

KINESIOLOGY (KIN)

Any experimental courses offered by KIN can be found at:

registrar.iastate.edu/faculty-staff/courses/explisting/ (<http://www.registrar.iastate.edu/faculty-staff/courses/explisting/>)

Courses primarily for undergraduates:

KIN 101: Swimming I

(0-3) Cr. 1. F.S.SS.

Basic course for nonswimmers. Emphasis on two fundamental strokes and personal water safety skills. Offered on a satisfactory-fail basis only.

KIN 102: Swimming II

(0-3) Cr. 1. F.S.

Prereq: KIN 101 or equivalent skill

Intermediate course. Emphasis on learning and improving five basic strokes and personal water safety skills. Offered on a satisfactory-fail basis only.

KIN 108: Aquatic Fitness

(0-3) Cr. 1. F.S.

Prereq: KIN 102 or equivalent skill

Water related exercises, activities, and swimming workouts to improve physical fitness. Offered on a satisfactory-fail basis only.

KIN 122: Badminton

(0-2) Cr. 1. F.S.SS.

Introduction to fundamental badminton skills and strategic game play. Offered on a satisfactory-fail basis only.

KIN 129: Bowling

(0-2) Cr. 1. F.S.SS.

Introduction to bowling skills and strategic game play. Offered on a satisfactory-fail basis only.

KIN 135: Golf

(0-2) Cr. 1. F.S.SS.

Introduction to fundamental golf skills and strategic game play. Offered on a satisfactory-fail basis only.

KIN 144: Racquetball

(0-2) Cr. 1. F.S.SS.

Introduction to fundamental racquetball skills and strategic game play. Offered on a satisfactory-fail basis only.

KIN 153: Ice Skating

(0-2) Cr. 1. F.S.SS.

Introduction to fundamental ice skating skills and strategic game play. Offered on a satisfactory-fail basis only.

KIN 158: Tennis

(0-2) Cr. 1. F.S.SS.

Introduction to basic skills (forehand, backhand, service) and basic knowledge of game play. Offered on a satisfactory-fail basis only.

KIN 163: Physical Fitness

(0-3) Cr. 1. F.S.SS.

Evaluation of fitness status. Exercises, activities, and programs to improve physical fitness. Offered on a satisfactory-fail basis only. Credit for only KIN 163 or 258 may be applied toward graduation.

KIN 164: Walking for Fitness

(0-3) Cr. 1. F.S.SS.

Fitness walking as an activity to improve health and fitness; values of this type of activity as a lifetime endeavor with knowledge and usage of pedometers. Offered on a satisfactory-fail basis only.

KIN 165: Running for Fitness

(0-2) Cr. 1. F.S.SS.

Running as a physical activity to improve physical fitness and health. Promotion of this activity as a lifetime endeavor. Offered on a satisfactory-fail basis only.

KIN 166: Weight Training

(0-3) Cr. 1. F.S.SS.

Introduction to fundamental skills of weight training and strategic game play. Offered on a satisfactory-fail basis only.

KIN 168: Judo

(0-2) Cr. 1. F.S.

Fundamentals of self defense, focusing on throwing with the hands, hips and feet as well as applying pins, chokes and arm-bars. The physical skills will be taught focused on training through development of courtesy, integrity, perseverance, self control, & indomitable spirit. Emphasis on learning a way of life that promotes personal development, physical health and citizenship. Offered on a satisfactory-fail basis only.

KIN 170: Tae Kwon Do/Karate I

(0-2) Cr. 1. F.S.

Teaches fundamentals of self-defense, focusing on hand and foot striking and blocking techniques. The physical skills will be taught focused on training through development of courtesy, integrity, perseverance, self-control and indomitable spirit. It will be emphasized that each student learns a way of life that promotes personal development, physical health and citizenship. Offered on a satisfactory-fail basis only.

KIN 171: Tae Kwon Do/Karate II

(0-2) Cr. 1. F.S.

Teaches advanced application of self-defense focusing on hand and foot striking and blocking techniques. The physical skills will be taught focused on training through development of courtesy, integrity, perseverance, self-control and indomitable spirit. It will be emphasized that each student learns a way of life that promotes personal development, physical health and citizenship. Offered on a satisfactory-fail basis only.

KIN 173: Hap Ki Do/Martial Self-Defense

(0-2) Cr. 1. F.S.

