

## Kinesiology

PROFESSOR **Kambis** (Chair). PROFESSORS **J. Charles, De-schenes**, ASSOCIATE PROFESSORS **Hall, Kohl**, and **McCoy**. ASSISTANT PROFESSORS **Harris, Jackson**, and **Looft-Wilson**. INSTRUCTORS **K. Charles, Drake** and **Whitley**.

### Requirements for Major

Kinesiology, the study of human movement, prepares students for a wide variety of academic and professional pursuits. Students may choose to receive a Bachelor of Science (B.S.) degree or a Bachelor of Arts (B.A.) degree when completing the Kinesiology major.

The program of study leading to the B.S. degree examines the science of human movement. Kinesiology graduates with a B.S. degree enter a variety of careers and graduate programs including medical school, physician assistant, physical and occupational therapy, speech therapy, nurse practitioner, athletic training, other allied health professions, and sport and exercise related fields.

**Required Credit Hours:** 34

**Major Computing Requirement:** KINE 308 or KINE 394

**Major Writing Requirement:** The major writing requirement in Kinesiology may be satisfied by obtaining a C- or better in KINE 393, 470, 471, 480, 481, 493,, 495 or 496.

**Core Requirements:** Candidates for the B.S. degree in kinesiology must complete three additional courses in computer science, mathematics, biology, chemistry, geology, or physics. This is in addition to satisfying GER 1 and 2. KINE 303 and KINE 304 count toward these three courses.

Students receiving a B.S. degree must pass the following required courses:

KINE 303 Human Anatomy  
KINE 304 Human Physiology  
KINE 394 Statistics and Evaluation (GER1)  
One major writing course

Students receiving a B.S. degree must also pass two of the following courses:

KINE 308 Biomechanics of Human Movement  
KINE 320 Issues in Health  
KINE 322 Motor Learning  
KINE 350 Science of Nutrition (GER 2B)  
KINE 360 Physiology of Aging  
KINE 370 Exercise Psychology  
KINE 442 Exercise Physiology  
KINE 450 Cardiovascular Physiology  
KINE 455 Physiology of Obesity  
KINE 485 Cellular and Biochemical Effects of Exercise  
KINE 494 Environmental Human Physiology

The B.A. in Kinesiology provides the students both breadth and depth of training as well as a variety of liberal arts approaches to the study of human movement while allowing maximum flexibility in the development of programs consistent with the interests and future graduate school and career needs of individual students.

Students receiving a B.A. degree must pass the following required courses:

Computer requirement course  
One major writing course

Students receiving a B.A. degree must also pass three of the following courses:

KINE 303 Human Anatomy  
KINE 304 Human Physiology  
KINE 308 Biomechanics of Human Movement  
KINE 322 Motor Learning  
KINE 350 Science of Nutrition (GER2B)

KINE 400 Sport Psychology (GER3)  
KINE 442 Exercise Physiology  
KINE 493 Philosophy of Kinesiology (GER7)

### Core Courses in Kinesiology

150 Freshman Seminar  
204 Introduction to Kinesiology  
295 Scientific Principles of Exercise Prescription  
303 Human Anatomy  
314 Dissection Human Anatomy Lab  
315 Human Anatomy Laboratory  
304 Human Physiology (GER 2B)  
305 Human Physiology Lab  
308 Biomechanics of Human Movement  
310 Adapted Physical Activity  
320 Issues in Health  
321 Health and Human Movement  
322 Motor Learning  
335 Play, Sport and Culture  
340 Motor Development (GER 3)  
350 Science of Nutrition (GER 2B)  
355 Sport and Gender  
360 Physiology of Aging  
365 Current Scholarship in Kinesiology  
370 Exercise Psychology  
380 Introduction to Clinical Practice  
393 Health Ethics (GER 7)  
394 Statistics and Evaluation (GER 1)  
400 Sport Psychology (GER 3)  
410 Exercise in Public Health  
420 Mechanics of Human Locomotion  
422 Motor Control  
442 Exercise Physiology  
450 Cardiovascular Physiology  
455 Physiology of Obesity  
460 Topics in Kinesiology  
470/471 Independent Study in Kinesiology  
480/481 Kinesiology Research  
482 Research Methods, Design and Implementation  
485 Cellular and Biochemical Effects of Exercise  
493 Philosophy in Kinesiology (GER 7)  
494 Environmental Human Physiology  
495,496 Honors  
498 Internship

### Requirements for the Minor

**Required Credit Hours:** 21

**Core Requirements:** All Kinesiology minors must pass the following required courses:

KINE 303 Human Anatomy  
KINE 304 Human Physiology

### Activity Classes

#### 104. Yoga.

*Fall and Spring (1,1) Staff.*

This course is designed as an introduction to “Iyengar yoga.” We focus on developing strength, flexibility, and awareness through practicing postures and breath awareness (adaptable to all somatotypes and disabilities).

