 06.**

PHYSED 370. Honors Reading (1-3). *Upper division student with minimum overall GPA of 3.0; permission of instructor.* Directed readings on Physical Education topics under the guidance of faculty. **FALL/WINTER/SPRING/SUMMER. SEE FACULTY ADVISOR.**

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.**

PHYSED 380. Honors Research (1-3). *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.**

PHYSED 390. Field Experience (1-8). *Junior 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.**

PHYSED 402. Teaching Experience for PE Students (1-3). *Permission of instructor; PHYSED 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.**

PHYSED 414/EDUC 414/KINESLGY 414. Directed Teaching Seminar (1-2). *PHYSED 444.* Concurrent enrollment in PHYSED 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.**

PHYSED 415/EDUC 415/KINESLGY 415. 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**

PHYSED 425/MOVESCI 425/KINESLGY 425. Motor Behavior and Developmental Disabilities (3). Concurrent enrollment in EDUC 392 and PHYSED 402 is required. 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. **ONCE A YEAR, FALL OR WINTER.**

PHYSED 444/EDUC 444/KINESLGY 444. Methods of Teaching of Physical Education K-12 (4). *Two of the following: PHYSED 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.**

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. **FALL/WINTER/SPRING/SUMMER. SEE FACULTY ADVISOR.**

PHYSED 473/KINESLGY 473. School Health Programs (4). Concurrent enrollment in PHYSED 306 is required. This course provides a comprehensive working knowledge of support services and programs available for the child and coordinated through the school. Students will use selected modules of the Michigan Model, focusing on the six most prevalent health risk factors according to the Centers for Disease Control. **WINTER TERM ONLY.**

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

PHYSED 490. Senior Honors Thesis (1-4). *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. **FALL/WINTER/SPRING/SUMMER. SEE FACULTY ADVISOR.**

Sport Management Courses (SPTMGMTC)

SPTMGMTC 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.**

SPTMGMTC 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.**

SPTMGMTC 202. Principles and Practices in Athletic Coaching (3). *MOVESCI 110; SPTMGMTC 111.* Students will study a variety of issues and responsibilities associated with athletic coaching in an educational setting using the Program for Athletic Coaches Education (PACE). Content areas include administrative planning and organization: social and interpersonal skills, motivation, role of the coach, conditioning, legal aspects and media relations. After completing PACE course requirements, student can become PACE-certified coaches. **AS ARRANGED.**

SPTMGMTC 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, Intercollegiate, and interscholastic sport, 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.**

SPTMGMTC 226/AT 226. Personal Exercise and Weight Training Programs (3). *MOVESCI 110; PHYSED 310; Sophomore standing.* This course is designed to provide the student with the information and skills needed to develop a strategy for healthful living for others and themselves throughout life with an emphasis on the role of physical fitness in the maintenance of wellness. **WINTER TERM ONLY.**

SPTMGMTC 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.**

SPTMGMTC 301. Facility Management (3). *SPTMGMTC 203; Junior standing.* Studies procedures in the planning, design, construction, and management of sport and recreational facilities. Guest speakers on related topics and visits to appropriate sites. **AS ARRANGED.**

SPTMGMTC 308. International Sport Policy (3). *Junior standing.* Introductory politics, policy management, and comparative political systems elective. The course is an examination of several transformational forces in the world today: the end of communism, the global economy, the electronic village, and their impact on the Sports World. **AS ARRANGED**

SPTMGMTC 313. Special Topics (1-3). *Junior standing.* New courses in development are assigned this number. Current titles are listed in the Time Schedule. **AS ARRANGED.**

SPTMGMTC 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**

SPTMGMTC 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 TERM ONLY.**

SPTMGMTC 333. Legal Aspects of Sports Administration (3). *SPTMGMTC 203; 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/WINTER.**

SPTMGMTC 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. **WINTER ONLY.**

SPTMGMTC 342. Strategy of Sport Organizations (3). *SPTMGMTC 203; 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. **FALL/WINTER.**

