University of Michigan

Division of Kinesiology



Course Descriptions

2005-2006

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Athletic Training

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

AT 251. Clinical Experiences in Athletic Training A (1). *Admission to the Athletic Training Program; PE 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. Instructor(s): Czajka

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. Instructor(s): Czajka

AT 310 / 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 06 ONLY . Instructor(s): Boluyt, Turner

AT 326 / 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. Instructor(s): Pickerman

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. Instructor(s): Czajka

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. Instructor(s): Czajka

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. WINTER TERM ONLY. Instructor(s): Palmieri

AT 361. Prevention and Care of Athletic Injuries Laboratory (2). *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. WINTER TERM ONLY. Instructor(s): Pickerman

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. Instructor(s): Czajka

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. Instructor(s): Mendias

AT 402. Teaching Experience for AT Students (1-3). *Permission of instructor; Junior/Senior status; minimum B+ in related AT/PHYSED 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). *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. Instructor(s): Reck

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. Instructor(s): Czajka

AT 452. Clinical Experiences in Athletic Training F (1). *Admission to Athletic Training Program; AT 451, AT 463; or permission of instructor.* Continuation AT 251, AT 252, AT 351, AT 352, and AT 451. WINTER TERM ONLY. Instructor(s): Czajka

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. Instructor(s): Palmieri

AT 459. Clinical Evaluation of Upper Extremity Athletic Injuries Lab (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. Instructor(s): STAFF

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.WINTER TERM ONLY. Instructor(s): Czajka

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 AT 460*. 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): STAFF

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 TERM ONLY. Instructor(s): Czajka

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. Instructor(s): Czajka, Mendias

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. Instructor(s): Czajka, Bancroft

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. FALL TERM ONLY. Instructor(s): Shinavier

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. Instructor(s): Czajka

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. Instructor(s): STAFF

Movement Science

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): Anguera, Caviston, Cornford, Katch, Moga

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, Crane, Moga, Stoessner

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 and Research Methods in Movement Science (4). This course is designed to help students acquire the basic skills needed to become a good consumer of research. The course will provide students with experiences in conducting thorough reviews of research, and reading and interpreting research articles. Students will be introduced to a variety of types of research conducted in Movement Science along with basic research procedures in exercise physiology, biomechanics, motor control and development. Issues related to measurement in Movement Science will be presented. FALL/WINTER. Instructor(s): Ulrich, Moga

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 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. 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): Seidler, Goble

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. FALL/WINTER. Instructor(s): Ferris, Danek, Huang, Moga

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, Hwang, Wentland

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. Reading in Movement Science (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. Research in Movement Science (1-3). *Upper division standing; 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 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. FALL OR WINTER, AS ARRANGED. Instructor(s): STAFF

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): Angulo-Barroso

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. FALL OR WINTER, AS ARRANGED. Instructor(s): Brown, Seidler

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. Instructor(s): D. Ulrich

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): Angulo-Barroso, Brown, Seidler, D. Ulrich

MOVESCI 433/KINESLGY 433. Human Movement & Aging: Functional Ability (3). *MOVESCI 330 or permission of instructor*. 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. FALL OR WINTER, AS ARRANGED. Instructor(s): Gross

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

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 445/KINESLGY 445. Human Movement & Aging: Molecular Mechanisms (3). *MOVESCI 340 or permission of instructor; 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 FALL OR WINTER, AS ARRANGED. Instructor(s): Boluyt

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): Boluyt, Borer, Cartee, Horowitz, Katch

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): Herman

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

Prerequisites are listed in italics.
Terms offered are CAPITALIZED.

PHYSED 140. Beginning Swimming (1). *Students must pre-register in the UMove Office (1256 CCRB).* Are you unable to float or swim? This class teaches breath holding, floating, rhythmic breathing. Attendance mandatory. FALL/WINTER/SPRING /SUMMER. Instructor(s): STAFF

PHYSED 141. Beginning Swimming II (1). *Students must pre-register in the UMove Office (1256 CCRB). PHYSED 141*. Can you float and swim? Improve your technique and endurance in front/back crawls and sidestroke. Students must be able to swim the width of the pool. Attendance mandatory. FALL/WINTER/SPRING/SUMMER. Instructor(s): STAFF

PHYSED 142. Intermediate Swimming (1). *Students must pre-register in the UMove Office (1256 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 breathing and improving stroke technique and endurance. Attendance mandatory. FALL/WINTER/SPRING/SUMMER. Instructor(s): STAFF

PHYSED 143. Lifeguard Training (1). *Students must pre-register in the UMove Office (1256 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. Instructor(s): STAFF

PHYSED 145. Tae Kwon Do I (1). *Students must pre-register in the UMove Office (1256 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 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 ONLY. Instructor(s): Chen

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. Instructor(s): D. Ulrich

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 TERM ONLY. Instructor(s): Katch

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 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): Harris

PHYSED 305. Practicum in Elementary Teaching Methods (1). 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. Instructor(s): Chen

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 PE 473. WINTER ONLY. Instructor(s): Winkelseth

PHYSED 310/AT 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 06. Instructor(s): Boluyt, Turner III

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 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. Instructor(s): Kincaid, Winkelseth

PHYSED 326/AT 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. Instructor(s): Pickerman

PHYSED 331. Biomechanics of Sport (3). *MATH 105; PHYSICS 125; 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): Moga

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 143*. Students learn stroke mechanics, CPR, and first aid skills and teaching strategies to earn American Red Cross Water Safety, 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/WINTER/SPRING. Instructor(s): Winkelseth

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. Instructor(s): Chen

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. Instructor(s): Winkelseth

PHYSED 354. Theory and Practice of Elementary Physical Education (3). *Junior standing; permission of instructor.* 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. BOTH FALL 05 & WINTER 06. Instructor(s): Chen

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. 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): Harris

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 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). *PE 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). 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. Instructor(s): D. Ulrich

PHYSED 444/EDUC 444/KINESLGY 444. Methods of Teaching of Physical Education 7-12 (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 472/KINESLGY 472. Adult Exercise Program (3). 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. FALL/WINTER/SPRING/SUMMER. SEE FACULTY ADVISOR. Instructor(s): STAFF

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. Instructor(s): Van Volkinburg, 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

Note: the SPTMGMTC department course code has been replaced by SM

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, Parenteau.

