Health & Exercise Science (HES)

Faculty
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About the discipline
The Health and Exercise Science program of the Department of Health, Human Performance, and Recreation is intended to provide students both depth and breadth of courses to prepare them for careers in the ever-expanding field of health and exercise science. The program is carefully designed to provide students knowledge, skills, and abilities congruent with careers in the field and tailored according to guidelines of recognized professional organizations in the field of exercise science and sports medicine. Students with a Health & Exercise Science major will earn a bachelor of science (BS) degree.

Career opportunities
Spring Arbor graduates from the program are currently working in areas such as cardiac rehabilitation, corporate wellness, hospital-based wellness programs, and personal training. Recent graduates have pursued graduate degrees in clinical exercise physiology, physical therapy and physician’s assistant.

Program strengths and emphases
In recent years this program has gained significant recognition and respect among employers and graduate schools in the region. No doubt, this is due to the cutting-edge nature of the curriculum and the abilities and successes of graduates from the program. Graduates are finding gainful employment in their field, pursuing and securing professional certifications, and are being accepted into well-recognized graduate programs.

Requirements for admission to HES
Students planning to major in Health & Exercise Science, must apply to be admitted to the program by the end of the first semester of their sophomore year. Transfer students with higher than sophomore standing or Post-BA students must complete the process by the end of their first semester of attending Spring Arbor University. Program admission forms are available from any faculty member or the departmental secretary. Admission decisions will be rendered with one of the following three possibilities.

1. Admitted with no provisions.
2. Admitted on probationary status with specific provisions.
3. Denied admittance with specific provisions for reapplying or not.

Below are the criteria used in considering admission for all programs followed by criteria for specific programs.

1. Attend an orientation session and any other required information meetings called by the department.
2. At least one year in advance each student must file with the department a “Plan for Practicum, or Internship” experiences.
3. A minimum of 36 semester hours of coursework completed at SAU with a minimum cumulative grade point average (GPA) of 2.5. This requirement is waived for transfer students having higher than a sophomore standing and all Post-BA students.
4. Complete HPR 151, 153, and BIO 111, 263, CHE 101 or 111, where applicable, plus any other HES courses taken with a minimum cumulative GPA of 2.6 and no grade lower than 2.0 in any of these courses.
5. Demonstrate writing skills necessary to succeed in the curriculum and later in careers in the field, as indicated by written assignments given in departmental courses taken to date.
6. Complete the HES Entry-level Mastery Exam with a score of 80% or greater. The exam will cover expected competencies taken from entry-level coursework, including topics such as anatomy, physiology, foundations of physical fitness, nutrition, and exercise. Once admitted to the program, good
standing can be revoked if a student fails to maintain standards implied through the admission to the program process, or is found to have compromised the highest standard of academic honor and integrity as described in the Spring Arbor University Academic Integrity Policy.

Students withdrawing from active enrollment at Spring Arbor University or dismissed due to academic problems must be readmitted to the department upon readmission to the University.

Requirements
The 52-60-hour health and exercise science major requires:

- BIO 263 Human Anatomy & Physiology (4)
- BUS 325 Principles of Management (3)
- CHE 101 Introduction to Chemistry (4) OR CHE 111 General Chemistry (4)
- HES 345 Principles of Exercise Prescription (2)
- HES 351 Statistics (3)
- HES 365 Introduction to Pharmacology & Medical Technology (3)
- HES 381 Nutrition and Energy Metabolism (3)
- HES 382 Functional Anatomy & Application (3)
- HES 385 Practicum (4-8) OR HES 450 Internship (6-12)
- HES 462 Cardiovascular Function and Electrophysiology (3)
- HES 473 Biomechanical/Anatomic Analysis of Human Motion (4)
- HES 474 Physiology of Exercise (3)
- HES 475 Physiology of Exercise Laboratory (2)
- HES 480 Senior Seminar (1)
- HPR 151 Introduction to Health, Human Performance, and Recreation (3)
- HPR 153 Foundations of Physical Fitness, Health, and Wellness (3)
- HPR 178 Aerobic Activities (2)
- HPR 179 Strength and Power Training (2)

Prerequisites:
- BIO 111 Zoology (4)

Notes for general education:
Students taking the health and exercise science major also fulfill general education credits with BIO 263 Human Anatomy & Physiology (4), HES 351 Statistics (3) and HPR 153 Foundations of Physical Education, Health & Wellness (3).

Course descriptions:

HES 335 Facilities Planning & Operations for Health, Fitness, Recreation & Sports (3)
For description see REC 335. Prerequisite: Admission to the HES program and junior standing. (Offered in fall of even academic years.)