SPTMGMTC 346. Principles of Marketing (3). *SPTMGMTC 203; 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. **FALL/WINTER.**

SPTMGMTC 349. Research Methods for the Sport Industry (3). *SPTMGMTC 203; Junior standing.* 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. **WINTER TERM ONLY.**

SPTMGMTC 370. Honors Reading (1-3). *Upper division with minimum overall GPA of 3.00; permission of instructor.* Directed readings on topics in Sports Management and Communication under the guidance of faculty. **FALL/WINTER/SPRING/SUMMER. SEE FACULTY ADVISOR.**

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

SPTMGMTC 390. Field Experience (1-8). *Junior 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.**

SPTMGMTC 402. Teaching Experience for SM 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.**

SPTMGMTC 403. Internship in Sports Management and Communication (1-4). *SPTMGMTC 111, MOVESCI 110, MOVESCI 300/ANAT 401; Junior standing. 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 SM program.
FALL/WINTER/SPRING/SUMMER. SEE FACULTY ADVISOR.

SPTMGMTC 431. Sports and the Media (3). *SPTMGMTC 203; 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 TERM ONLY.**

SPTMGMTC 432. Human Resource Management in Sport (3). *Junior standing.* Human resources are argues 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. **AS ARRANGED.**

SPTMGMTC 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 TERM ONLY.**

SPTMGMTC 434. Sport Ethics (3). *SPTMGMTC 203. 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. **WINTER TERM ONLY.**

SPTMGMTC 444. Sales Management in the Sport Industry (3). *SPTMGMTC 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/WINTER.**

SPTMGMTC 435. Sport and the Consumer (3). *SPTMGMTC 203. 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. **EVERY OTHER YEAR.**

SPTMGMTC 436. Race Relations, Cultural Images, and Sport (3). *SPTMGMTC 111; SPTMGMTC 203; 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.**

SPTMGMTC 437. Psychological Aspects of Sport and Exercise (3). *Junior standing.* Examines the scientific evidence supporting the psychological determinants of sports performance and exercise adherence. Students interview clients and apply scientific principles to real-life situations. **FALL TERM ONLY.**

SPTMGMTC 446. Advertising and Promotion Strategy (3). *SPTMGMTC 203; SPTMGMTC 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. **WINTER/SPRING**

SPTMGMTC 470. Independent Study (1-2). *Junior standing. Upper division 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.**

SPTMGMTC 490. Senior Honors Thesis (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.**

Kinesiology Graduate Courses (KINESLGY)

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/SPRING/SUMMER.**

KINESLGY 414/EDUC 414/PHYSED 414. Directed Teaching Seminar (1-2). *Graduate status; PHYSED 444.* 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.**

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

KINESLGY 421/MOVESCI 421. Disorders of Voluntary Movement (3). *Graduate status; MOVESCI 320*. An introduction to a variety of common disease conditions affecting cognitive and neural aspects of motor performance. Emphasis is placed on relating structure to function and the application of motor control principles in describing motor disturbances. **ONCE A YEAR, FALL OR WINTER.**

KINESLGY 422/MOVESCI 422. Motor Learning (3). *Graduate status; MOVESCI 320.* 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.**

KINESLGY 423/MOVESCI 423. Sensorimotor Development (3). *Graduate status; MOVESCI 320*. The purpose of this course is to study major concepts and principles fundamental to the development of sensorimotor behavior from birth to adulthood. The overall question for this class is: How and why do patterns of motor behavior change? This course is intended for practitioners as well as people interested in basic science issues. We will discuss observable and "classic" changes in motor skill that occur over time, and we will study the origins of new motor patterns as well as the improvement of motor performance. We will address changes in subsystems that affect behavior in real time and over developmental time. We will examine and discuss methods to assess motor performance. **FALL TERM ONLY.**

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 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. **AS ARRANGED.**

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 TERM ONLY.**

KINESLGY 429/MOVESCI 429. Laboratory Rotation in Motor Control (1-3). *Graduate status; MOVESCI 320.* 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. SEE FACULTY ADVISOR.