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. Instructor(s): Basten, Donahue, McCann.

SM 202. Principles and Practices in Athletic Coaching (3). *MOVESCI 110; SM 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. Instructor(s): George.

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, 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 Sport Management. FALL/WINTER. Instructor(s): George.

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 301. Facility Management (3). *SM 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 . Instructor(s): STAFF.

SM 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. Instructor(s): STAFF.

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

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 06 ONLY. Instructor(s): Guthrie.

SM 332. Organizational Behavior in Sport Organizations (3). *Junior standing.* Having a fundamental understanding of how individuals work 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 Behaviors in Sport Organizations is a required course in the fall term of the Level II Sport Management Curriculum. FALL/WINTER 06 ONLY. Instructor(s): George.

SM 333. Legal Aspects of Sports Administration (3). *SM 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 06 ONLY. Instructor(s): Clark.

SM 341. Sport Finance (3). *Junior standing.* 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 TERM ONLY. Instructor(s): Rahman.

SM 342. Strategy of Sport Organizations (3). *SM 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. WINTER TERM ONLY. Instructor(s): STAFF.

SM 346. Principles of Marketing (3). *SM 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. WINTER TERM ONLY. Instructor(s): Moore.

SM 349. Research Methods for the Sport Industry (3). *SM 203 and 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. WINTER TERM ONLY. Instructor(s): Luker, McCann.

SM 370. Honors Reading (1-3). *Upper division with minimum overall GPA of 3.00; permission of instructor.* Directed readings on topics in Sport Management under the guidance of faculty. AS ARRANGED. Instructor(s): STAFF.

SM 380. Honors Research (1-2). *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 (1-4). *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.

SM 402. Teaching Experience for Sport Management Students (1-3). *Junior standing or 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/SPRING/SUMMER. Instructor(s): STAFF.

SM 403. Internship in Sport Management (1-6). *Junior standing, SM 111, MOVESCI 110*. 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. FALL/WINTER/SPRING/SUMMER. SEE FACULTY ADVISOR. Instructor(s): Reck.

SM 431. Sports and the Media (3). *SM 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. 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. AS ARRANGED. Instructor(s): George.

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 TERM ONLY. Instructor(s): Watkins.

SM 434. Sport Ethics (3). *SM 203 & Junior standing*. Our complex and rapidly changing environment imposes new demands on managers of sport organizations. Increased pressures 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 06. 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 06 ONLY. Instructor(s): Basten.

SM 436. Race Relations, Cultural Images, and Sport (3). *SM 111; SM 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. Instructor(s): McCann.

SM 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/SPRING. Instructor(s): George.

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/WINTER. Instructor(s): Moore.

SM 446. Advertising and Promotion Strategy (3). *SM 203; 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. ONCE A YEAR, FALL OR WINTER. Instructor(s): Moore.

SM 470. Independent Study (1-2). *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. Instructor(s): STAFF.

SM 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 . Instructor(s): STAFF.

Kinesiology

(Courses for graduate credit)

Prerequisites are listed in italics.
Terms offered are CAPITALIZED.

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 412/MOVESCI 412. Scientific Training and Conditioning of Athletes (3). *Graduate status.* 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. Instructor(s): STAFF

KINESLGY 414/PHYSED 414/EDUC 314. Directed Teaching Seminar (1-2). *Graduate status; KINESLGY 444/PHYSED 444/EDUC 307*. 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*. 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: Angulo-Barroso

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. 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 TERM ONLY. Instructor(s): D. Ulrich

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): Angulo-Barroso, Brown, Seidler, D. Ulrich

KINESLGY 433/MOVESCI 433. Human Movement & Aging: Functional Ability (3). *Graduate status; MOVESCI 330 or permission of instructor*.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. AS ARRANGED. Instructor(s): Gross

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

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 K-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 445/MOVESCI 445. Human Movement & Aging: Molecular Mechanisms (3). *Graduate status; MOVESCI 340 or permission of instructor; 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 FALL OR WINTER, AS ARRANGED. Instructor(s): Boluyt

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): Boluyt, 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): Siebers.

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): Ostfield..

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 TERM ONLY. Instructor(s): Moore, 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. Instructor(s): Babiak.. Expanded Description of Winter 2006 class: HR MANAGEMENT/ORG BEHAVIOR.

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): Wolfe..

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. 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): Wolfe

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): Angulo-Barroso, Brown

KINESLGY 521. Visuomotor Coordination (3). *Graduate status; MOVESCI 320 or permission of instructor.* 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. FALL OR WINTER, AS ARRANGED. Instructor(s): STAFF

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 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; 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. 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): Moore

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): Boluyt

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. 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 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 term; 4 half term). *Graduate status; permission of instructor.* SEE FACULTY ADVISOR. Instructor(s): STAFF