DEPARTMENT OF HEALTH AND EXERCISE SCIENCE

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www.ou.edu/cas/hes

General Information
The Department of Health and Exercise Science's interdisciplinary program is one of the largest in the Dodge College of Arts and Sciences. The program integrates the biological, physiological, medical, and behavioral sciences as they relate to physiological responses to exercise and other aspects of human health.

The mission of the Department of Health and Exercise Science is to lead the state and nation in exercise science and health promotion education and research by providing a rich and diverse undergraduate and graduate curriculum which draws from the life sciences, social sciences, health and exercise sciences, and the humanities; and to contribute to the enhancement of quality of life for various populations.

Faculty
Health and Exercise Science faculty are some of the foremost scholars and researchers in their fields. Their cutting-edge research is published in journals and many are invited to speak at national and international conferences. In addition to a Ph.D., many hold certifications such as Certified Strength and Conditioning Specialists (CSCS), Certified Health Education Specialists (CHES), National Strength and Conditioning Association Certified Personal Trainer (NSCA-CPT), and are members of organizations such as Fellow of the American College of Sports Medicine (FACSM), Fellow of the Research Consortium, Fellow of the Gerontological Society of America and Fellow of the National Academy of Kinesiology, American Public Health Association, and the American Academy of Health Behavior. Most importantly, they genuinely enjoy teaching and are accessible to undergraduate and graduate students alike.

Research
At any given time, HES faculty, graduate students, and undergraduate students have multiple research projects ongoing, focusing on the areas of bone density, nutrition, resistance training, aging, community interventions, health disparities, sports performance, and business analytics. Our state-of-the-art laboratories are conveniently located in the HES and Collums buildings. As a HES student, research opportunities will be an integral part of your educational experience.

Curriculum
Whether you are an undergraduate or graduate student studying Health Promotion or Exercise Physiology, you will have a broad educational experience that includes biological, physical, medical, and behavioral sciences as they relate to human health and physiological response. These multidisciplinary experiences will prepare you for many exercise physiology and health promotion related careers.

Programs & Facilities
Programs for Academic Excellence
The Department of Health and Exercise Science supports the position that students should receive both broad educational preparation and disciplinary specialization to prepare effectively for future professional demands. This includes strong general education preparation with an emphasis on biological and behavioral sciences, a core of requisite coursework in HES, and an individualized block of elective coursework.

The department is equally proud of its preparation and academic standards at the graduate level. The graduate program is demanding and comparable to programs at peer institutions that have much larger student populations.

Facilities
The Department of Health and Exercise Science is located in the west wing of the S. J. Sarkeys Complex and includes modern classrooms, a student computer lab, a conference room, and offices for our faculty, staff, and graduate students, providing easy access to all members of our department. Laboratories are housed on the lower floor of the department or in the Collums Building which is within proximity to the S. J. Sarkeys Complex. For more information about faculty members, their laboratories, research experiences, and current students, please visit https://www.ou.edu/cas/hes/research/research-laboratories.

Undergraduate Study
The undergraduate program integrates the biological, physiological, medical, and behavioral sciences as they relate to physiological responses to exercise and other aspects of human health.

- Health and Exercise Science, Bachelor of Science
  The Bachelor of Science is designed to train students who plan to work in the health promotion, fitness, allied health, and sports fields or to prepare students for graduate studies in Health and Exercise Science. The undergraduate program consists of a single core curriculum emphasizing applied science and professional preparation in combination with an elective block sufficiently broad to allow students to develop strong preparation in an area of personal interest related to health and exercise.

- Health and Exercise Science Minor
  A minor in Health and Exercise Science is available to students completing their major requirements in other departments.

Lifetime Skill Activity Courses
HES courses numbered below 2000 (except HES 1823) are basic skills courses that include the teaching of specific skills, rules, and regulations when appropriate and the nomenclature of a sport or recreational activity. The basic skills courses represent lifetime health, fitness, and leisure activities to enhance the lifestyle of all participants. All basic skills courses are graded S/U and have attendance requirements.

Scholarships and Financial Aid
The department offers the Mary Anne Price and Virginia Morris undergraduate merit scholarships to HES majors who meet the eligibility criteria. Eligible HES majors may apply for these scholarships through the university’s centralized academic scholarship hub.
Health and Exercise Science Student Association

HESSA strives to support HES students, improve relationships across the department (faculty, staff, students), and increase awareness of the HES major across the university. Each year, HESSA provides opportunities for students to learn about HES-related professions and network with professionals and recruiters across health disciplines. HESSA also awards a community service scholarship to two HESSA members who distinguish themselves in service to the mission of the HES department and HESSA.