#### 105. Judo.

*Fall and Spring (1,1) Staff.*

This course enables the student the opportunity to learn judo principles and be introduced to Olympic sport judo.

#### 106. Tai Chi.

*Fall and Spring (1,1) Staff.*

Tai chi is a centuries-old Chinese discipline. It emphasizes an awareness of the interdependence of mind and body while enhancing health, self-cultivation and inner calm.

**122. SCUBA.**

*Fall and Spring (1,1) Staff.*

This course is designed as an introduction to scuba diving. By completing all requirements the student will be ready to undertake the open water training dives to achieve certification.

**130. Adventure Games.**

*Fall and Spring (1,1) Staff.*

This class provides a challenging experience through “new games,” ropes and initiatives course, climbing, rappelling, prussiking and aerobic games. Emphasis is placed on group cooperation and a willingness to try.

**132. Aerobic Exercise to Music.**

*Fall and Spring (1,1) Staff.*

This course is designed to introduce the beginner to basic aerobic dance steps and combinations while improving cardiovascular fitness. A variety of aerobic type activities will be incorporated in the class.

**133. Backpacking.**

*Fall and Spring (1,1) Staff.*

This class is designed to teach the basic knowledge and skills necessary to backpack in a temperate mountain zone. This includes route finding, map reading, trail negotiation, trip preparation, food selection and preparation, tents, packing and safety. A weekend trip concludes the experience.

**139. Flat Water Canoeing.**

*Fall (1) Staff.*

Introduces beginners to the spectrum of tandem flatwater canoeing. Content includes paddling strokes, lake maneuvers, portaging, navigation, rescue, proper equipment choice and a survey on the spectrum of canoe sport.

**140. White Water Canoeing.**

*Fall and Spring (1,1) Staff.*

This course is designed to introduce students to tandem canoeing on Class I-II white water. This class culminates with a one day white water paddling trip.

**141. White Water II.**

*Fall and Spring (1,1) Staff. Prerequisite: KINE 140 or KINE 154 or consent of instructor.*

An intermediate level course open to canoes and kayaks. The emphasis is more advanced level strokes and maneuvers and refinement of rescue and self-rescue skills appropriate for lower intermediate whitewater.

**153. Self Defense.**

*Fall and Spring (1,1) Staff.*

This course enables the student the opportunity to defend themselves in various threatening situations. Students will learn a global and unique approach to self-defense through judo techniques.

**154. Kayaking.**

*Fall and Spring (1,1) Staff.*

Prepares beginners to kayak on Class II whitewater. Material covers safety practices, strokes, lake and river maneuvers, river reading, self-rescue including the Eskimo roll and proper equipment. Field experience planned.

**164. Rock Climbing I.**

*Fall and Spring (1,1) Staff.*

This beginning course introduces students to basic rock climbing, belaying and rappelling techniques. Skills include climbing, belaying, rappelling, knot tying, anchor systems, self-rescue, equipment selection and care, terminology, and communications.

**165. Rock Climbing II.**

*Fall and Spring (1,1) Staff.*

An intermediate level class that increases depth and breadth of climbing, belaying and rappelling skills, including rescue, mental and physical conditioning, movement techniques, and an understanding of lead climbing practices.

**170. Tennis I.**

*Fall and Spring (1,1) Staff.*

This course is designed to teach students the basic skills, rules, and etiquette of beginning tennis. Emphasis will be placed on fundamental skills and applying rules and etiquette in game situations.

**171. Tennis II.**

*Fall and Spring (1,1) Staff.*

Advanced beginner skilled class, emphasizing fundamental skills in serves, volleys, overheads, ground strokes and top spin. Introduction to doubles strategies.

**172. Tennis III.**

*Fall and Spring (1,1) Staff.*

Class designed for intermediate skill and prior instruction. Extensive play in singles and doubles, introducing competitive drills and review of basic skills.

