

HEALTH AND HUMAN PERFORMANCE, BACHELOR OF SCIENCE

What is Exercise Science

Few academic programs offer such diverse opportunities for employment and professional development upon graduation as Exercise Science. The Exercise Science curriculum prepares graduates with the knowledge and practical experience necessary for employment as exercise physiologist; strength and conditioning specialists; personal trainers, corporate, community and commercial fitness leaders. This major provides a strong background for those interested in pursuing a master's degree in exercise physiology or related field. The Exercise Science specialization is also an attractive curricular option for those intending to apply to professional programs in medicine and other allied health programs such as physical therapy, occupational therapy, physician's assistant, and cardiac rehabilitation.

Career Outlook

Students interested in applying for admission to a professional school in one of the allied health professions will find the science-based courses (e.g., Human Anatomy, Exercise Physiology, Human Physiology, Kinesiology, Nutrition, etc.) in the Exercise Science major to be of special interest because of their emphasis on the human body. The curriculum culminates with applied courses such as Test and Measurements and Internships that provides students with "hands on" practical experiences.

Student Internship Opportunities

Internship opportunities include, but are not limited to, spending 200 or more hours with mentors in physical therapy, occupational therapy, physician, commercial/corporate/community fitness, athletic training, personal training, and strength and conditioning clinics, and similar settings.

Degree Options

The exercise science concentration at ASU is offered through the Department of Health and Human Performance. Students in the exercise science specialization will earn the Bachelor of Science degree and be prepared for certification through the American College of Sports Medicine (ACSM) as Exercise Physiologist (EP-C), and the National Strength and Conditioning Association (NSCA) as Certified Strength and Conditioning Specialists (CSCS) and Certified Personal Trainers (CPT).

Upon completion of coursework, students perform a full-time 400-600 hour internship at an approved facility, compatible with career and employment goals.

Upon receipt of the baccalaureate degree, graduates are prepared for employment in the aforementioned areas, or for advanced studies in various branches of exercise science or related fields, such as medicine, physical therapy, and athletic training.

Web Sites

- American College of Sports Medicine – <https://www.acsm.org>
- American Physical Therapy Association – <http://www.apta.org>

- National Strength and Conditioning Association – <https://www.nasca.com>
- National Athletic Trainers Association – <http://www.nata.org>

Additional Degree Requirements

A minimum grade of C is required in Areas A, F, and all major courses.

| Code | Title | Semester Hours |
|--|--|----------------|
| Core Curriculum for Non-STEM Majors (Areas A-E) (http://catalog.asurams.edu/undergraduate/core-curriculum/) | | 42 |
| Area F: Courses Related to Major | | |
| BIOL 2411K | Human Anatomy and Physiology I | 4 |
| BIOL 2412K | Human Anatomy and Physiology II | 4 |
| HHUP 2213 | Introduction to Exercise Science | 3 |
| Advisor approved electives | | |
| COHP 2110 | Nutrition | 3 |
| HHUP 2289 | Care and Prevention of Athletic Injuries | 3 |
| WELL 1007 | Aquatics I | 1 |
| Area G - Major Requirements (33 hours) | | |
| COHP 2120 | Growth and Development for Health Professions | 3 |
| HHUP 4400 | Introduction to Research Methods in Exercise and Sport Science | 3 |
| HHUP 3001 | Sports Nutrition | 3 |
| HHUP 3002 | Psychological Aspects of Exercise | 3 |
| HHUP 3004 | Kinesiology | 3 |
| HHUP 3003 | Exercise physiology | 3 |
| HHUP 3005 | Applied Exercise Physiology | 3 |
| HHUP 3007 | Group Instructions | 3 |
| HHUP 3006 | Fitness Assessment & Interpretation | 3 |
| HHUP 4300 | Principles of Strength and Conditioning | 3 |
| HHUP 4500 | Test & Measurements in Exercise Science | 3 |
| Exercise Science | | |
| HHUP 3008 | Progressive Resistance Program Design | 3 |
| HHUP 4091 | Intro Exerc Science Intern | 3 |
| HHUP 4092 | Exercise Prescription & Implementation | 3 |
| HHUP 4093 | Exercise for the Special Population | 3 |
| HHUP 4090 | Administration & Supervision in Health and Fitness | 3 |
| HHUP 3009 | Biomechanics | 3 |
| HHUP 4600 | Capstone Internship I | 3 |
| HHUP 4601 | Capstone Internship II | 3 |
| HHUP 4602 | Capstone Internship III | 3 |
| First-Year and Wellness Course Requirements Outside the Core | | |
| ASU 1101 | First Year Experience: Pathways to Success | 1 |
| HEDP, WELL | Health & Wellness Requirement ¹ | 2 |
| Total Semester Hours | | 123 |