Teaches fundamentals of self-defense focusing on joint locks, pressure points and throwing techniques to escape from an attacker. The physical skills will be taught focused on training through development of courtesy, integrity, perseverance, self-control and indomitable spirit. It will be emphasized that each student learns a way of life that promotes personal development, physical health & citizenship. Offered on a satisfactory-fail basis only.

KIN 182: Volleyball

(0-2) Cr. 1. F.S.SS.

Introduction to fundamental volleyball skills and strategic game play. Offered on a satisfactory-fail basis only.

KIN 185: Soccer

(0-2) Cr. 1. F.S.SS.

Introduction to fundamental soccer skills and strategic game play. Offered on a satisfactory-fail basis only.

KIN 210: Concepts of Fitness and Wellness

(2-0) Cr. 2. F.S.

Coverage of behavioral skills needed to adopt and maintain lifestyles conducive to fitness and wellness. Provides students with knowledge and skills needed to adopt and maintain healthy lifestyles. Includes self-assessments and content on physical activity, nutrition, weight control, stress management and other lifestyle behaviors related to health. For non-kinesiology majors.

KIN 231: Fundamentals of Tumbling and Gymnastics

(0-3) Cr. 1. F.

Prereq: Eligibility for admission to KIN teacher education program

Fundamentals of tumbling and gymnastics apparatus. Skill enhancement, analysis, understanding practice and the development of progressions.

KIN 232: Fundamentals of Team Sports

(0-3) Cr. 1. F.

Prereq: Eligibility for admission to KIN teacher education program

Fundamentals of indoor and outdoor team sports, for example basketball, volleyball, flag football, and soccer. Skill enhancement, analysis, understanding practice and the development of progressions.

KIN 236: Fundamentals of Individual Sports and Fitness

(0-3) Cr. 1. S.

Prereq: Eligibility for admission to KIN teacher education program

Fundamentals of individual sports and fitness, for example disc golf, bowling, badminton, and weight training. Skill enhancement, analysis, understanding practice and the development of progressions.

KIN 242: Planning for Success in a Health Career

Cr. 0.5. F.S.

Prereq: KIN H major in PHP option with sophomore status or above

Reflection and discovery to better understand skills needed for admission to professional and graduate school. Facilitate preparation of relevant materials and develop professional school admission strategies. Offered on a satisfactory-fail basis only.

KIN 252: Introduction to the Discipline of Kinesiology

(1-0) Cr. 1. F.S.

Relevant societal issues and research within the discipline of Kinesiology (the study of movement) are addressed.

KIN 253: Orientation and Learning Community in Kinesiology and Health

(1-0) Cr. 1. F.S.

Prereq: Concurrent enrollment or credit in KIN 252

Overview of ISU policies and procedures, academic advising operations, degree requirements, program of study planning, and campus resources. Students will have out-of-class activities and work with faculty, staff and mentors to explore careers in Kinesiology and complete assignments related to identification & development of their skills and interests. Department of Kinesiology students only. Offered on a satisfactory-fail basis only.

KIN 258: Principles of Physical Fitness and Conditioning

(1-3) Cr. 2. F.S.

Introduction to five components of fitness: cardiorespiratory, muscular strength, muscular endurance, flexibility, and body composition. Students will be introduced to basic exercise prescription and evaluation principles, develop skills to assess each component of fitness, and learn different exercise modalities to enhance each component. Credit for only one of the following courses may be applied toward graduation: KIN 163, 258.

KIN 259: Leadership Techniques for Fitness Programs

(2-2) Cr. 3. F.S.

Prereq: KIN 258

Development of exercise leadership skills for a variety of activities. Includes planning, promotion, and teaching techniques for developing fitness in others using a variety of exercise modalities including group fitness and weight training. Kinesiology and health majors only.

KIN 266: Advanced Strength Training and Conditioning

(1-2) Cr. 2. F.S.

Prereq: KIN 258

This course is designed to enhance the student's current level of knowledge and expertise to an advanced level in the area of strength training and conditioning. The course will prepare students interested in taking the National Strength and Conditioning Association Certified and Conditioning Specialist's exam. The course will focus on the assessment and implementation of training programs with strong emphasis on the areas of resistance training, metabolic training, flexibility, reaction time, speed, and agility. Kinesiology and health majors only and permission of instructor needed.

KIN 280: Directed Field Experience in Elementary Physical Education

(0-3) Cr. 1. F.S.

Observing, planning, and facilitating movement experiences of children in an elementary school setting. Offered on a satisfactory-fail basis only.

KIN 281: Directed Field Experience in Secondary Physical Education

(0-3) Cr. 1. F.S.

