

# Exercise Science (EXSC)

The program in exercise science is designed to prepare candidates for a variety of career options, including teaching physical education, coaching, analyzing and prescribing fitness programs, athletic training, or preparation for professional programs in allied health.

Graduates of this program should be well prepared to enter graduate programs of study in such areas as exercise physiology, biomechanics, athletic training, sport management, medical school, physical therapy school, and other allied health professional schools.

## Requirements for B.S. in Exercise Science

### Requirements for the B.S. in Exercise Science

Students must have 40 hours of 3000/4000-level classes to graduate.

#### State Minimum Core

35

MATH – A prerequisite course, MATH 11003, may be required.

MATH 12003 Plane Trigonometry (ACTS Equivalency = MATH 1203)

or MATH 13003 Calculus Mathematics (ACTS Equivalency = MATH 1305)

or MATH 24003 Calculus I (ACTS Equivalency = MATH 2405)

BIOL 10103 Principles of Biology (ACTS Equivalency = BIOL & BIOL 10101 1014 Lecture)  
and Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)

or BIOL 10101 Biology for Majors (ACTS Equivalency = BIOL 1014 Lecture)

CHEM 14103 University Chemistry I (ACTS Equivalency = & CHEM 14101 CHEM 1414 Lecture)  
and University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)

or CHEM 12003 Chemistry for Majors I  
& CHEM 12001 Chemistry for Majors I Laboratory

PSYC 20003 General Psychology (ACTS Equivalency = PSYC 1103)

#### Additional Required Sciences (20 hours)

BIOL 24003 Human Anatomy (ACTS Equivalency = BIOL 2404 & BIOL 24001 Lecture)  
and Human Anatomy Laboratory (ACTS Equivalency = BIOL 2404 Lab)

BIOL 24103 Human Physiology (ACTS Equivalency = BIOL & BIOL 24101 2414 Lecture)  
and Human Physiology Laboratory (ACTS Equivalency = BIOL 2414 Lab)

CHEM 14203 University Chemistry II (ACTS Equivalency = & CHEM 14201 CHEM 1424 Lecture)  
and University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)

or CHEM 12281 Chemistry for Majors II  
& CHEM 12281 Chemistry for Majors II Laboratory

CHEM 26103 Organic Physiological Chemistry (ACTS & CHEM 26101 Equivalency = CHEM 1224 Lecture)  
and Organic Physiological Chemistry Laboratory (ACTS Equivalency = CHEM 1224 Lab)

or CHEM 36053 Organic Chemistry I  
& CHEM 36001 and

or CHEM 37073 Organic Chemistry I Lecture for Chemistry Majors  
& CHEM 37072 and Organic Chemistry I Lab for Chemistry Majors

PHYS 20103 College Physics I (ACTS Equivalency = PHYS & PHYS 20101 2014 Lecture)  
and College Physics I Laboratory (ACTS Equivalency = PHYS 2014 Lab)

#### Additional Non-EXSC Requirements (12 hours)

NUTR 12103 Fundamentals of Nutrition 3

SPCH 10003 Public Speaking (ACTS Equivalency = SPCH 1003) 3

MATH 21003 Principles of Statistics (ACTS Equivalency = MATH 2103) 3

or PSYC 20103 Introduction to Statistics for Psychologists

or SOCI 33003 Social Data and Analysis

or STAT 28233 Biostatistics

PSYC 30203 Psychopathology 3

#### Exercise Science Core Required (30 hours)

EXSC 26603 Terminology for the Health Professions <sup>1</sup> 3

EXSC 27303 Introduction to Exercise Science 3

EXSC 31503 Exercise Physiology 3

EXSC 33503 Mechanics of Human Movement 3

EXSC 35303 Laboratory Techniques 3

EXSC 43203 Exercise Prescription 3

EXSC 47803 Sport and Exercise Psychology 3

EXSC 48303 Exercise Applications for Special Populations 3

or EXSC 483H: Honors Exercise Applications for Special Populations

EXSC 49003 Internship in Exercise Science <sup>2</sup> 3

or EXSC 4050V Independent Study

or EXSC 498HV Exercise Science Honors Thesis/Project

or ATTR 51303 Core Competencies and Clinical Care I

EXSC Elective or ATTR 53104 3

**Related Electives chosen from ATTR, EXSC, PBHL, CHLP, SOCI, 15  
SPED, FDSC, NUTR, CHEM, STAT, CDIS, BIOL, ANTH, HDFS,  
ANSC, CNED, PHED, PSYC, SCWK, HRWD, HESC, POSC, PHYS,  
RESM, MATH**

**General Electives 7-8**

**Total Hours 120**

<sup>1</sup> EXSC 26603 is cross-listed with PBHL 26603.

<sup>2</sup> EXSC 498HV option available only if completing Honors Program

## Exercise Science B.S.

### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan in Kinesiology should see the Eight-Semester Degree Policy (<http://catalog.uark.edu/undergraduatecatalog/academicregulations/eightsemesterdegreecompletionpolicy/>) for university requirements of the program. Students must have 40 hours of 3000/4000-level classes to graduate. Find out more about the state minimum core (<http://catalog.uark.edu/undergraduatecatalog/gened/stateminimum/>) requirements.