**175. Weight Training.**

*Fall and Spring (1,1) Staff.*

This course is designed to provide the beginning weight trainer with the information and skills necessary to establish and work toward goals in the areas of muscular strength, size, endurance, and/or toning.

**177. Winter Camping.**

*Fall and Spring (1,1) Staff.*

This class introduces the beginner to the exciting activities of the winter environment during a week long trip during spring break. Skills include cross country skiing, snow shoeing, skating, sledding, mountaineering, snow shelters, star gazing, and safety. Students spend two nights outside, otherwise accommodations are provided in an outdoor education center.

**196. Topics in Physical Activity:****Fitness Leadership.**

*Fall and Spring (1,1) K. Charles. Prerequisite: Consent of instructor.*

This course is designed to give those students with previous experience in a particular fitness activity an opportunity to work under the supervision of a professional fitness educator as a teaching assistant.

**Outdoor Leadership.**

*Fall and Spring (1,1) Drake, Whitley. Prerequisite: Consent of instructor.*

This course is designed to give those students with previous experience in a particular outdoor activity an opportunity to work under the supervision of a professional outdoor educator as a teaching assistant.

**Pilates.**

*Fall and Spring (1,1) K. Charles.*

This fitness course covers Pilates mat work.

**Ski/Snowboard Maine.**

*Fall (1) Whitley.*

This course involves is an 8-10 day trip to a Maine ski resort during the winter break. Instruction will be given in both skiing and snowboarding. There is a fee associated with this course.

**Ropes Facilitation I.**

*Fall and Spring (1,1) Drake. Corequisite: Ropes facilitation II.*

This course is designed to prepare students to work as ropes course facilitators. It will provide activities, games, strategies, and techniques that will enable a facilitator to assist groups in achieving their goals on a ropes and initiatives course.

**Ropes Facilitation II.**

*Fall and Spring (1,1) Drake. Corequisite: Ropes facilitation I.*

This course is designed to prepare students to work as ropes course facilitators. It will provide activities, games, strategies, and techniques that will enable a facilitator to assist groups in achieving their goals on a ropes and initiatives course.

**Academic Classes****150,150W. Freshman Seminar.**

*Fall and Spring (3-4,3-4) Staff.*

An intensive exploration of a specific topic in kinesiology through reading, writing and discussion.

**204. Introduction to Kinesiology.**

*Fall and Spring (3) Staff.*

An introduction to the study of human movement with emphasis upon historical, philosophical, socio-cultural, physiological, biomechanical and psychological aspects. This course provides an integrated set of general principles which are an appropriate preparation for further study in kinesiology.

**275W. University Seminar.**

*Fall and Spring (4) Staff.*

A reading-, writing-, and discussion-intensive seminar. Topics vary by semester and by instructor. Restricted to transfer students and co-enrolled students. Students receiving a grade of "C-" or better in the seminar will have satisfied the lower-division writing requirement. This course does not fulfill the Freshman Seminar requirement.

**295. Scientific Principles of Exercise Prescription.**

*Fall (3) Staff.*

This course addresses the scientific basis of designing exercise programs for healthy individuals. Principles of overload, progression, and specificity are covered as well as intensity, frequency, duration, and mode. Various methods of training (endurance, interval, resistance, cross-training) are featured.

**303. Human Anatomy.**

*Fall, Spring and Summer (3,3,3) McCoy.*

Gross and histological study of the human organism with particular emphasis on the neuro-muscular systems as related to human movement. Not open to freshmen.

**304. Human Physiology.**

*(GER 2B) Spring (3) Deschenes.*

Detailed study of the manner in which different organ systems of the human body function.

**305. Human Physiology Lab.**

*(Lab) Spring (1) Looft-Wilson. Corequisite or prerequisite: KINE 304.*

Experiments and demonstrations illustrating nerve and muscle function, sensory physiology, reflex activities, heart function and blood pressure and renal responses to fluid intake. Two laboratory hours.

**308. Biomechanics of Human Movement.**

*Spring (3) McCoy. Prerequisite: KINE 303. Corequisite: KINE 308L.*

A study of the mechanical principles of the human body during movement. Two class hours, two laboratory hours.