Prereq: Admission to Educator Preparation Program

Observing, planning, and facilitating movement experiences of students in a middle and/or high school setting. Offered on a satisfactory-fail basis only.

KIN 282: Field Experience with Educational Outreach

(0-2) Cr. 1. F.S.

Prereq: Admission to Educator Preparation Program

Planning and facilitating physical education experiences for children in a community outreach setting. Experiences take place on campus. Offered on a satisfactory-fail basis only.

KIN 284: Elementary and Pre-school Movement Education

(2-3) Cr. 3. F.S.

Prereq: 3 credits in human development and family studies

Approaches to teaching movement skills, health-related fitness and school-based physical activities (in the classroom, in PE, during recess) to pre-school and elementary school age children are covered. Emphasis is placed on planning and conducting developmentally appropriate movement experiences for preschool and elementary aged children throughout the school day based upon educational psychology, exercise psychology and motor development research. Practical experience is provided. Credit in only one of the following courses may be applied toward graduation: KIN 284, 312.

KIN 285: Pre-Internship in Kinesiology and Health

(Cross-listed with H S). Cr. 1-2. F.S.

Prereq: Kinesiology and Health major and permission of internship coordinator.

Pre-internship experience with a health organization based on option. Offered on a satisfactory-fail basis only.

KIN 290: Independent Study

Cr. 1. Repeatable, maximum of 3 credits. F.S.

Prereq: 2nd semester freshmen, sophomores and permission from instructor. Study under supervision of faculty.**KIN 312: Movement Education in Elementary School Physical Education**

(2-2) Cr. 3. F.

Prereq: Admission to Educator Preparation Program, KIN 280

Planning for management and instruction of developmentally appropriate physical education for children pre-school through grade six. Laboratory experience required. Credit for only one of KIN 284 or KIN 312 may be applied toward graduation.

KIN 313: Teaching Secondary Physical Education

(2-3) Cr. 3. S.

Prereq: Admission to Educator Preparation Program, KIN 281

Current theory, practice and research on teaching focusing on management, instructional, and learning styles of students in secondary schools.

KIN 315: Coaching Theory and Administrative Issues

(3-0) Cr. 3. F.S.SS.

Study in the theory, ethics, strategy, and mechanics of coaching various interscholastic and/or intercollegiate sports. Emphasis on formulating a philosophy, identifying goals and psychological aspects, teaching skills, and developing strategies.

KIN 345: Management of Health-Fitness Programs and Facilities

(3-0) Cr. 3. F.S.

Application of management concepts to the fitness industry, e.g., understanding customers, marketing, program management, financial management, legal issues, and evaluation and planning.

KIN 355: Biomechanics

(3-0) Cr. 3. F.S.SS.

Prereq: PHYS 111 or PHYS 115

Mechanical basis of human performance; application of mechanical principles to exercise, sport and other physical activities.

KIN 358: Exercise Physiology

(3-0) Cr. 3. F.S.SS.

Prereq: BIOL 255, BIOL 255L, BIOL 256 and BIOL 256L

Physiological basis of human performance; effects of physical activity on body functions.

KIN 359: Exercise Physiology Lab

(0-2) Cr. 1. F.S.SS.

Prereq: Concurrent enrollment in KIN 358

Learning lab techniques in Exercise Physiology and engaging in the experimental process.

KIN 360: Sociology of Physical Activity and Health

(3-0) Cr. 3. F.S.

Prereq: SOC 134

Provide an overview of sociology to enhance students understanding of societal forces influencing behavior; Provide insights about people, environments, organization and policies that impact Kinesiology professionals.

Meets U.S. Diversity Requirement

KIN 363: Basic Electrocardiography

(2-0) Cr. 2. Alt. F., offered even-numbered years.

Understanding of human electrocardiography, including normal and abnormal 12-lead ECGs and arrhythmia identification.

KIN 365: Sport Psychology

(3-0) Cr. 3. F.S.

Prereq: PSYCH 101 or PSYCH 230

Psychological factors that influence performance in sport settings. The influence of personality, anxiety, motivation and social factors. Psychological skills training and strategic methods for improvement of athletic performance.

KIN 366: Exercise Psychology

(3-0) Cr. 3. F.S.SS.

Prereq: PSYCH 101 or PSYCH 230

Psychological theories for understanding and predicting health-oriented exercise behavior. Psychological and psychobiological responses to exercise. Psychological interventions for increasing exercise participation and adherence rates.