Graduate Study

Master of Science Degree

Program Options

- Health and Exercise Science - An interdisciplinary, hybrid program integrating health education/health promotion, applied exercise physiology, and nutrition, which is designed to prepare students for health/fitness professions, working in a variety of settings.
- Health and Exercise Science: Exercise Physiology - A disciplinary program integrating coursework from a range of research areas in applied exercise physiology, which is designed to prepare students for doctoral training, research, and/or practice in these areas.
- Health and Exercise Science: Health Promotion - A disciplinary program integrating coursework from a range of research areas in health education/health promotion, which is designed to prepare students for doctoral training, research, and/or practice in these areas.
- Health and Exercise Science: Sports Data Analytics - A program for students seeking additional professional development and training in the use of data science and data analytics within sports organizations.

Health and Exercise Science Doctoral Programs

The Doctor of Philosophy degree (Ph.D.) can be awarded in either Health and Exercise Science: Exercise Physiology or Health and Exercise Science: Health Promotion. The doctoral degree in Health and Exercise Science is awarded for excellence in research scholarship in combination with successful completion of an approved program of study consisting of coursework within and external to the Department of Health and Exercise Science. It signifies the attainment of independently acquired and comprehensive learning which evidences general professional competence.

Cellular and Behavioral Neurobiology Doctoral Programs

The Cellular and Behavioral Neurobiology Graduate Program is a campus-wide interdisciplinary program whose faculty members are from Biology, Aerospace & Mechanical Engineering (AME), Chemistry & Biochemistry (Chem/Biochem), Health and Exercise Science (HES), and Psychology.

- Cellular and Behavioral Neurobiology: Exercise Physiology, Ph.D.

Scholarships and Financial Aid

The department offers the Glen Michael Sims graduate merit scholarship, the Helen Riddle doctoral research scholarship, the Travis Beck Memorial Scholarship for doctoral and master’s students, and the Helen Riddle Travel Award. Students should contact the department for further information and applications.

Graduate assistantships are annually available for M.S. and Ph.D. students in the Department of Health and Exercise Science contingent upon available faculty and departmental funding. Students who have been admitted to the graduate program in the Department of Health and Exercise Science are eligible for consideration.

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HES 1941 Soccer 1 Credit Hour
Teach a basic understanding of the game of soccer; skills and analysis of
skills, nature and rules of the game, and strategies in game situations. (F, Sp)

HES 1981 Volleyball 1 Credit Hour
Basic understanding of the game of volleyball; skills and analysis of
skills, nature and rules of the game, and strategies for game situations. (F, Sp, Su)

HES 2131 Introduction to Health and Exercise Science 1 Credit Hour
Designed to introduce major students to the fundamentals of HES,
including curricular disciplines, basic terminology, career opportunities,
and professional associations. Students will also learn basic library
research skills and a working knowledge of the support services and
technologies available at the University. (F, Sp)

HES 2212 First Aid 2 Credit Hours
Includes the theory related to causes and prevention of accidents, as
well as development of sufficient knowledge to determine the nature
and extent of injuries. Training focuses on taking proper procedural
steps at the proper times. Upon successful completion of the
course and its specific requirements, students are awarded the American Red
Cross Community First Aid and CPR Certificates. Lecture and laboratory
combined. May include online components. (F, Sp, Su)

HES 2823 Introductory Nutrition 3 Credit Hours
(Crosslisted with Clinical Dietetics 1823- an HSC course) Evaluation
of basic composition of nutrients and accessory factors required for
adequate human nutrition. Application of nutritional principles to the
planning of normal and special dietary regimen. [II-NL].

HES 2913 Personal Health 3 Credit Hours
Emphasizes the health knowledge and practices needed for effective
living. The course has a holistic focus on personal health and provides
both an informational and behavioral basis for health promotion and
disease prevention. Topics include: mental health, stress management;
fitness; nutrition; alcohol, tobacco, and other drug education; sexuality;
and chronic/infectious disease. (F, Sp)

HES 2970 Special Topics/ Seminar 1-3 Credit Hours
1 to 3 hours. Prerequisite: May be repeated; Maximum credit nine hours.
Special topics course for content not currently offered in regularly
scheduled courses. May include library and/or laboratory research, and
field projects. (Irreg.)

HES 3000 Special Topics in Health and Exercise Science 1-3 Credit Hours
1 to 3 hours. Prerequisite: junior standing or permission of instructor.
May be repeated with change of content; maximum credit nine hours.
Topics in health and exercise science not accommodated by the existing
curriculum. Example: psychological factors in exercise adherence, i.e.,
personality traits of select exercise individuals, reinforcement procedures,
personal goals as related to exercise needs, etc. (Irreg.)