**314. Dissection Human Anatomy Lab.**

*Fall, Spring and Summer (1,1,1) McCoy. Corequisite or prerequisite: KINE 303.*

Examination of the human body through detailed cadaver dissection. Emphasis is placed on the skeletal, muscular, nervous, cardiovascular, and respiratory systems of the body. Four laboratory hours. There is a fee associated with this class

**315. Human Anatomy Lab.**

*Fall, Spring and Summer (1,1,1) McCoy. Corequisite or prerequisite: KINE 303.*

Examination of the human body through detailed cadaver examination. Emphasis is placed on the skeletal, muscular, nervous, cardiovascular, and respiratory systems of the body. Two laboratory hours. There is a fee associated with this class

**320. Issues in Health.**

*Spring (3) Staff.*

Contemporary issues in health are examined. These issues include immunity and AIDS; cancer and genetics; cardiovascular health and assisted suicides and abortion.

**321. Health and Human Movement.**

*Fall (3) Staff.*

A survey of several contemporary topics in health including but not limited to mental/emotional health, cardiovascular health, human sexuality, nutrition, psychoactive drugs, alcohol and ethical issues.

**322. Motor Learning.**

*Fall and Spring (3,3) Kohl.*

An introduction to the principles and concepts of learning basic to the acquisition and performance of physical skills. Factors and conditions affecting skill learning will be stressed. Emphasis will be placed on practical applications in instructional setting.

**335. Play, Sport and Culture.**

*Summer (3) J. Charles.*

An interdisciplinary examination of the significance of play, sport and other forms of human movement as socio-cultural phenomena. The course incorporates cross cultural analysis of play as an acculturation process and sport as an established institution. (Cross listed with SOCL 360.)

**340. Motor Development.**

*(GER 3) Summer (3) Kohl.*

This course is designed to examine the growth and development of motor skills throughout the entire life span, and to investigate the changes in motor development from childhood and adolescence through older adulthood.

**345. Laboratory Assessment Techniques.**

*Fall and Spring (1,1) Gerdes.*

Principles and techniques of assessing physiological parameters. Students will serve as assistants in wellness laboratories. Consent of instructor required.

**350. Science of Nutrition.**

*(GER2B) Fall, Spring and Summer (3,3,3) Kambis.*

An introductory course beginning with the anatomy and physiology of the gastrointestinal system. Individual nutrients will be discussed and there will be an in depth treatment of life cycle nutrition issues.

**355. Sport and Gender.**

*Spring (3) Hall.*

A study of women's involvement in sport, the meaning of this participation and the social ramifications of women's inclusion and exclusion from sport.

**360. Physiology of Aging.**

*Spring (3) Looft-Wilson. Corequisite: KINE 304 or consent of Instructor.*

An introduction to the theories of aging, the physiological changes associated with aging, and common diseases of aging. Class discussion involves a survey of the basic scientific literature in aging research.

**365. Current Scholarship in Kinesiology.**

*Fall and Spring (1,1) Staff.*

Issues will be studied in conjunction with attendance at a regional or national professional meeting. Graded pass/fail.

This class may be repeated for credit. Consent of instructor required.

### 370. Exercise Psychology.

*Fall (3) Jackson.*

This course addresses physical activity and exercise as they relate to psychological health issues. Factors related to physical activity and exercise participation, intervention planning and adherence also are addressed. The course is taught with an emphasis on application of concepts and the critical analysis of scientific research.

### 380. Introduction to Clinical Practice.

*Fall, Spring (3,3) Connell.*

This course addresses principles of contemporary health care. Students are introduced to concepts in quality practice and economic issues affecting current health care delivery.

### 393. Health Ethics.

*(GER7) Spring (3) J. Charles.*

An introduction to health-related ethical problems and the nature of ethical reasoning. Emphasis upon ethical problem-solving in personal, public, and environmental health for Kinesiology and Environmental Science/Studies majors.

### 394. Statistics and Evaluation.

*(GER 1) Fall (3) Deschenes. Prerequisite: KINE 204 or KINE 304.*

An introduction to the use of statistics within the process of evaluation. Descriptive and inferential statistical procedures including confidence intervals, correlation, t-tests, and analysis of variance are covered. Proper application of those procedures during the evaluation of data is emphasized.

### 400. Sport Psychology.

*(GER 3) Spring (3) Hall.*

This course is designed as an introduction to the study of psychological dimensions to sport. Various topics which will be included: behavior change in sport, motivation, personality factors and the elite athlete. Structure of the course also allows the student to investigate topics of individual interest.