KIN 372: Motor Control and Learning Across the Lifespan

(3-0) Cr. 3. F.S.SS.

Prereq: PSYCH 101 or PSYCH 230, BIOL 255, BIOL 256

Introduction to major concepts of neuromotor control, behavioral motor control and motor learning in the child, adult and older adult, with emphasis on the adult system.

KIN 381A: Study Abroad Experience in Kinesiology: Preparing for the Experience

Cr. 1. Alt. S., offered even-numbered years.

Prereq: Undergraduate student majoring in either Kinesiology and Health or Athletic Training, sophomore status or higher, minimum GPA of 2.5 and having completed KIN 252 and 258 by the end of the current spring semester.

Prepares student for a study abroad experience focused on the discipline of Kinesiology in another country. Precedes a multi-credit KIN 381B course that is the actual study abroad experience. The prerequisite for this course is having been accepted to study abroad by the Program Director of your intended program. Offered on a satisfactory-fail basis only.

Meets International Perspectives Requirement.

KIN 381B: Study Abroad Experience In Kinesiology

Cr. 2. Alt. SS., offered even-numbered years.

Prereq: Having been accepted to study abroad by the Program Director and passing the relevant KIN 381A.

First-person perspective into the discipline of Kinesiology in another country as well as provide enrichment experiences related to the history and culture of that country. Follows a 1 credit KIN 381A course that was intended to prepare you for this study abroad experience. Offered on a satisfactory-fail basis only.

Meets International Perspectives Requirement.

KIN 385: Preparation and Search Strategies for Kinesiology and Health Internships

(Cross-listed with H S). Cr. 0.5. F.S.

Prereq: Junior classification; to be taken minimum of two semesters prior to required internship.

Preparation of relevant material for a successful internship/career search. Specific internship timeline, process, procedures will be reviewed.

KIN 391: Service Learning Leadership Experience

Cr. 1-3. Repeatable, maximum of 6 credits. F.S.

Applied service learning experiences designed to provide students with opportunities to apply classroom knowledge to real world applications. Students will gain professional skills and programming experience while supporting health, education and wellness programming in school, work site or community settings. Offered on a satisfactory-fail basis only.

KIN 395: Adapted Physical Education

(Dual-listed with KIN 595). (2-2) Cr. 3. F.

Prereq: Admission to Educator Preparation Program, KIN 280/281

Etiology, characteristics, needs, and movement experiences for individuals with disabilities. Designed to provide appropriate methods of physical education instruction for students including those with disabilities as identified by the Individuals with Disabilities Education Act and students who are talented and gifted. Assessments and strategies to differentiate instruction and to adapt activities for all exceptional learners will be addressed. Laboratory experience required. KIN 595 may not be taken by students who previously earned credit in KIN 395.

KIN 399: Recreational Sport Management

(3-0) Cr. 3. F.

Prereq: SOC 134

The role of sport in developing fitness, recreational opportunities, and tourism, with special emphasis on issues related to youth sport, volunteerism, and the marketing of sport events and facilities.

KIN 417: Supervised Teaching in Physical Education in the Secondary School

Cr. arr. F.S.

Prereq: KIN 281, KIN 282, KIN 313, KIN 355, KIN 395, KIN 471, KIN 475; admission to Teacher Education; approval before enrolling in the course.
Supervised teaching in the secondary schools.

KIN 418: Supervised Teaching in Physical Education in the Elementary School

Cr. 8. F.S.

Prereq: KIN 280, KIN 282, KIN 312, KIN 355, KIN 395, KIN 471, KIN 475.
Students must be fully admitted to Teacher Education and must apply for approval to enroll at the beginning of the semester prior to registering
Supervised teaching in the elementary schools.

KIN 455: Research Topics in Biomechanics

(3-0) Cr. 3.

Prereq: KIN 355 or permission of instructor

Examination of biomechanics and kinesiology research literature to evaluate the application of mechanical principles and analyses to human movement in exercise, sport, physical activity, and activities of daily living and to assess research outcomes and their implications for motor performance, movement energetic, musculoskeletal loading, and injury.

KIN 458: Principles of Fitness Assessment and Exercise Prescription

(3-2) Cr. 4. F.S.

Prereq: KIN 258, KIN 358 (minimum C-)

Principles of cardiac risk factor identification and modification; risk classification of potential exercise clients; fitness assessments; developing comprehensive exercise prescriptions for individuals.

KIN 459: Internship in Exercise Leadership

(0-3) Cr. 1. F.S.