HES 3021 Sports Officiating: Football and Volleyball 1 Credit Hour
Prerequisite: ENGL 1213 or EXPO 1213. Standards and principles
involved in the art of officiating with emphasis on football and volleyball.
Laboratory experience required. (F)

HES 3031 Sports Officiating: Basketball, Softball, and Baseball 1 Credit Hour
Prerequisite: English 1213 or Expository Writing 1213. Standards and
principles involved in the art of officiating with emphasis on basketball,
softball, baseball, and track and field. (Sp)

HES 3213 Principles and Practice of Sport Management for Non-HES Majors 3 Credit Hours
Prerequisite: Non-HES major and junior standing. Survey course covering
fundamental management functions, structural components of sport
organizations, management and leadership techniques commonly
employed in effective sport organizations, human resource management
strategies, and current trends in sport management. (F, Sp, Su)

HES 3430 Field Experiences in Health and Exercise Science 1-4 Credit Hours
1 to 4 hours. Prerequisite: junior standing or permission of department.
May be repeated with change of activity or advanced position; maximum
credit four hours. Field study related to student’s area of interest (athletic
coaching, athletic training, exercise science, health promotion, sport
management) as approved by the department’s field supervisor of
adviser. A contract is required prior to beginning the field experience.
The contract will address: statement of purpose, process of submitting
reports, on-site evaluations, and written evaluations by student and site
supervisor. (F, Sp, Su)

HES 3440 Mentored Research Experience 3 Credit Hours
0 to 3 hours. Prerequisites: ENGL 1113 or equivalent, and permission of
instructor. May be repeated; maximum credit 12 hours. For the inquisitive
student to apply the scholarly processes of the discipline to a research
or creative project under the mentorship of a faculty member. Student
and instructor should complete an Undergraduate Research & Creative
Projects (URCP) Mentoring Agreement and file it with the URCP office.
Not for honors credit. (F, Sp, Su)

HES 3502 Care and Prevention of Athletic Injuries 2 Credit Hours
Prerequisite: HES 2212 or equivalent CPR/AED/First Aid certification;
three hours of biological science and three credit hours of social
science. Recognition, cause, prevention, treatment, rehabilitation of
athletic injuries; taping methods, protective equipment, and doctor’s
recommendations; equipping the training room, conditioning the athlete,
practice routines and the athlete’s diet. Laboratory (F, Sp)

HES 3513 Health Promotion Program Planning 3 Credit Hours
Prerequisite: HES major or permission of instructor. Discussion of
health promotion programming in disease prevention, risk reduction,
and wellness. Understanding the theoretical issues related to the
development and evaluation of health promotion programs and the
behavioral dimensions of health promotion. (F, Sp)

HES 3523 Human Sexuality 3 Credit Hours
Prerequisite: 2913, Psychology 1113. An introduction to biological,
psychological, and sociological concepts which form the interdisciplinary
foundation for studying human sexuality. Current research findings in
all areas will be emphasized. Areas of emphasis will include: personal,
social, sexual, and gender identity development across the lifespan,
interaction and communication within social and intimate relationships,
and reproductive and other health-related sexuality issues. (F, Sp)

HES 3543 Health and Wellness Coaching 3 Credit Hours
Prerequisite: junior standing and HES 2913. Encourages participants to
successfully adopt healthier lifestyle behavior. Explores the development
and efficacy of health and wellness coaching and develops the ability to
implement basic coaching skills when working with patients and wellness
clients. (Sp)

HES 3553 Wellness in Native Communities 3 Credit Hours
Prerequisite: junior standing and HES 1823 or HES 2913. Designed to
explore and understand the principles of individual and community
wellness from the perspective of both mainstream society and from
within the cultural frame of native beliefs and values. (F)
HES 3563  Lifestyle Intervention  3 Credit Hours
Prerequisite: HES major or permission. Examines the relationship between individual behavior and the health status of a community. Current lifestyle intervention literature will be the focus. Application of intervention strategies will be presented for school, worksite, and community settings. (Irreg.)

HES 3573  Obesity and Weight Management  3 Credit Hours
Prerequisite: junior standing and HES 2913 and either HES 1823 or BIOL 2124. Provides students with knowledge of the physiology and psychology of obesity and overweight. Designed to educate students not only on the scientific background of obesity but how to apply this knowledge to management of obesity in the general and specific populations they will be serving. (F)

HES 3583  Sociocultural Aspects of Health  3 Credit Hours
Prerequisite: junior standing. Designed to offer a comprehensive approach to understanding social injustice and its impact on health. Particular attention will be given to research emphasizing social determinants as the underlying causes of ill health in the American society. (F, Sp)

HES 3813  Principles of Health and Fitness  3 Credit Hours
Prerequisite: HES major or permission of instructor. Study of the underlying principles of life sciences that contribute to an understanding of the role of physical activity in health, fitness, and sports medicine. Specific reference to an overview of public health and disease, anatomy and biomechanics, exercise physiology, health appraisal and fitness testing and programming, human development and behavior, and program management. Laboratory (F, Sp, Su)

HES 3823  Physiology of Exercise  3 Credit Hours
Prerequisite: 3813 and Health and Exercise Science major or permission of instructor. Introductory study of principles and concepts of exercise physiology. Theoretical and scientifically established mechanisms are explored that explain the body’s response, adaptation, and concomitant regulation during acute and chronic exercise. Applications presented in the clinical, sport, occupational, and normal exercise settings. Focus is on an understanding of the body’s function from the cellular to systemic level during exercise. An understanding of assessment and physical training principles to explain health and performance is emphasized. Specific factors that affect the physiological bases of human performance are investigated. (Irreg.)