First Year	Units		Second Year	Units	
	Fall	Spring		Fall	Spring
ENGL 10103 Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)	3		EXSC 27303 Introduction to Exercise Science (Satisfies General Education Outcome 4.1)	3	
Choose from (Satisfies General Education Outcome 3.4): <sup>1</sup>			NUTR 12103 Fundamentals of Nutrition	3	
CHEM 14103 University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture) & CHEM 14101 University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab) or CHEM 12073 and CHEM 12071	4		Choose from (Satisfies General Education Outcome 4.2):		
Choose from (Satisfies General Education Outcome 2.1 if MATH is taken): <sup>1</sup>	3		HIST 20003 History of the American People to 1877 (ACTS Equivalency = HIST 2113) or HIST 20103 History of the American People, 1877 to Present (ACTS Equivalency = HIST 2123) or PLSC 20003 American National Government (ACTS Equivalency = PLSC 2003)	3	
General Elective (recommend MATH 1203 if appropriate)			EXSC 26603 Terminology for the Health Professions <sup>2</sup>	3	
MATH 12003 Plane Trigonometry (ACTS Equivalency = MATH 1203) or MATH 13004 Precalculus Mathematics (ACTS Equivalency = MATH 1305) or MATH 24004 Calculus I (ACTS Equivalency = MATH 2405)			BIOL 24003 Human Anatomy (ACTS Equivalency = BIOL 2404 Lecture) & BIOL 24001 Human Anatomy Laboratory (ACTS Equivalency = BIOL 2404 Lab)	4	
Fine Arts or Humanities State Minimum Core (Satisfies General Education Outcome 3.1 or 3.2) <sup>1</sup>	3		PSYC 20003 General Psychology (ACTS Equivalency = PSYC 1103) (Satisfies General Education Outcome 3.3)		3
Satisfies General Education Outcome 3.4:			MATH 21003 Principles of Statistics (ACTS Equivalency = MATH 2103) or PSYC 20103 Introduction to Statistics for Psychologists		3
BIOL 10103 Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture) & BIOL 10101 Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab) or BIOL 10104 Biology for Majors (ACTS Equivalency = BIOL 1014 Lecture)	4		or SOCI 33003 Social Data and Analysis or STAT 28233 Biostatistics		
ENGL 10203 Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.1)		3	BIOL 24103 Human Physiology (ACTS Equivalency = BIOL 2414 Lecture) & BIOL 24101 Human Physiology Laboratory (ACTS Equivalency = BIOL 2414 Lab)		4
Fine Arts or Humanities State Minimum Core (Satisfies General Education Outcome 3.1 or 3.2) <sup>1</sup>		3	General Elective		2
CHEM 14203 University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture) & CHEM 14201 University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab) or CHEM 12283 and CHEM 12281		4	Social Sciences State Minimum Core (Satisfies General Education Outcome 3.3) <sup>1</sup>		3
Choose from:			Year Total:	16	15
General Elective (if math requirement met excluding MATH 21003)					
MATH 12003 Plane Trigonometry (ACTS Equivalency = MATH 1203) or MATH 13004 Precalculus Mathematics (ACTS Equivalency = MATH 1305) or MATH 24004 Calculus I (ACTS Equivalency = MATH 2405)			<b>Third Year</b>		
SPCH 10003 Public Speaking (ACTS Equivalency = SPCH 1003) (Satisfies General Education Outcomes 1.2 and 5.1)		3		<b>Fall</b>	<b>Units Spring</b>
Year Total:	17	16	PHYS 20103 College Physics I (ACTS Equivalency = PHYS 2014 Lecture) & PHYS 20101 College Physics I Laboratory (ACTS Equivalency = PHYS 2014 Lab)	4	
			EXSC 31503 Exercise Physiology	3	
			EXSC 33503 Mechanics of Human Movement	3	
			General Elective	3	
			Related Elective	3	
			EXSC 35303 Laboratory Techniques		3
			CHEM 26103 Organic Physiological Chemistry (ACTS Equivalency = CHEM 1224 Lecture) & CHEM 26101 Organic Physiological Chemistry Laboratory (ACTS Equivalency = CHEM 1224 Lab) or CHEM 36053 and CHEM 36001		4
			Related Elective		3
			EXSC 43203 Exercise Prescription		3
			EXSC Elective		3
			Year Total:	16	16

Fourth Year	Units	
	Fall	Spring
EXSC 48303 Exercise Applications for Special Populations or EXSC 483H3 Honors Exercise Applications for Special Populations	3	
Social Sciences State Minimum Core (Satisfies General Education Outcome 3.3) <sup>1</sup>	3	
EXSC 47803 Sport and Exercise Psychology	3	
PSYC 30203 Psychopathology	3	
EXSC 49003 Internship in Exercise Science (Satisfies General Education Outcome 6.1) <sup>1, 3</sup> or EXSC 4050V Independent Study or EXSC 498HV Exercise Science Honors Thesis/Project		3
Related Elective		9
Year Total:	12	12
<b>Total Units in Sequence:</b>		<b>120</b>