Prereq: C- or better in KIN 259, CPR certification, concurrent enrollment in KIN 458

Observation and practice of exercise leadership techniques in an on-campus adult fitness program.

KIN 462: Medical Aspects of Exercise

(3-0) Cr. 3. F.S.

Prereq: KIN 358 (minimum C-)

The role of exercise in preventive medicine. Impact of exercise on various diseases, and the effect of various medical conditions on the ability to participate in vigorous exercise and competitive sports. Principles of exercise testing and prescription for individuals with these conditions. Environmental and nutritional aspects of exercise.

KIN 466: Exercise for Mental Health

(3-0) Cr. 3. S.

Prereq: KIN 366, or senior status in Psychology, or Instructor permission

Understand the state-of-the-knowledge of the mental health benefits of physical activity both in the prevention and in the treatment of clinical mental health and other psychological conditions. Focus on both the neurobiological bases of mental health disorders and the effects of exercise on these factors. Practical approach to encouraging changes in physical activity across populations suffering from psychological disturbances as part of treatment.

KIN 467: Exercise and Health: Behavior Change

(Dual-listed with KIN 567). (3-0) Cr. 3. F.S.

Prereq: Introductory course with emphasis on exercise psychology (i.e., KIN 366 or equivalent)

Advanced analysis of theoretical health behavior models and their application to physical activity behavior. Includes practical techniques, tools and interventions (e.g., counseling skills, motivational interviewing) to enhance exercise prescription and motivation, and considerations for working with special populations.

KIN 471: Measurement in Physical Education

(Dual-listed with KIN 571). (3-0) Cr. 3. S.

Prereq: Admission to Educator Preparation Program, KIN 280 and KIN 281
Current theory, practice and research on measurement and evaluation in physical education and youth physical activity settings. Statistics, grading, and specific assessments including fitness, motor skill, sport skill, physical activity, affective, and cognitive testing will be addressed. KIN 571 may not be taken by students who previously earned credit in KIN 471.

KIN 472: Neural Basis of Human Movement

(Dual-listed with KIN 572). (3-0) Cr. 3. F.S.

Prereq: KIN 372 or PSYCH 310

Addresses the role of the central nervous system in the control of voluntary human movement, with the focus on the cerebral cortex, basal ganglia and cerebellum. Content organized around specific nervous system damage (such as stroke, apraxia, spasticity, or spinal cord damage) and functional movements (such as reaching and grasping, balance and gait). Converging evidence from human movement disorders, brain imaging, animal lesion and single cell studies provide the primary basis for the content.

KIN 473: Physical Dimensions of Aging

Cr. 3. S.

Prereq: KIN 355 or KIN 358 or KIN 372

Understanding the physiological, behavioral, and cognitive changes associated with aging with focus on the effects of physical activity on the aging human system. Discussions of what it means to become older, what a person can expect during the aging process, and what kind of control a person has over the aging process.

KIN 475: Physical Education Curriculum Design and Program Organization

(Dual-listed with KIN 575). (3-0) Cr. 3. F.

Prereq: Admission to Educator Preparation Program, KIN 280 and 281

Current theory, practices and principles applied to curriculum development for programs in physical education, K-12. Organizing for teaching in a variety of school settings.

KIN 480: Functional Anatomy

(3-0) Cr. 3. F.S.

Prereq: KIN 355; BIOL 155 or BIOL 255 and BIOL 256

The structure and function of human muscular, skeletal and nervous systems. The relationship of these systems to efficient and safe human motion.

KIN 481: Biomechanics Lab

(0-2) Cr. 1.

Prereq: KIN 355

Learning lab techniques in Biomechanics and engaging in the experimental process.

KIN 483: Exercise Psychology Lab

(0-2) Cr. 1.

Prereq: KIN 366

Learning lab techniques in Exercise Psychology and engaging in the experimental process.

KIN 484: Assessment and Control of Locomotion

(0-2) Cr. 1.

Prereq: KIN 372

Learning lab techniques in Motor Control and engaging in the experimental process.

KIN 485: Internship in Kinesiology

Cr. 8-12.

Prereq: Senior classification and advance registration.

Observation and practice in exercise/fitness agencies. Offered on a satisfactory-fail basis only.

KIN 485A: Internship in Exercise Science

Cr. 8-12. F.S.SS.

Prereq: All required courses and C- or better in KIN 355, KIN 358, KIN 359, KIN 366, KIN 372, KIN 458, KIN 459, KIN 462 and H S 350, Kinesiology and Health majors only. Cumulative GPA 2.0.