HES 345 Principles of Exercise Prescription (2)
This course presents the essential components of systematic, individualized exercise prescriptions for healthy and special populations. The course covers appropriate pre-exercise screening, health-risk stratification, and principles of prescription including mode(s), intensity, duration, frequency, and progression of exercise following American College of Sports Medicine guidelines. Prerequisites: sophomore standing, BIO 263, HPR 153, 178 and 179 (HPR previously listed as ESS). (Offered in fall.)

HES 351 Statistics (3)
This is an introductory course in statistics taught from an interdisciplinary perspective with examples, problems and applications from the health sciences. Principles in descriptive and inferential statistics will be covered. Emphasis is on problem-solving through careful collection, organization, analysis and interpretation of data. Lab activities and computer applications are utilized. Also listed as PED 351. Prerequisite: Admission to HES program and junior standing. (Offered in fall.)

HES 365 Introduction to Pharmacology (3)
For description, see BIO 365. Prerequisite: Admission to HES program and CHE 101 or CHE 111. (Offered in spring.)

HES 381 Nutrition and Energy Metabolism (3)
A study of nutrients and their role in health and fitness, with an emphasis on nutrition knowledge and application for optimal performance. Particular attention is given to body composition, energy balance and fuel for aerobic/anaerobic metabolism. A computerized diet analysis and meal preparation are required. Also listed as PED 381. Prerequisite: HPR 153, admission to HES program, be a HPR major or minor and have sophomore standing. (Offered in spring.)
HES 382 Functional Anatomy and Application (3)
An in-depth course on the functional aspects of anatomy, including study of muscle origin and insertions, joints, joint movement, gait and muscle function will be addressed. An introduction to the prevention, evaluation, treatment of athletic related injuries, and other related concepts/theories will also be covered. Prerequisites: BIO 263, admission to the HES program and junior standing. (Offered in fall and spring.)

HES 385 Practicum (4-8)
For description see 385 Practicum under the “Courses for all Disciplines” section of the catalog. Prerequisite: Admission to HES program with significant upper-division coursework completed.

HES 442 Advanced Athletic Training (3)
Includes a thorough review of the structure and function of bones, joints and muscles, and instruction in specific anatomic components of major joints. The array of athletic injuries is covered with attention to common causes, examination and recommended treatment. Also provides instruction in the nature and use of various modalities of treatment; and comprehensive programs to rehabilitate and/or prevent specific injuries. Prerequisites: BIO 263, HES 382, and admission to HES program. (Limited offering.)

HES 450 Internship (6-12)
For description see 450 Internship under the “Courses for all Disciplines” section of the catalog. Prerequisite: Admission to HES program with significant upper-division coursework completed.

HES 462 Cardiovascular Function and Electrophysiology (3)
An in-depth study of circulation, heart structure and function, cardiovascular training responses and heart disease. Includes instruction in EKG interpretation and experience and EKG metabolic cart graded exercise testing. Cardiovascular medications and diagnostic procedures are also addressed. Prerequisites: BIO 263, HPR 153, admission to HES program and junior standing. (Offered in fall.)

HES 473 Biomechanical and Anatomical Analysis of Human Movement (4)
An analysis of human movement as it relates to locomotion, basic skills and athletic performance. Biomechanical and anatomic approaches are utilized. Includes a lab. Also listed as PED 473. Prerequisites: BIO 263, admission to HES program and senior standing. (Offered in fall.)

HES 474 Physiology of Exercise (3)
This course is designed to assist the future practitioner - teacher, coach, athlete, trainer, fitness instructor, physical therapist or team physician - in the understanding of physiologic principles underlying the physical conditioning process and the body’s acute and chronic adaptation to exercise. The understanding and application of basic physiologic principles such as muscular and neurological control of movement, metabolism and basic energy systems, hormonal regulation of exercise, and cardiorespiratory function and performance for improved human fitness and performance is the purpose of this course. Also listed as PED 474. Prerequisites: BIO 263, admission to HES program and junior standing. (Offered in spring.)

HES 475 Physiology of Exercise Lab (2)
A laboratory course that is suggested to be taken concurrently with HES 474. Includes field and laboratory testing for various components of physical fitness with special emphasis given to graded exercise testing and metabolic calculations. Required of all students completing the health and exercise science major and strongly encouraged for all others taking HES 474. Also listed as PED 475. Prerequisites: BIO 263, admission to HES program and junior standing. (Offered in spring.)

HES 480 Senior Seminar (1)
This is a seminar course for seniors enrolled in the Health and Exercise Science and Recreation and Leisure majors. Intended as a capstone course to the curriculum, emphasis is placed on career and professional development skills and activities, as students prepare to move on to graduate programs or employment in discipline related fields. Prerequisite: Admission to HES program and senior standing. (Offered in fall.)