### 410. Exercise in Public Health.

*Fall (3) Jackson.*

This course examines physical activity and health from an epidemiological perspective. It addresses rates of physical activity participation and the burden of prevalent health problems in the US. There is an emphasis on the relationship between physical activity and health and the burden of inactivity as it relates to disease risk.

### 420. Mechanics of Human Locomotion.

*Fall (3) McCoy. Prerequisites: KINE 308. Co-requisite: KINE 420L.*

Analysis of the mechanics of human locomotion using techniques of three-dimensional video, force platform analysis and electromyography. Two class hours, two laboratory hours.

### 422. Motor Control.

*Fall (3) Kohl. Prerequisite KINE 322.*

Detailed study of issues associated with motor control. Drawing heavily from epistemology, neurology, cognitive science and motor behavior research the students will be expected to integrate and generalize such information to different clinical contexts.

### 442. Exercise Physiology.

*Fall (4) Harris. Prerequisite KINE 304 or consent of instructor. Corequisite: KINE 442L.*

An in-depth study of the physiological aspects of exercise, fatigue, coordination, training and growth; functional tests with normal and abnormal subjects; investigations and independent readings.

### 450. Cardiovascular Physiology.

*Fall (3) Looft-Wilson. Prerequisites: KINE 304 or consent of Instructor.*

A concentrated study of the normal function of the heart and blood vessels, coordinated responses of the cardiovascular

system, and general features of cardiovascular diseases. Class discussion involves a survey of the basic scientific literature in cardiovascular research.

### 455. Physiology of Obesity.

*Fall (3) Looft-Wilson. Prerequisites: KINE 304 or consent of Instructor.*

A seminar course examining the physiology of body weight regulation, mechanisms of diseases that are associated with obesity and inactivity, and the role of the fat cell and its secretions in the disease process.

### 460. Topics in Kinesiology.

*Fall and Spring (3,3) Staff.*

Topics not covered in regular offerings. Subjects, prerequisites and instructor will vary from year to year. Course may be repeated for credit if the topic varies.

### †470,471. Independent Study in Kinesiology.

*Fall, Spring and Summer (1-3,1-3,1-3) Staff. Prerequisite: consent of instructor.*

An independent study program for the advanced student involving reading, research and the writing of a paper. Course may be repeated for credit if the topic varies.

### †480,481. Kinesiology Research.

*Fall, Spring (1-3,1-3) Staff. Prerequisite: consent of instructor.*

A course for the advanced student affording an opportunity for independent laboratory or field research under the supervision of a faculty member. Course may be repeated for credit if the topic varies.

### 485. Cellular and Biochemical Effects of Exercise.

*Fall (3) Deschenes. Prerequisite: KINE 304, BIOL 103, 203, 204 or consent of instructor.*

A detail study of the neuromuscular system and its exercise-induced adaptations at the cellular and biochemical levels. Topics include the development of the neuromuscular system, organization of motor units, characteristics of different muscle fiber types, substrate utilization and causes of fatigue.

### 493. Philosophy in Kinesiology.

*(GER 7) Fall and Summer (3,3,3) J. Charles.*

Philosophical principles in the context of human movement. Examination of the relationship of the mind and body and the distinctions between western and eastern attitudes towards the physical. Analysis of the ethics and the aesthetics of the kinesthetic dimension.

### 494. Environmental Human Physiology.

*Spring (3) Kambis. Prerequisite: KINE 442 or consent of instructor.*

Lectures and applied research will determine how heat, cold, high terrestrial altitude, hyperbaric conditions, and air pollution affect human performance.

### †495-496. Honors.

*Fall, Spring (3,3) Staff.*

Students admitted to Honors study in kinesiology will enroll for both semesters of their senior year. Requirements include (a) supervised readings in the field of interest, (b) the preparation and presentation by April 15 of an Honors essay or an Honors thesis based on the students own research, and (c) satisfactory performance in an oral examination based on the Honors project and related background. Consult the chair for eligibility, admission and continuance requirements. For College provisions governing the Admission to Honors, see catalog section titled Honors and Special Programs.

### †498. Internship.

*Fall, Spring and Summer (3,3,3) J. Charles, Kohl, McCoy. Prerequisite: 12 hours in kinesiology.*

A structured learning experience designed to complement and expand on the student's academic course work. This course includes readings in related areas, portfolios, written reports and on-site supervision.