KINESLGY 433/MOVESCI 433. Human Movement & Aging: Functional Ability (3). *Graduate status; MOVESCI 330.* This course focuses on changes in human movement with age. A special emphasis is placed on integrating neuromechanical findings to explain age-related changes in motor performance. The course format emphasizes critical thinking and includes reading primary literature. After taking this course, students will be able to understand and explain mobility changes commonly observed in the elderly. **EVERY OTHER FALL.**

KINESLGY 435/MOVESCI 435. Biomechanics of Human Locomotion (3). *MOVESCI 230; MOVESCI 330.* The focus of this course is on understanding how humans walk and run. Topics will include kinematics, kinetics, neuromuscular activation patterns, energetics, and musculotendon mechanics. The class 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. **AS ARRANGED.**

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. SEE FACULTY ADVISOR.

KINESLGY 441/MOVESCI 441. Exercise and Human Biology (3). *Graduate status; Physiology 101; MOVESCI 340.* Emphasizes an integrative view of exercise physiology, which includes discussion of the neuroendocrine control mechanisms in homeostatic functions and in the adaptive responses of an organism to the challenge of exercise. **WINTER TERM ONLY.**

KINESLGY 442/MOVESCI 442. Hormones and Exercise (3). *Graduate status; MOVESCI 340.* 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. **WINTER TERM ONLY.**

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. **AS ARRANGED.**

KINESLGY 444/PHYSED 444/EDUC 444. Methods of Teaching Physical Education K-12 (4). *Graduate status; two of the following: PHYSED 336, 350, 353, or 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.**

KINESLGY 445/MOVESCI 445. Human Movement & Aging: Molecular Mechanisms (3). *Graduate status; MOVESCI 340; MOVESCI 300/ANAT 401; Biochemistry recommended.* This course will focus on emerging evidence for molecular mechanisms of aging and of age-associated changes in cardiovascular physiology. Distinction will be made between aging and disease processes. The role of exercise in positively impacting age-associated changes, as well as the mechanisms by which exercise exerts such effects, will be examined. **EVERY OTHER YEAR.**

KINESLGY 449/MOVESCI 449. Laboratory Rotation in Exercise Physiology (1-3). *Graduate status; MOVESCI 340.* 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. SEE FACULTY ADVISOR.**

KINESLGY 471/MOVESCI 471. Physical Activity, Health and Disease (3). *Graduate status; MOVESCI 340.* 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 TERM ONLY.**

KINESLGY 472/PHYSED 472. Adult Exercise Program (3). *Graduate status.* Blends exercise physiology and practical fitness knowledge in a variety of instructional settings. Students will learn and practice teaching methods and strategies for fitness classes. Basic aerobic fitness, special populations, resistance/weight training and flexibility techniques are covered. **AS ARRANGED.**

KINESLGY 473/PHYSED 473. School Health Programs (4). *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 TERM ONLY.**

KINESLGY 474/MOVESCI 474. Worksite Wellness (3). *Graduate status; MOVESCI 340.* 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. **WINTER TERM ONLY.**

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 TERM ONLY.**

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.**

KINESLGY 501. Facility Planning and Management (3). Examines the feasibility, methods, procedures and administration of sport facility, capital improvement projects as well as the operational, maintenance, event planning and hosting functions of facility management. **AS ARRANGED.**

KINESLGY 502. Telecommunications in Sport, Health and Fitness (3). Introduces the student to two aspects of telecommunication within the fields of sport, health, and fitness: media production and media research. Students produce a short video piece on a topic related to their area of interest. During the development and production process, students are introduced to the concept and methods of formative research. **AS ARRANGED.**