Observation and practice in selected exercise science agencies. Offered on a satisfactory-fail basis only.

KIN 485G: Internship in Kinesiology: General

Cr. 8-12.

Prereq: Senior classification and advance registration.

Observation and practice in exercise/fitness agencies. Offered on a satisfactory-fail basis only.

KIN 490: Independent Study

Cr. 1-3. Repeatable, maximum of 6 credits.

Prereq: 6 credits from KIN advanced core and permission of coordinator

Independent study of problems of areas of interest in exercise and sport science and related areas.

KIN 490A: Independent Study: Exercise and Sport Science

Cr. 1-3. Repeatable, maximum of 6 credits.

Prereq: 6 credits from KIN advanced core and permission of coordinator

Independent study of problems of areas of interest in exercise and sport science and related areas.

KIN 490H: Independent Study: Honors

Cr. 1-2. Repeatable, maximum of 4 credits.

Prereq: 6 credits from KIN advanced core and permission of coordinator

Independent study of problems of areas of interest in exercise and sport science and related areas.

KIN 494: Practicum in Motivational Interviewing for Health

Cr. 1-2. Repeatable, maximum of 6 credits. F.S.

Prereq: Junior/Senior status and permission of instructor

This supervised practicum course is designed for students interested in learning how to conduct 'motivational interviewing' for behavior change and health coaching applications. Students will learn strategies of motivational interviewing and have opportunities to practice applying these skills with adult clients. Offered on a satisfactory-fail basis only.

KIN 494A: Practicum in Motivational Interviewing for Health: Principles of Motivational Interviewing

Cr. 1. F.S.SS.

Prereq: Junior/Senior status and permission of instructor

Introduction to the principles of 'motivational interviewing' for behavior change and health coaching applications. Students interested in gaining practical experience in health coaching should enroll in the associated practicum course (KIN 494B). Offered on a satisfactory-fail basis only.

KIN 494B: Practicum in Motivational Interviewing for Health: Supervised Experience

Cr. 1-2. Repeatable, maximum of 5 credits. F.S.

Prereq: KIN 494A Permission of Instructor

This supervised practicum course is designed for students interested in gaining experience in applying 'motivational interviewing' strategies in behavior change and health coaching applications. Students will have opportunities to practice motivational interviewing skills with adult clients and receive on-going support and assistance needed to refine their skills. Offered on a satisfactory-fail basis only.

KIN 495: Special Topics in Kinesiology

Cr. 1-3.

Prereq: Junior or Senior classification

Offered on a satisfactory-fail basis only.

Courses primarily for graduate students, open to qualified undergraduates:**KIN 501: Research Methods in Physical Activity**

(3-0) Cr. 3. Repeatable.

Prereq: Graduate classification in kinesiology and health

Methods and techniques used in the design and interpretation of research involving physical activity. Emphasis on styles of writing, library use, and computer applications.

KIN 505: Research Laboratory Techniques in Exercise Physiology (0-4) Cr. 2.

Prereq: KIN 358 or equivalent course with basic laboratory experience

Application and use of laboratory research equipment in exercise physiology, including operation, calibration, and use in selected situations.

KIN 510: Advanced Medical Aspects of Exercise

(2-0) Cr. 2.

Prereq: KIN 358

The role of exercise in preventive medicine. Impact of exercise on various diseases, and the effect of various medical conditions on the ability to participate in vigorous exercise and competitive sports. Principles of exercise testing and prescription for individuals with these conditions.

KIN 511: Physical Activity Strategies for Youth

Cr. 3.

Provide adequate opportunities to develop a more in-depth understanding of (a) the challenges in youth physical activity (PA), (b) the relevant theoretical models that are popular in youth PA, (c) the strategies that can be implemented to promote PA in youth.

KIN 512: Movement Education in Elementary School Physical Education

(2-2) Cr. 3. F.

Planning for management and instruction of developmentally appropriate physical education for children pre-school through grade six. Laboratory experience required. Emphasis on evaluating published research on physical education and school-wide physical activity.

KIN 515: Injury Biomechanics

(3-0) Cr. 3. Alt. F., offered odd-numbered years.

Prereq: Kin 355 or permission of instructor.

Utilization of biomechanical principles to model injury mechanisms. Introduction to tissue mechanics of bone, articular cartilage, ligament, tendon, muscle, and nerve. Biomechanics of lower extremity, upper extremity, and head/neck/trunk injuries.