HES 3843  Biomechanics  3 Credit Hours
Prerequisite: MATH 1523 or MATH 1743 or PHYS 2414, and BIOL 2255 or BIOL 2234, and junior standing. The integrated study of anatomy, physiology, and mechanics with emphasis on understanding the anatomical and functional aspects of human movement in the area of health and exercise science, such as in clinical, daily living, and sport applications. (F, Sp)

HES 3853  Exercise Testing and Prescription  3 Credit Hours
Prerequisite: HES 3813 and Health and Exercise Science major or permission of instructor. Introduces the exercise science student to the theoretical and functional techniques of graded exercise testing for functional and/or diagnostic assessment. Equal time will be spent between lecture and lab as students will be provided the theoretical background for all testing methods commonly used in both a health and fitness scenario as well as an introduction to how these methods can be used clinically. This course is designed to prepare exercise science students for the American College of Sports Medicine’s Health/Fitness Instruction Certification. Laboratory (F; Sp)

HES 3873  Principles of Personal Training  3 Credit Hours
Prerequisite: junior standing. Designed to prepare individuals who are interested in becoming certified personal trainers (CPT) through the National Strength and Conditioning Association. Instruction is provided describing basic exercise physiology as well as the principles of developing a personal training regimen for a typical gym trainee. Course experiences will reinforce training principles and teach the basic skills necessary for certification. (F, Sp)

HES 3883  Principles of Endurance Training  3 Credit Hours
Prerequisite: BIOL 2124 and BIOL 2255 or 2234 with a grade of C or better, and junior standing. Emphasis will be placed on understanding physiology related to endurance performance and principles of endurance training. Performance testing procedures for predicting endurance performance will be conducted throughout the semester. In addition, it will be required that an endurance training program utilizing the information covered in class will be designed. (F, Sp)

HES 3893  Facts and Fallacies of Exercise and Nutrition  3 Credit Hours
Prerequisite: Non-majors only and English 1213 or Expository Writing 1213. Provides meaningful and practical guidelines on how to recognize and dispel many of today’s popular myths regarding exercise and nutrition. Course concepts will emphasize the proper use of scientific evidence to either dispel current topics as fallacy or confirm as fact. Sample current topics may include fads, infomercial products, weight loss, aerobic exercise, resistance exercise, dietary supplements, and exercise/sport nutrition, along with the effect of media and advertising and marketing ploys on these topics. (Irreg.)

HES 3960  Honors Reading  1-3 Credit Hours
1 to 3 hours. Prerequisite: admission to Honors Program. May be repeated; maximum credit six hours. Study of current research developments in health and sport sciences. An opportunity for the Honors’ candidate to work with a faculty mentor on a research project of special interest to the student in the health and sport sciences. (F, Sp, Su)

HES 3970  Honors Seminar  1-3 Credit Hours
1 to 3 hours. Prerequisite: admission to Honors Program. May be repeated; maximum credit six hours. An opportunity for the Honors’ candidate to work with a faculty mentor on a research project of special interest to the student. (F, Sp, Su)

HES 3980  Honors Research  1-3 Credit Hours
1 to 3 hours. Prerequisite: admission to Honors Program. May be repeated; maximum credit six hours. Will provide an opportunity for the gifted Honors candidate to work at a special project in the student’s field. (F, Sp, Su)

HES 3990  Independent Study  1-3 Credit Hours
1 to 3 hours. Prerequisite: one course in general area to be studied; permission of instructor and department. May be repeated; maximum credit six hours. Contracted independent study for topic not currently offered in regularly scheduled courses. Independent study may include library and/or laboratory research and field projects. (F, Sp, Su)

HES 4213  Management in Health and Exercise Science  3 Credit Hours
Prerequisite: junior standing. Concentration on the following course topics: defining facility types, management and employees, facility systems, equipment and maintenance, programming and targeting audience, for profit – not for profit, marketing and sales, finance, budgeting and funding sources, legal responsibilities, safety and quality control. Class will regularly visit a wide range of health clubs, sports facilities, fitness, golf and recreational environments. (Irreg.)
**HES 4273  Sport Finance**  3 Credit Hours
Prerequisite: HES 3213 or ACCT 2113 or permission of instructor. Discussion and study of methods and techniques for funding sport programs, professional and amateur sports. Topics include financial challenges faced by sport organizations and the garnering of resources from the public sector, external sources, and enterprise activity. Emphasis will be placed on present valuations, financial risk management, the capital budgeting process, and exercising sound financial decision-making. (Sp)