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. **FALL TERM ONLY.**

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. **WINTER ONLY.**

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. **AS ARRANGED.**

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. **AS ARRANGED.**

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. **AS ARRANGED.**

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

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.**

KINESLGY 518. Leadership and Diversity in Sport (3). *Graduate standing*. This course provides students with opportunities for experiences, examination of theory, and practical application of organizational leadership within the context of diversity in sport. The goal of the course is to assist students in developing their own understanding and skills in becoming more effective leaders in sport organizations that acknowledge, value, and incorporate differences. **WINTER TERM ONLY.**

KINESLGY 519. Sport Management in Depth (2). *Graduate status and completion of three SPTMGMTC 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). The student under the direction of a three-person committee will carry out this program component on an individual basis: one SPTMGMTC faculty member, a University of Michigan faculty member who is not in SPTMGMTC, and a practicing manager. **AS ARRANGED.**

KINESLGY 520. Graduate Seminar in Motor Control (3). *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. **EVERY OTHER YEAR.**

KINESLGY 521. Visuomotor Coordination (3). *Graduate status; MOVESCI 320.* Covers the basic principles involved in coordination of the ocular and motor systems during visually guided motor tasks. Topics include the generation and control of different types of eye movements, role of the afferent feedback during visuomotor tracking and the mechanisms involved in visuomotor coordination. **AS ARRANGED.**

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. **AS ARRANGED.**

KINESLGY 533/BME 533. (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. **AS ARRANGED.**

KINESLGY 540. Graduate Seminar in Exercise Physiology (3-6). *Graduate status, but Seniors with an outstanding academic record may be admitted; MOVESCI 320; MOVESCI 340; permission of instructor.* Focuses on contemporary topics related to causes and consequences of movement from a physiologic perspective. Students will present assigned readings and will write a paper on an approved topic. **EVERY OTHER YEAR.**

KINESLGY 542. Exercise and Nutrition (3). *Graduate status; MOVESCI 340; EIHLTH 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. **EVERY OTHER YEAR.**

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, and (7) the development of a strategic marketing plan. **FALL/WINTER.**

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.**

KINESLGY 572. Fitness Evaluation and Exercise Prescription (3). *Graduate status; MOVESCI 340.* 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. **AS ARRANGED.**

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. **AS ARRANGED.**

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 hours credit. **AS ARRANGED.**

KINESLGY 610. Current Issues in Kinesiology (3). *Graduate status.* Introduces students to a selected set of research issues within the field of human movement, emphasizing how different academic disciplines contribute to the field. Students will examine the strengths, weaknesses, and appropriateness of single-discipline and multi-disciplinary studies of human movement. **AS ARRANGED.**

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.**

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. **AS ARRANGED.**

KINESLGY 640. Experiments in Human Exercise Physiology (3-6). *Graduate status; MOVESCI 340*. Students review classic studies in energy metabolism, body mass regulation, exercise training, respiratory and circulatory mechanisms in exercise physiology. **AS ARRANGED.**

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. **SEE FACULTY ADVISOR.**

KINESLGY 682. Independent Reading in Kinesiology (1-2). *Graduate status; permission of instructor*. Advanced reading on topics in Kinesiology under faculty direction. **SEE FACULTY ADVISOR.**

KINESLGY 684. Independent Research in Kinesiology (1-6). *Graduate status; permission of instructor*. Advanced basic and applied research under faculty guidance. **SEE FACULTY ADVISOR.**

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. **SEE FACULTY ADVISOR.**

KINESLGY 686. Internship in Kinesiology (1-6). *Graduate status; permission of instructor.* Field experiences in activities related to the academic discipline of Kinesiology. **SEE FACULTY ADVISOR.**

KINESLGY 990. Dissertation, Pre-Candidacy (1-8). *Graduate status; permission of instructor.* **SEE FACULTY ADVISOR.**

KINESLGY 995. Dissertation, Candidacy (8 full term; 4 half term). *Graduate status; permission of instructor.* **SEE FACULTY ADVISOR.**