¹ The health & wellness requirement may be fulfilled by taking one - two (2) credit hour health or wellness course OR two one (1) credit hour health or wellness activity courses.

Additional Degree Requirements

A minimum grade of C is required in Areas A, F, and all major courses.

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| HHUP 3007 | Group Instructions | 3 |
| HHUP 3006 | Fitness Assessment & Interpretation | 3 |
| HHUP 4300 | Principles of Strength and Conditioning | 3 |
| HHUP 4500 | Test & Measurements in Exercise Science | 3 |
| Sports Medicine | | |
| HHUP 3120 | Therapeutic Modalities | 3 |
| HHUP 4103 | Orthopedic Assessment in Sports Medicine | 3 |
| HHUP 4100 | General medical Conditions and Pharmacology | 3 |
| HHUP 3121K | Therapeutic Exercise | 4 |
| HHUP 4102 | Clinical Internship | 2 |
| Electives – 12 Hours (Consult with Faculty Advisor) | | 12 |
| First-Year and Wellness Course Requirements Outside the Core | | |
| ASU 1101 | First Year Experience: Pathways to Success | 1 |
| HEDP, WELL | Health & Wellness Requirement ¹ | 2 |
| Total Semester Hours | | 123 |

¹ The health & wellness requirement may be fulfilled by taking one - two (2) credit hour health or wellness course OR two one (1) credit hour health or wellness activity courses.

HHUP 2000. Directed Study. (1 Credit)

This elective allows students to explore varied content under contracted supervision of a faculty. Specific content can be found in the syllabus of each offering. Offered: Fall, Spring.

HHUP 2213. Introduction to Exercise Science. (3 Credits)

This is an entry level course in the field of exercise science. This course provides information on selected topics in the field of exercise science and other related health science disciplines, including: Exercise science history, anatomy, exercise physiology, exercise epidemiology, exercise nutrition, biomechanics, and exercise and sport psychology. This course is designed to introduce students to the field and prepare them for further classes in the exercise science discipline. Offered: Fall, Spring, Summer.

HHUP 2289. Care and Prevention of Athletic Injuries. (3 Credits)

A course designed to provide entry level knowledge in the field of sport related injuries. This course includes units dealing with the history of athletic training, basic anatomy of common injuries, evaluation techniques, preventative measures to reduce the incidences of injuries and knowledge of basic treatment procedures to be used after injuries occur. Legal and ethical issues will also be discussed. Offered: Fall, Spring.

HHUP 2319. Fundamentals/Coaching of Baseball/Softball. (2 Credits)

Stress fundamentals of teaching the basic skills in baseball: pitching, catching, batting, base running, infield and outfield plays, offensive and defensive strategy, organization and management. Includes officiating. Offered: Fall, Spring .

HHUP 2377. Fundamentals/Coaching of Track/Field. (3 Credits)

Fundamental procedure in conditioning and training for track and field events; a basic understanding of the individual basic skills for each event; coaching strategies, principles and procedures of organizing and managing meets. Offered: Fall, Spring.

HHUP 3001. Sports Nutrition. (3 Credits)

This course provides the student with a comprehensive understanding of nutrition as it relates to optimal training and performance of sports activities. Within the course structure, you, as the student, will learn (a) basic concepts of sport nutrition, (b) the optimum intake of macronutrients and micronutrients for optimal sports performance, and (c) the efficacy of nutritional supplementation. Offered: Fall, Spring, Summer.