KIN 516: Quantitative Analysis of Human Movement

(3-1) Cr. 3.

Prereq: KIN 355

Application of the principles of mechanics to the analysis of human motion. Investigation of the effects of kinematics and kinetics on the human body with special emphasis on exercise and sport applications. Includes consideration of two-dimensional and three-dimensional imaging techniques and force measurements.

KIN 517: Musculoskeletal Modeling

(3-0) Cr. 3. Alt. F., offered even-numbered years.

Prereq: KIN 355 or permission from instructor

Systematic problem-solving approaches and design of computer programs for biomechanical analyses. Estimation of anthropometric parameters and mechanical properties of muscles, bones, and joints. Integration of anthropometrics, kinematics, EMG, and muscle mechanics into simulations of human movement.

KIN 518: Student Teaching in Elementary Physical Education

(0-8) Cr. 8. F.S.

Prereq: KIN 512, KIN 570, KIN 575

Student teaching for 8 weeks in an elementary school.

KIN 519: Student Teaching in Secondary Physical Education

(0-8) Cr. 8. F.S.

Prereq: KIN 512, KIN 570, KIN 575

Student teaching for 8 weeks in a middle or high school.

KIN 521: Advanced Topics in Exercise and Sport Psychology

(3-0) Cr. 3.

Prereq: KIN 365 or KIN 366, 3 courses in psychology; open to majors only or by permission of instructor

Aspects of psychology which form a basis for understanding and explaining behavior in the context of exercise and sport. Emphasis on evaluating published research, particularly theory and research methodology. Student presentations.

KIN 549: Advanced Vertebrate Physiology I

(Cross-listed with AN S, NUTRS). (4-0) Cr. 4. F.

Prereq: recommended: an undergraduate physiology course and a biochemistry course

Overview of mammalian physiology. Cell biology, endocrinology, cardiovascular, respiratory, immune, digestive, skeletal muscle and reproductive systems.

KIN 550: Advanced Physiology of Exercise I

(2-3) Cr. 3.

Prereq: KIN 505

Analysis of factors affecting work capacity and performance. Concepts and measurement of human energy metabolism and bioenergetic adaptations to training.

KIN 551: Advanced Physiology of Exercise II

(2-3) Cr. 3.

Prereq: KIN 505

Analysis of factors affecting cardiovascular and respiratory function in response to multiple stressors including exercise. Influence of environment will also be discussed.

KIN 560: Principles of Neuromotor Control and Learning

(2-3) Cr. 3.

Prereq: KIN 372

Theoretical perspectives of neuromotor control and learning will be examined as well as factors that facilitate motor learning. Neuromotor control and learning will also be addressed by studying functional tasks such as reach-to-grasp and locomotion.

KIN 561: Motor Development and Physical Activity

(2-0) Cr. 2-3.

Prereq: PSYCH 230

Addresses theories and underlying mechanisms of motor development and motor control applied to typically and atypically developing children. Developmental control of balance, locomotion, reach-to-grasp, and other functional skills will be discussed, as will the role of physical activity in a child's life.

KIN 567: Exercise and Health: Behavior Change

(Dual-listed with KIN 467). (3-0) Cr. 3. F.S.

Prereq: Introductory course with emphasis on exercise psychology (i.e., KIN 366 or equivalent)

Advanced analysis of theoretical health behavior models and their application to physical activity behavior. Includes practical techniques, tools and interventions (e.g., counseling skills, motivational interviewing) to enhance exercise prescription and motivation, and considerations for working with special populations.

KIN 570: Physical Activity Assessment for Health Related Research

(2-2) Cr. 3.

This course will cover the broad scope of research in physical activity and public health. Emphasis will be placed on the application of physical activity assessment techniques since accurate measures are needed to more accurately assess the health benefits from physical activity and to evaluate the effectiveness of behavioral interventions designed to promote physical activity.

KIN 571: Measurement in Physical Education

(Dual-listed with KIN 471). (3-0) Cr. 3. S.

Prereq: Admission to Educator Preparation Program, KIN 280 and KIN 281
Current theory, practice and research on measurement and evaluation in physical education and youth physical activity settings. Statistics, grading, and specific assessments including fitness, motor skill, sport skill, physical activity, affective, and cognitive testing will be addressed. KIN 571 may not be taken by students who previously earned credit in KIN 471.

KIN 572: Neural Basis of Human Movement

(Dual-listed with KIN 472). (3-0) Cr. 3. F.S.

