

Kinesiology & Health Sciences

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

Requirements for Major

Kinesiology & Health Sciences prepares students for a wide variety of academic and professional pursuits in fields that specialize in human body movement and its effect on human health. Students can elect to earn a B.A. or B.S. in Kinesiology & Health Sciences or choose one of three concentrations as a Kinesiology & Health Sciences major: a B.A. in Kinesiology & Health Sciences with a concentration in Health; a B.S. in Kinesiology & Health Sciences with a concentration in Health Sciences; or a B. S. in Kinesiology & Health Sciences with a concentration in Premed.

Required Credit Hours: 34

Major Computing Requirement: KINE 308 or KINE 394 or any introductory statistics course.

Major Writing Requirement: The major writing requirement in Kinesiology & Health Sciences may be satisfied by obtaining a C- or better in KINE 393, 455, 470, 471, 480, 481, 493, 495 or 496.

Core Requirements: Candidates for the B.S. degree in Kinesiology & Health Sciences 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.

The B.S. in Kinesiology & Health Sciences:

Students receiving a B.S. degree in Kinesiology & Health Sciences must pass the following required courses:

KINE 303	Human Anatomy
KINE 304	Human Physiology (GER2B)
KINE 394	Statistics and Evaluation (GER1)

One major writing course

Students receiving a B.S. degree in Kinesiology & Health Sciences must also pass at least 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 & Health Sciences:

Students receiving a B.A. degree in Kinesiology & Health Sciences must pass the following required courses:

- Computer requirement course
- One major writing course

Students receiving a B.A. degree in Kinesiology & Health Sciences must also pass at least three of the following courses:

KINE 303	Human Anatomy
----------	---------------

KINE 304	Human Physiology (GER2B)
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)

The B.S. In Kinesiology & Health Sciences with a concentration in Health Sciences:

Students receiving a concentration in Health Sciences must pass the following required courses:

KINE 200	Introduction to the Human Body (GER2B)
KINE 303	Human Anatomy
KINE 304	Human Physiology (GER2B)
KINE 385	Epidemiology in Public Health
KINE 394	Statistics and Evaluation (GER1)
KINE 442	Exercise Physiology
KINE 498	Internship

Students receiving a concentration in Health Sciences must also pass at least two of the following courses:

KINE 295	Scientific Principles of Exercise Prescription
KINE 308	Biomechanics of Human Movement
KINE 320	Issues in Health
KINE 350	Science of Nutrition (GER2B)
KINE 360	Physiology of Aging
KINE 370	Exercise Psychology
KINE 380	Introduction to Clinical Practice
KINE 393	Health Ethics (GER7)
KINE 410	Exercise in Public Health
KINE 455	Physiology of Obesity

The remaining credits for the 34 total required for the concentration in Health Sciences may be taken from the following courses:

BIOL 106	Disease Biomedicine
CHEM 103	General Chemistry I
SOCL 362	Medical Sociology
SOCL 405	Sociology of Aging

The B.A. in Kinesiology & Health Sciences with a concentration in Health:

Students receiving a concentration in Health must pass the following required courses:

KINE 200	Introduction to the Human Body (GER2B)
KINE 204	Introduction to Kinesiology
KINE 385	Epidemiology in Public Health
KINE 394	Statistics and Evaluation (GER1)
KINE 393	Health Ethics (GER7)
KINE 498	Internship

Students receiving a concentration in Health must also pass at least two of the following courses:

KINE 303	Human Anatomy
KINE 304	Human Physiology (GER2B)
KINE 320	Issues in Health
KINE 350	Science of Nutrition (GER2B)
KINE 410	Exercise in Public Health
KINE 442	Exercise Physiology

The remaining credits for the 34 total required for a concentration in Health may be taken from the following courses:

SOCL 405	Sociology of Aging
ANTH 309	Medicine and Culture
ECON 456	Economics of Health Care
GOVT 350	Introduction to Public Policy

The B.S. in Kinesiology & Health Sciences with a concentration in Premed:

Students receiving a concentration in Premed must pass the following required courses:

KINE 303	Human Anatomy
KINE 304	Human Physiology (GER2B)
KINE 305	Human Physiology Laboratory (Lab)
KINE 314	Dissection Human Anatomy Laboratory or KINE 315 Human Anatomy Laboratory
KINE 320	Issues in Health
KINE 380	Introduction to Clinical Practice
KINE 393	Health Ethics (GER7)
KINE 394	Statistics and Evaluation (GER1)

Students receiving a concentration in Premed must also pass 10 additional credits from the following courses:

KINE 350	Science of Nutrition (GER2B)
KINE 360	Physiology of Aging
KINE 370	Exercise Psychology
KINE 385	Epidemiology in Public Health
KINE 410	Exercise in Public Health
KINE 442	Exercise Physiology
KINE 450	Cardiovascular Physiology
KINE 455	Physiology of Obesity
KINE 494	Environmental Human Physiology

A minimum of 30 credits in Kinesiology & Health Sciences must be completed for the major. In addition, the following courses are recommended for the Kinesiology & Health Sciences Premed concentration: BIOL220/221 and BIOL 225/226, PHYS 101/102 or 107/108, Chemistry 103/103L, 206/206L, 307/353, and 308/354. All Chemistry courses must be taken with the laboratory courses.