HHUP 3002. Psychological Aspects of Exercise. (3 Credits)

This course is an overview of basic concepts and principles essential to understanding the psychological and behavioral aspects of sport and exercise. Emphasis is given to the conceptual frameworks and the applied aspects of sport performance enhancement and mental skills, exercise behavior and motivation, sociological factors, and health and well-being. Offered: Fall, Spring, Summer.

HHUP 3003. Exercise physiology. (3 Credits)

This course is designed to provide physical educators, coaches, athletic trainer, and persons interested in exercise science with applied knowledge relative to the human's physiologic responses to exercise and other environmental stresses. The lecture/discussion areas include nutrition, energy metabolism, respiratory, cardiovascular, and neuromuscular physiology, environmental factors, and applied physiology. Basic laboratory procedures and tests in the field of exercise physiology are designed to complement the lecture area. Offered: Fall, Spring, Summer.

HHUP 3004. Kinesiology. (3 Credits)

This course provides the foundation to present a systematic approach for a kinesiological analysis. The organization and design is broken down into four primary parts; fundamentals of structure and motion of the human body, skeletal osteology, skeletal arthrology, and myology. The emphasis throughout is on the relation of anatomical structure to function and the development of the descriptive method of analysis. Offered: Fall, Spring, Summer.

HHUP 3005. Applied Exercise Physiology. (3 Credits)

Physiological principles applied to the prevention, management, and treatment of chronic health conditions. Focus on pathophysiology, acute response to exercise, chronic training effects, and development of appropriate conditioning and training programs for chronic conditions. Offered: Fall, Spring.

HHUP 3006. Fitness Assessment & Interpretation. (3 Credits)

This course provides students with practical experience including laboratory and field tests used for assessing physical fitness components as well as principles of exercise prescription. Test results are used in developing individualized exercise prescriptions to improve cardiorespiratory fitness, muscular fitness, bodyweight and body composition, and flexibility. Offered: Fall, Spring, Summer.

HHUP 3007. Group Instructions. (3 Credits)

This course provides the foundation for principles and methods of exercise leadership. Primary focus will center on exercise programming and participation, teaching methods, technique evaluation, supervision, and leadership of various types of group exercise programs. Offered: Fall, Spring, Summer.

HHUP 3008. Progressive Resistance Program Design. (3 Credits)

A planned resistance training program to increase muscular strength and tone through a planned progressive series performed on the weight machine, free weight or other apparatus. The course will describe type of exercise, predominant muscle groups, proper exercise technique guidelines and required spotters. Offered: Fall, Spring, Summer.

HHUP 3009. Biomechanics. (3 Credits)

The purpose of this course is to introduce students to concepts of mechanics as they apply to human movement, particularly those pertaining to exercise, sport, and physical activity. The student should gain an understanding of the mechanical and anatomical principles that govern human motion and develop the ability to link the structure of human body with its function from a mechanical perspective. Offered: Fall, Spring, Summer.

HHUP 3120. Therapeutic Modalities. (3 Credits)

Study of the physical principles, physiological effects, indications and contraindications of therapeutic modalities used in athletic training. Also covers indications, contraindications, physiological effects, special programs, and resistance methods used in the prevention and rehabilitation of athletic injuries. Offered: Fall, Spring, Summer .

HHUP 3121K. Therapeutic Exercise. (4 Credits)

This course explains the theory of therapeutic exercises, manual therapies, and exercise rehabilitation equipment used in the sports medicine setting for rehabilitation and reconditioning of orthopedic injuries. Lab: This course is designed to give the student an opportunity to practice the various therapeutic exercise techniques, as learned in the lecture portion. The student will have the laboratory opportunity to observe and practice therapeutic exercises for different therapeutic purposes in an injured person. This will enable the student to get the hands-on experience to assist in their development and application of previously learned skills. Offered: Fall, Spring.

HHUP 4090. Administration & Supervision in Health and Fitness. (3 Credits)

This course will examine management and leadership theory and concepts as they pertain to the health fitness industry and sports. Management of human resources, fiscal resources, policies and procedures, and marketing will be examined in depth. Offered: Fall, Spring, Summer.

HHUP 4091. Intro Exerc Science Intern. (3 Credits)

This exercise science internship is a service learning experiential experience that permits students to apply their academic training under the direction of certified fitness/wellness professionals and/or licensed clinical professionals at ASU campuses. This internship provides the student with opportunity to develop soft-skills, ask pertinent questions, make observations, and to participate in providing a service to the University community. Offered: Fall, Spring, Summer.