Prereq: KIN 372 or PSYCH 310

Addresses the role of the central nervous system in the control of voluntary human movement, with the focus on the cerebral cortex, basal ganglia and cerebellum. Content organized around specific nervous system damage (such as stroke, apraxia, spasticity, or spinal cord damage) and functional movements (such as reaching and grasping, balance and gait). Converging evidence from human movement disorders, brain imaging, animal lesion and single cell studies provide the primary basis for the content.

KIN 575: Physical Education Curriculum Design and Program**Organization**

(Dual-listed with KIN 475). (3-0) Cr. 3. F.

Prereq: Admission to Educator Preparation Program, KIN 280 and 281

Current theory, practices and principles applied to curriculum development for programs in physical education, K-12. Organizing for teaching in a variety of school settings.

KIN 590: Special Topics

Cr. 1-3. Repeatable.

KIN 590A: Special Topics: Physical Education

Cr. 1-3. Repeatable.

KIN 590B: Special Topics: Health and Exercise Promotion

Cr. 1-3. Repeatable.

KIN 590D: Special Topics: Exercise Physiology

Cr. 1-3. Repeatable.

KIN 590E: Special Topics: Sport Sociology

Cr. 1-3. Repeatable.

KIN 590F: Special Topics: Sport/Exercise Psychology

Cr. 1-3. Repeatable.

KIN 590G: Special Topics: Motor Behavior

Cr. 1-3. Repeatable.

KIN 590H: Special Topics: Biomechanics

Cr. 1-3. Repeatable.

KIN 590I: Special Topics: Research Ethics

Cr. 1-3. Repeatable.

KIN 591: Supervised Field Experience

Cr. 1-6.

Prereq: 10 graduate credits in kinesiology and/or related areas

Supervised on-the-job field experience in special areas.

KIN 591A: Supervised Field Experience: Physical Education

Cr. 1-6.

Prereq: 10 graduate credits in kinesiology and/or related areas

Supervised on-the-job field experience in special areas.

KIN 591B: Supervised Field Experience: Health and Exercise Promotion

Cr. 1-6.

Prereq: 10 graduate credits in kinesiology and/or related areas

Supervised on-the-job field experience in special areas.

KIN 591D: Supervised Field Experience: Exercise Physiology

Cr. 1-6.

Prereq: 10 graduate credits in kinesiology and/or related areas

Supervised on-the-job field experience in special areas.

KIN 592: Practicum in College Teaching

Cr. 1-3. Repeatable, maximum of 3 credits. F.S.SS.

Supervised experience with teaching an upper division, classroom-based course. Offered on a satisfactory-fail basis only.

KIN 595: Adapted Physical Education

(Dual-listed with KIN 395). (2-2) Cr. 3. F.

Prereq: Admission to Educator Preparation Program, KIN 280/281

Etiology, characteristics, needs, and movement experiences for individuals with disabilities. Designed to provide appropriate methods of physical education instruction for students including those with disabilities as identified by the Individuals with Disabilities Education Act and students who are talented and gifted. Assessments and strategies to differentiate instruction and to adapt activities for all exceptional learners will be addressed. Laboratory experience required. KIN 595 may not be taken by students who previously earned credit in KIN 395.

KIN 599: Creative Component

Cr. 1-3. Repeatable.

Courses for graduate students:**KIN 615: Seminar**

Cr. 1-3. Repeatable.

KIN 620: Advance Research Methods in Physical Activity

(3-0) Cr. 3. S.

Prereq: KIN 501, STAT 402 and STAT 587. Doctoral students only

Culminating seminar designed to synthesize statistical and design courses with practical research issues using data from physical activity.

KIN 661: Advanced Topics in Neuroscience

(Cross-listed with BBMB, GDCB, NEURO). (3-0) Cr. 3. Repeatable. Alt. S., offered even-numbered years.

Prereq: NEURO 556 (or comparable course) or permission of instructor

Students will present three journal articles and two overview lectures on topics in neuroscience that are related but outside of their own research interest.

KIN 670: Molecular Biology of Muscle

(Cross-listed with AN S). (3-0) Cr. 3. Alt. S., offered odd-numbered years.

Prereq: BBMB 405, BBMB 420

Ultrastructure of muscle; chemistry, structure, function, and molecular biology of muscle proteins. Molecular aspects of muscle contraction, development and turnover. Cytoskeletal proteins and dynamics.

KIN 699: Research

Cr. 1-6. Repeatable.