**HES 4283  Sports Economics and Policy**  3 Credit Hours
Prerequisite: HES 3213 or ECON 1123. Analyzes the unique features of the sport industry relative to the principles of economics. Sport is one of the top twenty industries in the United States, with over eighty billion consumer dollars being spent on an annual basis. Students will review the basics of economic theory and apply these principles to the management decisions of modern and global sport organizations. Emphasis will also be placed on the economic aspects of public finance for sport facility construction and other forms of subsidization within the sports industry. In addition, important current economic issues will be discussed as they relate to the governance of professional sports leagues and intercollegiate athletics. (F, Sp)

**HES 4430  Internship in Health and Exercise Science**  1-4 Credit Hours
1 to 4 hours. Prerequisite: HES major and nine credit hours of HES major core, and departmental permission. May be repeated; maximum credit 4 hours. Practical experience in administration, techniques, organizational structure and appropriate materials used with health, fitness or sport-related occupations. (F, Sp, Su)

**HES 4503  Principles of Community Health**  3 Credit Hours
Prerequisite: Health and Exercise Science major or permission of instructor. Examines the importance of maintaining, protecting, and improving the health of people through organized community efforts. Basic concepts in community health and a review of the historical foundations of community health will be presented. (F, Sp, Su)

**HES 4513  Public Policy Impact on Health Promotion**  3 Credit Hours
Prerequisite: junior standing and HES 1823 or HES 2913. As health promotion becomes more popular in the workplace, many organizations are struggling with existing and new regulations that help guide and ensure that compliant programs are being created. Examines existing policies and new policies that will have an impact on the delivery of health promotion programs. Topics include, but are not limited to, Healthy People 2020, CDC, State of Oklahoma Health Department, and Economic Policies. (F, Sp)

**HES 4523  Human Sexuality II**  3 Credit Hours
Prerequisite: 3523 or permission. In-depth study of human sexuality from a biopsychosocial perspective which emphasizes the roles of biology, psychological factors, and social learning. Area studies will include sexual and gender development across the life span; interaction and communication within intimate relationships; reproductive and health-related sexuality topics; and a historical look at the evolution of mating and love relationships. In addition, students will examine the integration of human sexuality issues and education in health-related occupations. (Irreg.)

**HES 4543  Comprehensive Stress Management**  3 Credit Hours
Prerequisite: BIOL 2234 or BIOL 2255 and BIOL 2124 and a course in Psychology. Helps students gain an awareness of stress and its effects, practice management techniques to reduce personal stress, and implement those techniques in their daily lives as well as the lives of others (school, community, corporation, etc.). Topics include: psychophysiology of stress, stress and disease, nutrition, personal planning and time management, cognitive restructuring, relaxation, and biofeedback. (Irreg.)

**HES 4553  Measurement and Evaluation in Health Promotion**  3 Credit Hours
Prerequisite: junior standing. Provides basic proficiency in quantitative and qualitative approaches to health promotion program measurement and evaluation. Current trends and issues in community, school and worksite health promotion will be the focus, as well as interpreting results from community-based formative and summative evaluations. Principles of measurement and evaluation, including instrument construction, will also be examined. (F, Sp)

**HES 4573  Chronic Disease Intervention**  3 Credit Hours
Prerequisite: Health and Exercise Science major or permission of instructor. Provides a basic understanding of disease process in selected chronic diseases and intervention strategies for risk reduction and chronic disease prevention. Basic principles of epidemiology and chronic disease surveillance will also be covered. (Irreg.)

**HES 4823  Sport and Exercise Nutrition**  3 Credit Hours
Prerequisite: junior standing, HES 2823 and CHEM 1315. Provides a basic understanding of the influence of nutrition on sport and exercise performance. Requires students to integrate their knowledge of nutritional physiology, biochemistry and intermediary metabolism with that of exercise physiology and to apply this knowledge to develop a critical understanding of the nutritional and practical dietary needs of individuals participating in sport and exercise. (F, Sp)

**HES 4833  Physiology of Exercise Laboratory**  3 Credit Hours
Prerequisite: HES Major and HES 3813 or permission of instructor. Laboratory experiments emphasizing the understanding of fundamental physiological mechanisms, regulating responses, and adaptation to exercise. Basic analytical methodologies pertaining to the energy, muscular and circulatory respiratory systems. Includes factors affecting physiological performance capacities and experimental basis of exercise assessment and training. Laboratory (F, Sp)

**HES 4863  Physical Activity and Aging**  3 Credit Hours
Prerequisite: permission of instructor. Discussion of general concepts of aging and the issues related to dying, the expected changes related to aging in the various physiological systems, i.e., body composition, cardiovascular, bone, and skeletal muscle. In addition, exercise programming concerns for the aged as well as the possible benefits of exercise during aging will be discussed. (Irreg.)