Many of these courses are required by medical schools even though they will be above the 34 hours required for the major in Kinesiology & Health Sciences. Other specialties such as Dental, Veterinary, Physical Therapy, or Nutrition may require additional/ different courses. It is essential for all students considering health professions to consult with Dr. Bev Sher, Department of Biology (btshe@wm.edu) for academic guidance.

Core Courses in Kinesiology & Health Sciences

150	Freshman Seminar
200	Introduction to the Human Body (GER2B)
204	Introduction to Kinesiology
295	Scientific Principles of Exercise Prescription
303	Human Anatomy
304	Human Physiology (GER2B)
305	Human Physiology Lab
308	Biomechanics of Human Movement
314	Dissection Human Anatomy Lab
315	Human Anatomy Laboratory
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
385	Epidemiology in Public Health
393	Health Ethics (GER 7)
394	Statistics and Evaluation (GER 1)
400	Sport Psychology (GER 3)
410	Exercise in Public Health
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 & Health Sciences minors must pass the following required courses:

KINE 303	Human Anatomy
KINE 304	Human Physiology

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.

200. Introduction to the Human Body.

(GER2B) Fall (3) Deschenes.

A broad-based examination of the human body. Structure and function of cells, tissues, and organ systems will be examined in a variety of applications such as lifespan, environmental and evolutionary adaptations.

204. Introduction to Kinesiology & Health Sciences.

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 and health sciences.

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. (Not open to freshmen.)

Gross and histological study of the human organism with particular emphasis on the neuro-muscular systems as related to human movement.

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) Harris.

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.

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.

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 are discussed and there is an in depth treatment of life cycle nutrition issues.

360. Physiology of Aging.

Fall (3) Looft-Wilson. Prerequisites: KINE 304 or BIOL 225. Not Taught Fall 2011.

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 & Health Sciences.

Fall and Spring (1,1) Staff. Consent of instructor required.

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.

370. Exercise Psychology.

Fall (3) Staff.

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.

385. Epidemiology in Public Health.

Fall, Spring (3,3) Ickes.

An introduction to the core concepts of epidemiology, which is a study of the distribution of disease within a population and the factors that influence that distribution. The course will apply an epidemiologic lens to current issues in public health and clinical medicine.

393. Health Ethics.

(GER7) Fall, Spring (3,3) 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 & Health Sciences and Environmental Science/Studies majors.

394. Statistics and Evaluation.

(GER 1) Fall (3) Ickes. 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) Staff.

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) Staff.

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 effect of physical inactivity as it relates to disease risk.

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.

Spring (3,3) Looft-Wilson. Prerequisites: KINE 304 or BIOL225 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.

Spring (3) Looft-Wilson. Prerequisites: KINE 304 or BIOL 225 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 & Health Sciences.

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.

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 & Health Sciences.

(GER 7) Spring (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.

†470,471. Independent Study in Kinesiology & Health Sciences.

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 & Health Sciences 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.

†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, Kambis, 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.

Activity Classes

The Activity Program of the Kinesiology & Health Sciences Department provides the College community with a variety of courses and services such that students have an opportunity to be physically active and challenged during their college years. These courses provide experiences to develop and demonstrate a level of fitness and physical proficiency and encourage the students to internalize values enabling them to remain physically active through their lifetime.

101. Fitness, Leadership & Aging

Fall and Spring (2,2) K. Charles

This course is designed to introduce students to the facilitation of fitness activities primarily for older adults. It includes techniques for resistance training, cardiovascular training, balance, warm up, cool down, stretching, the basics of program design and field work with older adults.

104. Yoga.

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

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) Horvath.

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) K. Charles.

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.

120. Ski/Snowboard Maine.

Fall (1) Whitley.

This course involves 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.

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) Drake, Whitley.

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 canoe sport.

140. White Water Canoeing.

Fall and Spring (1,1) Staff.

This course is designed to introduce students to tandem canoeing on Class III 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) Horvath.

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) Drake, Whitley.

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) Whitley.

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) Whitley.

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.

175. Weight Training.

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

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) Drake.

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.

180. 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.

181. 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.

185. Ballroom Dance I.

(GER 6) Fall and Spring (1,1) Rushforth.

This course is designed to introduce students to beginning ballroom dance including social dance skills. The students will obtain dance fundamentals in rhythm, dance position, and leading/following skills. We will learn the following dances: Waltz, Viennese Waltz, Foxtrot, Cha-Cha, Swing, and Jive.

186. Ballroom Dance II.

(GER6) Fall and Spring (1,1) Rushforth. Prerequisite: KINE 185.

This course is designed to help students apply and perfect the skills learned in Ballroom I. The students will have the opportunity to choreograph and perform their own dances. While actively involved in creating dances we will expand upon the dances learned in Ballroom I.

190. Principles of Outdoor Leadership.

Spring (3) Whitley.

Students learn the theory and application of outdoor leadership. Topics include the history and philosophy of outdoor adventuring, leadership theory, group dynamics, group facilitation, trip planning, outdoor survival, risk management, wilderness living skills, instructional practices, environmental ethics and stewardship.

196. Topics in Physical Activity.

Fall and Spring (1,1) Staff.

Topics not covered in regular offerings. Topics and instructor will vary from year to year.

198. Ropes Course Facilitation.

Fall and Spring (2,2) 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.