Kinesiology & Health Sciences

PROFESSORS Deschenes (Chair), J. Charles, and Kambis. ASSOCIATE PROFESSORS Harris, Kohl, Loofst-Wilson, and McCoy. ASSISTANT PROFESSOR Ickes and Scott. 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 (not including physical activity courses)

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, 496, or 498.

Core Requirements outside the major: 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) or any introductory statistics course
  One major writing course

The B.A. In Kinesiology & Health Sciences:

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

- KINE 394 Statistics and Evaluation (GER1) or any introductory statistics course
  One major writing course

The concentrations offered below provide preparation for specific programs of post-graduate study.

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

This concentration is appropriate for further study in Physical Therapy, Occupational Therapy, Nursing, and other disciplines in the health sciences. Please contact Dr. Bev Sher, Department of Biology (btsher@wm.edu) for advising in these areas.

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

- KINE 295 Health Related Exercise Prescription (GER2B)
- KINE 303 Human Anatomy
- KINE 314 Dissection Human Anatomy Laboratory or KINE 315 Human Anatomy Laboratory
- KINE 304 Human Physiology (GER2B)
- KINE 305 Human Physiology Laboratory (Lab)
- KINE 308 Biomechanics of Human Movement
- KINE 322 Motor Learning

KINE 150 Freshman Seminar
KINE 200 Introduction to the Human Body (GER2B)
KINE 204 Introduction to Kinesiology & Health Sciences
KINE 270 Foundations of Epidemiology
KINE 280 Introduction to Public Health
KINE 295 Health Related Exercise Prescription (GER2B)
KINE 303 Human Anatomy
KINE 304 Human Physiology (GER2B)
KINE 305 Human Physiology Lab

KINE 394 Statistics and Evaluation (GER1)
KINE 442 Exercise Physiology
KINE 485 Cellular and Biochemical Effects of Exercise
KINE 498 Internship

One writing course in the major

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

This concentration is appropriate for further study in the broad area of Health, including Public Health.

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

- KINE 200 Introduction to the Human Body (GER2B)
- KINE 270 Foundations of Epidemiology
- KINE 280 Introduction to Public Health
- KINE 295 Health Related Exercise Prescription (GER2B)
- KINE 320 Issues in Health
- KINE 350 Science of Nutrition (GER2B)
- KINE 394 Statistics and Evaluation (GER1) or any introductory statistics course
  One writing course in the major

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

This concentration is appropriate for further study in medicine.

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

- KINE 270 Foundations of Epidemiology
- KINE 303 Human Anatomy
- KINE 314 Dissection Human Anatomy Laboratory or KINE 315 Human Anatomy Laboratory
- KINE 304 Human Physiology (GER2B)
- KINE 305 Human Physiology Laboratory (Lab)
- KINE 380 Introduction to Clinical Practice
- KINE 393 Health Ethics (GER7)
- KINE 394 Statistics and Evaluation (GER1)
- KINE 450 Cardiovascular Physiology
  One writing course in the major

A minimum of 30 credits in Kinesiology & Health Sciences must be completed for the Premed concentration. In addition, the following courses are required for the Kinesiology & Health Sciences Premed concentration: BIOL 220/221 and BIOL 225/226, PHYS 101 and 101L/102 and 102/L or 107 and 107L/108 and 108L, Chemistry 103/103L, 206/206L, 307/353, and 308/354. All Chemistry courses must be taken with the laboratory courses.

It is essential for all students considering health professions to consult with Dr. Bev Sher, Department of Biology (btsher@wm.edu) for academic guidance.

Courses in Kinesiology & Health Sciences

- KINE 150 Freshman Seminar
- KINE 200 Introduction to the Human Body (GER2B)
- KINE 204 Introduction to Kinesiology & Health Sciences
- KINE 270 Foundations of Epidemiology
- KINE 280 Introduction to Public Health
- KINE 295 Health Related Exercise Prescription
- KINE 303 Human Anatomy
- KINE 304 Human Physiology (GER2B)
- KINE 305 Human Physiology Lab
KINE 308 Biomechanics of Human Movement
KINE 314 Dissection Human Anatomy Lab
KINE 315 Human Anatomy Laboratory
KINE 320 Issues in Health
KINE 321 Health and Human Movement
KINE 322 Motor Learning
KINE 335 Play, Sport and Culture
KINE 340 Motor Development (GER 3)
KINE 350 Science of Nutrition (GER 2B)
KINE 360 Physiology of Aging
KINE 365 Current Scholarship in Kinesiology
KINE 380 Introduction to Clinical Practice
KINE 393 Health Ethics (GER 7)
KINE 394 Statistics and Evaluation (GER 1)
KINE 422 Motor Control
KINE 442 Exercise Physiology
KINE 450 Cardiovascular Physiology
KINE 455 Physiology of Obesity
KINE 460 Topics in Kinesiology & Health Sciences
KINE 470/471 Independent Study in Kinesiology & Health Sciences
KINE 480/481 Kinesiology & Health Sciences Research
KINE 485 Cellular and Biochemical Effects of Exercise
KINE 493 Philosophy in Kinesiology & Health Sciences (GER 7)
KINE 494 Environmental Human Physiology
KINE 495,496 Honors
KINE 498 Internship

Requirements for the Minor

Required Credit Hours: 21 (not including physical activity courses)

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 Summer (3,3) 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.

270. Foundations of Epidemiology.
*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.

280. Introduction to Public Health.
*(Spring (3) Ickes.*
An introduction to the key concepts and considerations in public health research and practice. Selected public health topics will be presented from biomedical, epidemiologic, socio-cultural, and policy perspectives. In the context of low, middle, and high-Income countries.

295. Health-related Exercise Prescription.
*(GER 2B) Fall (3) Staff.*
This course addresses the scientific basis of designing exercise programs to promote health among individuals of all ages, and both sexes. Special concerns (e.g. pregnancy, pre-diabetes, arthritis) will also be featured. It will NOT address the conditioning of elite athletic performance. 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. Finally, the detrimental effects of disuse, such as limb immobilization or bed rest, will be discussed.

303. Human Anatomy.
*Fall, Spring and Summer (3,3,3) McCoy. Prerequisite: KINE 200 or BIOL 220 or BIOL 225.*
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. Prerequisite: KINE 200 or BIOL 220 or BIOL 225.*
Detailed study of the manner in which different organ systems of the human body function.

305. Human Physiology Lab.
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. There is a fee associated with the laboratory.

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. There is a fee associated with the laboratory.

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.

(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.

(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) Loof-Wilson.
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.

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.

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) 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.

(GER 1) Fall (3) Staff. 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.

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. There is a fee associated with the laboratory.

450. Cardiovascular Physiology.
Spring (3) Loof-Wilson. Prerequisites: KINE 304 or BIOL 225 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) Loof-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 Basis of Neuromuscular Physiology.
Fall (3) Deschenes. Prerequisite: KINE 304, BIOL 220 or 225 or consent of instructor.
A detailed 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) Fall and 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.
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†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: Kinesiology & Health Sciences Major.
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.

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 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.

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.

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.