**HES 4883  Advanced Strength and Conditioning**  3 Credit Hours
Prerequisite: BIOL 2124, and BIOL 2255 or 2234 with a grade of C or better, and junior standing. Advances knowledge of strength and conditioning concepts in an applied setting. Prepares students to confidently and specifically design strength and conditioning programs for all populations including athletes, elderly and children, as well as to successfully demonstrate and teach all lifts and conditioning drills. (F, Sp)
HES 4933  Drug Education  3 Credit Hours
Prerequisite: 2913. Beneficial and harmful uses and effects of drugs. Motivations behind drug abuse, especially among youth, and implications of this problem on the individual, school and society. Consideration given to legislative and educational efforts. Investigation of interpersonal skills and communication interaction techniques. The use of values-clarification techniques. (Irreg.)

HES 4953  Senior Capstone  3 Credit Hours
Prerequisite: Health and Exercise Science major, senior standing and permission of instructor. An integration and synthesis of the major disciplines of study in the health and exercise science. Readings, discussions and research methods will focus on applications and problem solving approaches related to contemporary policy, economic, social and ethical issues. (F; Sp) [V].

HES 4960  Directed Readings  1-4 Credit Hours
1 to 4 hours. Prerequisite: good standing in University; permission of instructor and dean. May be repeated; maximum credit four hours. Designed for upper-division students who need opportunity to study a specific problem in greater depth than formal course content permits. (Irreg.)

HES 4970  Special Topics/Seminar  1-3 Credit Hours
1 to 3 hours. Prerequisite: Senior standing or permission of instructor. May be repeated; maximum credit nine hours. Special topics or seminar course for content not currently offered in regularly scheduled courses. May include library and/or laboratory research and field projects. (Irreg.)

HES 4990  Independent Study  1-3 Credit Hours
1 to 3 hours. Prerequisite: three courses in general area to be studied; permission of instructor and department. May be repeated; maximum credit six hours. Contracted independent study for topic not currently offered in regularly scheduled courses. Independent study may include library and/or laboratory research and field projects. (Irreg.)

HES 5000  Issues and Procedures in Health and Exercise Science  1-3 Credit Hours
1 to 3 hours. Prerequisite: graduate standing or permission of instructor. May be repeated with change of content; maximum credit six hours. Current topics such as the following: exercise prescription for the elderly; adherence to physical activity, exercise/sport. (Irreg.)

HES 5283  Sports Financial and Market Analytics  3 Credit Hours
Prerequisite: graduate standing and one of the following: HES 5953, MIT 5742, EIPT 6023, ECON 4233, PSY 5013, MATH 5773; or permission of instructor. The objective of this course is to analyze the unique features of the sports industry relative to principles of financial management and economics. Students will employ basic financial and econometric modeling to the management of sports organizations. Emphasis will be placed on labor markets, sports consumer demand, public finance for facilities/events, and other forms of subsidization of the sports industry. (F)

HES 5313  Athlete Tracking and Monitoring in Sports  3 Credit Hours
Prerequisite: graduate standing and permission of instructor. The objective of this course is to analyze methodologies used to track/monitor the loads imposed on athletes during training and competition. The validity, reliability, and efficacy of methodologies will be evaluated. Students will review performance testing, data acquisition, and data analysis and will develop data visualizations that relay the status of an athlete to the sports performance team. (F)

HES 5430  Internship in Health and Exercise Science  1-3 Credit Hours
1 to 3 hours. Prerequisite: graduate standing and successful completion of course requirements in HES area of study; student must have completed a minimum of 12 course hours, including all core requirements, before enrolling in internship. May be repeated; maximum credit six hours. Internship hours will be counted as elective hours towards the normal course requirement (i.e., 30-32 hours). Field experience in area of study. Participation in on-the-job experiences in a wide range of hosting agencies, businesses and institutions. (F; Sp, Su)

HES 5513  Perspectives in Global Health  3 Credit Hours
Prerequisite: graduate standing. Examines major global health challenges, programs and policies. Students will be introduced to the world’s vast diversity of determinants of health and disease, and current and emerging global health priorities will be discussed, including: emerging infectious diseases, poverty, conflicts and emergencies, health inequity, health systems reforms, and major global initiatives for disease prevention and health promotion. (F; Sp)

HES 5523  Health Promotion Strategies  3 Credit Hours
Prerequisite: graduate standing. Will provide students with a basic introduction to the principles of health promotion. Specific topics will include risk appraisal and risk reduction, behavior change theories, program planning and management, holistic health/wellness, and others. (F)

HES 5553  Health Promotion Evaluation  3 Credit Hours
Examination of the processes used to evaluate health promotion and health education programs. Includes: needs assessment, quality assurance evaluation, summative evaluation, data analysis, and cost benefit analysis strategies. (Irreg.)

