

# HEALTH AND EXERCISE SCIENCE (HES)

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## HES 100. Lifestyles and Health. (1 h)

A lecture course that deals with the effect of lifestyle behaviors on various health outcomes, including cardiovascular disease, cancer, and sexually-transmitted diseases.

## HES 101. Exercise for Health. (1 h)

A laboratory course on physical fitness that covers weight control, cardiovascular endurance, muscular strength, and flexibility.

## HES 112. Sports Proficiency. (1 h)

## HES 120. Fitness Activities. (1 h)

This course is designed to promote health and well-being through a variety of exercise and skill based activities. The course focuses on providing the knowledge and skills needed for lifetime participation in these activities. Pass/fail only. May be repeated for up to 4 hours of credit if activities differ.

## HES 232. Emergency Medical Training. (3 h)

Lectures and practical experiences in preparation for responding to medical emergencies, including: patient assessment; airway management; cardiopulmonary resuscitation; O<sub>2</sub> therapy; management of shock; trauma and environmental emergencies; and head/spine/musculoskeletal injuries. Clinical hours and Saturday classes are required. EMT certification is offered, attendance is required for State and National Certification testing. Pass/fail only.

## HES 262. Statistics in the Health Sciences. (3 h)

Basic statistics with an emphasis on application to research in the health sciences. Students are introduced to graphics and statistical software for statistical analysis. (QR)

## HES 310. Clinical Externship. (1, 2 h)

Application of theory and methods of solving problems in a specialized area according to the student's immediate career goals. Open only to majors. Pass/Fail only. P-POI.

## HES 311. Clinical Internship. (1, 2 h)

A semester experience in the campus rehabilitation or clinical research programs. Work includes active participation with individuals and groups with clinical conditions, such as heart disease, pulmonary disease, osteoarthritis, and obesity. Focus is on multiple intervention strategies, in conjunction with participation in physiologic monitoring of patients during therapeutic sessions. Open only to majors. Pass/Fail only. P-POI.

## HES 312. Exercise and Health Psychology. (3 h)

A survey of the psychological antecedents of exercise and selected topics in health psychology with particular attention to wellness, stress, the biobehavioral basis of coronary heart disease, and the psychodynamics of rehabilitative medicine. P-HES 262 or POI.

## HES 320. Mindfulness Meditation in Behavioral Medicine. (2 h)

Study of contemplative science and in the realm of behavioral medicine. Content includes recent evidence from neuroscience and outcome research on both mindfulness-based stress reduction and mindfulness-based cognitive therapy. Taught in a seminar format with laboratory experience. Pass/Fail only. P-POI.

## HES 350. Human Physiology. (3 h)

A lecture course which presents the basic principles and concepts of the function of selected systems of the human body, with emphasis on the muscular, cardiovascular, pulmonary, and nervous systems.

## HES 350L. Human Physiology Lab. (1 h)

A laboratory course that coincides with HES 350 human physiology lecture course. P or C-HES 350.

## HES 351. Nutrition in Health and Disease. (3 h)

Lecture course which presents the principles of healthy nutrition including an understanding of nutrients and their metabolism as well as the impact of nutrition on weight management and chronic diseases. P-HES 350 or POI.

## HES 352. Human Gross Anatomy. (4 h)

Lecture/laboratory course in which the structure and function of the musculoskeletal, neuromuscular, pulmonary, and cardiovascular systems are studied using dissected human cadavers.

## HES 353. Physiology of Exercise. (3 h)

A lecture course which presents the concepts and applications of the physiological response of the human body to physical activity. Acute and chronic responses of the muscular and cardiorespiratory systems to exercise are examined. P-HES 350 or POI.

## HES 354. Assessment Techniques in Health and Exercise Science. (3 h)

A lecture/laboratory course to develop clinical skills and knowledge in the assessment of health in areas of exercise physiology, nutrition/metabolism, biomechanics/neuromuscular function, and health psychology. The laboratory will emphasize use of instrumentation and analysis/interpretation of data collected on human subjects. P-HES 262, HES 350 and 352; or POI. (QR)

## HES 355. Exercise Programming. (1.5 h)

Lecture/laboratory course which presents the scientific principles of safe and effective exercise prescription for fitness programs. P-HES 350 or POI.

## HES 360. Epidemiology. (3 h)

Introduction to basic epidemiologic principles and methods used to assess disease occurrence and association between risk factors and health outcomes in human populations. Emphasis is placed on modifiable exposures (e.g. diet and physical activity) and chronic disease outcomes. P - An applied statistical methods course, such as ANT 380, BIO 380, BEM 202, HES 262, PSY 311, SOC 271, or STA 111; or POI. (QR)

## HES 362. Experimental Design for Clinical and Translational Health Science Research. (3 h)

Examination of scientific methods as applied to Clinical and Translational Health Science Research. Emphasis is placed on understanding the strengths and weaknesses for a broad range of study designs that can be found in the health sciences. Special emphasis is placed on randomized controlled trials, bioethics, the interpretation of data within the context of internal and external validity, as well as skills in reviewing the scientific literature. P - An applied statistics course such as ANT 380, BIO 380, BEM 201, HES 262, PSY 311, SOC 271, or STA 111; or POI.

## HES 370. Biomechanics of Human Movement. (3 h)

Study of the mechanical principles which influence human movement, sport technique, and equipment design. P-HES 352 or POI.

## HES 372. Anatomy Dissection Laboratory. (2 h)

A laboratory course that involves human cadaver dissection of the musculoskeletal, neuromuscular, pulmonary, and cardiovascular systems. Open only to majors. P-POI.

**HES 375. Advanced Physiology of Exercise. (3 h)**

A lecture course which provides an in-depth examination of the physiological mechanisms responsible for both the acute and chronic changes which occur with exercise. Included are metabolic and cellular changes in response to exercise, as well as the alterations of the major organ systems from acute and chronic exercise training. P - HES 353 or POI.

**HES 376. Interventions in Behavioral Medicine. (3 h)**

Seminar course providing an overview of the development, implementation, and evaluation of interventions within the context of behavioral medicine. Attention is given to behavior change theories that have served as the framework for physical activity and weight loss interventions. Hands-on experience is included with current interventions through peer counseling and case study analysis.

**HES 382. Individual Study. (1-2 h)**

Independent study directed by a faculty adviser. The student must consult the adviser before registering for this course. Open only to majors. May be repeated for up to 4 hours of credit. P-POI.

**HES 384. Special Topics in Health and Exercise Science. (1.5-3 h)**

Intensive investigation of a current scientific research topic in health or exercise science with focus on a specific topic.

**HES 386. Honors Research. (2 h)**

Directed study and research in preparation for a major paper on a subject of mutual interest to the student and faculty honors adviser. Taken only by candidates for departmental honors. P-POI, approval of departmental honors committee, and prior completion of a 2-hour Individual Study.

**HES 388. Field Internship in Health Sciences. (3 h)**

An extensive hands-on experience in a discipline of the health sciences related to the student's career goals. This internship occurs outside the Wake Forest University community. Open only to majors. Pass/Fail only. P-POI.