HHUP 4092. Exercise Prescription & Implementation. (3 Credits)

This course will include both lecture and lab instruction. Students are expected to attend all class sections, actively participate in class discussions, complete in-class exercises, and fulfill all assignments. Since this course requires significant active participation, students must be dressed in appropriate fitness wear during most class sessions. Notification will be given when active dress is required. Many of the concepts covered in this course will prepare the student to take the American College of Sports Medicine (ACSM) Certified Exercise Physiologist (EP-C) exam; however, this is NOT a preparation course for the ACSM EP-C.

HHUP 4093. Exercise for the Special Population. (3 Credits)

This course provides students with a basic understanding of the pathophysiology and exercise responses relative to diseased of the cardiovascular, pulmonary, metabolic, neuromuscular, and immunologic systems. The material follows the disease-specific pathology and ACSM treatment guidelines while guiding students through exercise testing and training principles for clients with chronic diseases. Offered: Fall, Spring, Summer.

HHUP 4100. General medical Conditions and Pharmacology. (3 Credits)

An examination of assessment and management techniques of general medical conditions and pharmacology principles in physically active populations. Offered: Fall, Spring.

HHUP 4102. Clinical Internship. (2 Credits)

This sports medicine internship is a service learning experiential experience that permits students to apply their academic training under the direction of certified athletic training professionals and/or licensed clinical professionals at ASU campuses. This internship provides the student with opportunity to develop soft-skills, ask pertinent questions, make observations, and to participate in providing a service to the University community. Offered: Fall, Spring, Summer.

HHUP 4103. Orthopedic Assessment in Sports Medicine. (3 Credits)

This course is designed to instruct the student in upper extremity biomechanics, physical examination procedures, and orthopedic testing procedures. The student will review basic biomechanics concepts and learn the basic biomechanics of the shoulder girdle, elbow, wrist and hand. The relationship of upper appendages to the spine will be explored. We will learn the relationship of abnormal biomechanics to injury; the performance and interpretation of standard orthopedic tests of the upper extremities; and the recognition and diagnosis of the major pathological conditions affecting the upper extremities. Offered: Fall, Spring.

HHUP 4300. Principles of Strength and Conditioning. (3 Credits)

This course is designed for students preparing for the National Strength and Conditioning Association (NSCA) Certified Strength and Conditioning Specialist (CSCS) certification or for students wishing to gain additional practical application of exercise science, strength training, and programming. Offered: Fall, Spring, Summer .

HHUP 4400. Introduction to Research Methods in Exercise and Sport Science. (3 Credits)

The main purpose of the course is to introduce students to quantitative and qualitative methods for conducting meaningful inquiry and research in Exercise Science related topics. Students will gain an overview of research intent and design, methodology and technique, format and presentation, and data management and analysis informed by commonly used statistical methods. Offered: Fall, Spring, Summer.

HHUP 4500. Test & Measurements in Exercise Science. (3 Credits)

Basic knowledge of measurement, data analysis, and evaluation for conducting the evidence-based practice in exercise and sport science and health related fields. Offered: Fall, Spring, Summer.

HHUP 4600. Capstone Internship I. (3 Credits)

An internship experience provides the student with an opportunity to explore career interests while applying knowledge and skills learned in the classroom in a work setting. The experience also helps students gain clearer sense of what they still need to learn and provides an opportunity to build professional networks. Offered: Fall, Spring, Summer.

HHUP 4601. Capstone Internship II. (3 Credits)

An internship experience provides the student with an opportunity to explore career interests while applying knowledge and skills learned in the classroom in a work setting. The experience also helps students gain clearer sense of what they still need to learn and provides an opportunity to build professional networks. Offered: Fall, Spring, Summer.

HHUP 4602. Capstone Internship III. (3 Credits)

An internship experience provides the student with an opportunity to explore career interests while applying knowledge and skills learned in the classroom in a work setting. The experience also helps students gain clearer sense of what they still need to learn and provides an opportunity to build professional networks. Offered: Fall, Spring, Summer.