HES 5563  Health Behavior I: Individual and Group Influences  3 Credit Hours
Prerequisite: Graduate standing or permission of instructor. Focuses on behavioral theories and research which are pertinent to understanding factors/conditions that influence the development of and change processes related to health behavior in individuals or small groups such as family units. It is designed to provide a knowledge and theoretical base for integration of behavioral principles into research design and health promotion programming. (Sp)

HES 5823  Exercise Physiology  3 Credit Hours
(Crosslisted with IE 5823) Prerequisite: Industrial Engineering 4824; Zoology 3104 or 3133; Physiology 5016 or 5019; or permission. Advanced study of physiological responses, regulatory mechanisms and adaptations of human performance and health; factors affecting performance and health; and training and evaluative techniques. (F)

HES 5833  Advanced Exercise Physiology Laboratory  3 Credit Hours
Prerequisite: 5823 or permission. Laboratory experiments of a theoretical and applied nature emphasizing advanced concepts of physiological mechanisms, regulating responses and adaptation to exercise. Analytical and prescriptive methodologies pertaining to the energy, muscular and cardiorespiratory systems, including body composition techniques. Laboratory (Sp)
HES 5853  Health Fitness: Theory and Application  3 Credit Hours
Prerequisite: 3513 or 4513 and Zoology 3133, or equivalent; graduate standing. A multidisciplinary study of health-fitness theories and their applications in preventive health. Emphases are threefold: first, to understand the underlying theoretical framework of epidemiological, biological and behavioral concepts; second, to develop skills to implement programs emphasizing physical fitness assessment and prescription; third, to critically examine the role of physical activity and fitness strategies in preventive and therapeutic health settings.

HES 5863  Physiology of Aging  3 Credit Hours
Prerequisite: Physiology 2124, 3104 or Zoology 3133, or permission of instructor. Discuss the various theories of aging as well as the age expected changes in the various physiological systems (cardiovascular, respiratory, muscle, bone, nerve and body composition). In addition, exercise programming concerns for the aged as well as the possible benefits of exercise during aging will be discussed. (F)

HES 5883  Exercise Endocrinology  3 Credit Hours
Prerequisite: 5823 or permission of instructor. In-depth examination of the role of the endocrine system on regulating acute and chronic metabolic responses to exercise. Special endocrine issues related to exercise physiology (i.e., diabetes) will be studied. (Irreg.)

HES 5903  Sports Performance Analytics  3 Credit Hours
Prerequisite: graduate standing, and one or more of the following: HES 5953, MIT 5742, EIPT 6023, ECON 4233, PSY 5013, or MATH 5773; or permission of instructor. Sports analytics refers to the use of data and quantitative methods to measure performance and make decisions within a sports business. This course builds on statistics courses and is designed to help students develop and apply analytical skills using various sports contexts. The primary objective is to help students understand what data can and cannot do for sport organizations. (Sp)

HES 5940  Intensive Studies in Health and Exercise Science  1-6 Credit Hours
1 to 6 hours. Prerequisite: graduate standing or permission of instructor. In-depth examination of the role of the endocrine system on regulating acute and chronic metabolic responses to exercise. Special endocrine issues related to exercise physiology (i.e., diabetes) will be studied. (Irreg.)

HES 5953  Research Methods in Health and Exercise Science  3 Credit Hours
Prerequisite: graduate standing. Methods and techniques used in the design and interpretation of health promotion and exercise science research. Emphasis on scientific writing and library use. (Sp)

HES 5960  Directed Readings in Health and Exercise Science  1-6 Credit Hours
1 to 6 hours. Prerequisite: graduate standing or permission of instructor. Designed for graduate students to provide them with an opportunity to investigate selected problems in the field. Thirty hours library and research work for each credit hour. Consultations with instructor required. Written report. Required for all students in a nonthesis program. (F, Sp, Su)

HES 5963  Statistical Applications in Health and Exercise Science  3 Credit Hours
Prerequisite: graduate standing or permission of instructor. The application of techniques used to organize, analyze, and interpret statistical data unique to health and exercise science. Topics include measures of central tendency, measures of variability, percentiles, sampling, correlation, regression, standard scores, and tests of significance through repeated measures ANOVA and including parametric, non-parametric tests. (Irreg.)

HES 5970  Seminar in Health and Exercise Science  1-4 Credit Hours
1 to 4 hours. Prerequisite: graduate standing. May be repeated with change of subject matter; maximum credit six hours. Study of pertinent and current problems of research. Students may use seminars to identify and develop thesis projects. Required written paper and research. (Sp)

HES 5980  Research for Master’s Thesis  2-9 Credit Hours
Variable enrollment, two to nine hours; maximum credit applicable toward degree, four hours. Required of all students writing master’s thesis. Consultations with major professor required as thesis progresses. (F, Sp, Su)

HES 5990  Independent Study in Health and Exercise Science  1-6 Credit Hours
1 to 6 hours. Prerequisite: graduate standing or permission. A study of selected problems under guidance of instructor. At least twenty-five hours of library and research time required for each hour of credit carried. Final paper required. (F, Sp, Su)

HES 6000  Variable Topics in Health and Exercise Science  1-3 Credit Hours
Prerequisite: graduate standing or permission of instructor. Course will consist of variable topics in health and exercise science. (Irreg.)

HES 6513  Qualitative Research Methods in Health Science  3 Credit Hours
Prerequisite: graduate standing. Designed to provide students with a theoretical and skill base to apply basic qualitative research methods (observation, interviewing and focus groups) to a wide range of health promotion areas and to critically evaluate the application of qualitative skills to a community setting. Over the semester, a community-based qualitative research project will be conducted. Heavily emphasizes application of concepts and student participation in the learning process. (Irreg.)

HES 6523  Social Marketing in Health Promotion  3 Credit Hours
Prerequisite: 5523 or permission of instructor. Focuses on the incorporation of basic marketing principles into strategies for behavioral and social change. Targeted outcomes include individual behaviors, group/population norms, environmental supports and policies pertinent to health promotion and/or public health issues. (Su)

HES 6553  Advanced Measurement and Evaluation  3 Credit Hours
Prerequisite: HES 5553 or permission of instructor. Issues related to measurement and evaluation in health promotion will be discussed. Different measurement techniques and instruments used in health promotion will be examined and critiqued, and principles of instrument development will be addressed. Issues related to the evaluation of health promotion program outcomes will serve as a context for the course. (Irreg.)

HES 6563  Health Behavior II: Community, Organizational and Population Influences  3 Credit Hours
Prerequisite: HES 5563 or permission of instructor and graduate standing. Focuses on examining new and emerging theories used in health promotion to conduct research in organizational/community/individual change, and to improve health and quality of life. Emphasis on exploring the conceptual and methodological issues associated with theory-based research. (Sp)

HES 6583  Chronic Disease Assessment and Intervention  3 Credit Hours
Prerequisite: graduate standing and permission of instructor. Provides basic understanding of selected chronic diseases including assessment, disease process, pharmacological and medical treatment and intervention strategies for reducing risk. (Irreg.)
HES 6823  Cardiorespiratory Exercise Physiology  3 Credit Hours
Prerequisite: 5823 or permission of instructor. This course covers a variety of topics in cardiorespiratory exercise physiology, including factors that regulate fatigue during endurance exercise, factors that limit maximal aerobic power, regulation of heart rate and blood flow during isometric and dynamic exercise, and cardiovascular adaptations to aerobic training programs. Assessment techniques for cardiopulmonary function will be discussed in depth. Laboratory (Irreg.)

HES 6833  Human Body Composition  3 Credit Hours
Prerequisite: 5823 or permission of instructor. Theoretical and applied aspects of body composition assessment. Topics include limitations and usefulness of laboratory and field methods for assessing body composition in research, clinical and health/fitness settings. Evaluation of body composition research and application to health and clinical populations. Laboratory (Irreg.)

HES 6843  Neuromuscular Physiology  3 Credit Hours
Prerequisite: 5823 or permission of instructor. This course examines the structure and function of the central and peripheral nervous systems and skeletal muscle. Emphasis will be placed on how the central nervous system and motor units respond to conditions such as fatigue, exercise training, vibration, stretching, injury and disease. Laboratory (Irreg.)

HES 6883  Endocrinology and Metabolism of Exercise  3 Credit Hours
Prerequisite: 5823 or permission of instructor. Provide in-depth examination of the energy metabolism during exercise and the role of endocrine system in regulating acute and chronic metabolic responses to exercise. Special endocrine issues related to physiology (i.e. diabetes) will be studied. Laboratory (Irreg.)

HES 6960  Directed Readings in Health and Exercise Science  1-6 Credit Hours
Prerequisite: graduate standing and permission of instructor. May be repeated; maximum credit six hours. Special reading programs are designed to enable graduate students (1) to extend their study to fields that are not covered in other courses and/or (2) to provide an opportunity for more intensive study of subjects covered in other courses. (F, Sp, Su)

HES 6970  Seminar in Health and Exercise Science  1-4 Credit Hours
1 to 4 hours. Prerequisite: graduate standing in HES or permission of instructor. May be repeated with change of subject matter; maximum credit four hours. Study of pertinent and current problems of research. Students may use seminars to identify and develop area of dissertation research. (Irreg.)

HES 6980  Research for Doctoral Dissertation  2-12 Credit Hours
2 to 12 hours. Prerequisite: Graduate standing and permission of instructor; may be repeated. Directed research culminating in the completion of the doctoral dissertation. (F, Sp, Su)

HES 6990  Independent Study in Health and Exercise Science  1-3 Credit Hours
1 to 3 hours. Prerequisite: master's degree and permission of instructor. May be repeated; maximum credit 12 hours. Supervised research for advanced graduate students on major projects with a faculty member. (F, Sp, Su)
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