- <sup>1</sup> Students must complete the State Minimum Core requirements (<https://nam03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fnextcatalog.uark.edu%2Fundergraduatecatalog%2Fgeneral%2Fstateminimum%2F&data=02%7C01%7Cagriffin%40uark.edu%7Ce4e632415f9b49eda9bf08d7f5c20b91%7C79c742c4e61c4fa5be89a3cb566a80d1%7C0%7C0%7C637248086069611524&sd=4bJ2Oob83N8KfTKGD%2F1XG8924jwOx8pTlw8IWNAGp0s%3D&reserved=0>) as outlined in the Catalog of Studies. The courses that meet the state minimum core also fulfill many of the university's General Education requirements (<https://nam03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fnextcatalog.uark.edu%2Fundergraduatecatalog%2Fgeneral%2Fgeneral%2F&data=02%7C01%7Cagriffin%40uark.edu%7Ce4e632415f9b49eda9bf08d7f5c20b91%7C79c742c4e61c4fa5be89a3cb566a80d1%7C0%7C0%7C637248086069611524&sd=4bJ2Oob83N8KfTKGD%2F1XG8924jwOx8pTlw8IWNAGp0s%3D&reserved=0>), although there are additional considerations to satisfy the general education learning outcomes. Students are encouraged to consult with their academic advisor when making course selections.
- <sup>2</sup> EXSC 26603 is cross-listed with PBHL 26603.
- <sup>3</sup> Use of EXSC 498HV only for students completing the College of Education and Health Professions Honors Program.

## Courses

### EXSC 26603. Terminology for the Health Professions. 3 Hours.

Emphasis is on word roots and combined forms of words describing various facets of health and disease. Descriptive definitions with application of practical significance included for the health professional. (Typically offered: Irregular)

### EXSC 27303. Introduction to Exercise Science. 3 Hours.

This class will cover introductory topics for the Exercise Science students in preparation for entry into the profession. In addition to specific topics, students will prepare their resumes and make a formal presentation. Prerequisite: EXSC major or instructor consent. (Typically offered: Fall and Spring)

### EXSC 273H3. Honors Introduction to Exercise Science. 3 Hours.

This class will cover introductory topics for the Exercise Science students in preparation for entry into the profession. In addition to specific topics, students will prepare their resumes and make a formal presentation. (Typically offered: Fall and Spring)

### EXSC 30103. Functional Anatomy for Exercise Science. 3 Hours.

This course will include the study of functional human anatomy with emphasis on musculoskeletal and neurological systems. There will be an introduction to the clinical application and location of anatomical structures with some common injuries from a health professions perspective. Prerequisite: BIOL 24003 and BIOL 24001. (Typically offered: Spring)

### EXSC 31503. Exercise Physiology. 3 Hours.

Examination of effects of exercise on the physiology of the systems of the body. The exploration includes effects during, immediately after, and as long term results of work and exercise. Prerequisite: (BIOL 24103 and BIOL 24101) and (BIOL 24003 and BIOL 24001). (Typically offered: Fall and Spring)

### EXSC 33503. Mechanics of Human Movement. 3 Hours.

An introduction to basic analysis of motor skills. No credit given toward major in Zoology. Prerequisite: (BIOL 24103 and BIOL 24101), (BIOL 24003 and BIOL 24001), and KINSBS or EXSCBS or PHEDBS majors or by instructor consent. (Typically offered: Fall and Spring)

### EXSC 33903. Prevention and Care of Athletic Injuries. 3 Hours.

Introduction to the prevention and care of athletic related injuries. Includes athletic injury recognition and management. Prerequisite: BIOL 24003 and BIOL 24001. (Typically offered: Irregular)

### EXSC 34201. Principles and Theories of Strength and Conditioning Laboratory. 1 Hour.

This course will provide the practical skills necessary to design and implement strength and conditioning programs. Students will put principles of cardiovascular, speed, agility, and strength training into practice as they relate to sport team training. Special emphasis is placed on the ability to evaluate exercise movements, prescribe appropriate exercise programs, administer tests, and support program prescription with a sound knowledge of anatomical and physiological adaptations to exercise. Students will learn various skills such as how to set up and run speed, agility, and quickness drills, how to select and administer the appropriate tests for athletic performance, and how to evaluate Olympic lifting technique. Corequisite: EXSC 34203. (Typically offered: Spring)

### EXSC 34203. Principles and Theories of Strength and Conditioning. 3 Hours.

This course will provide the practical skills necessary to design strength and conditioning programs. Special emphasis is placed on the ability to evaluate exercise movements, prescribe appropriate exercise programs, administer tests, and support program prescription with a sound knowledge of anatomical and physiological adaptation to exercise. The course will include laboratory experiences integrated with didactic learning. The laboratory experiences will in teach students various skills such as how to set up and run speed, agility, and quickness drills, how to select and administer the appropriate tests for athletic performance, and how to evaluate Olympic lifting technique. Everyone must participate in the labs as subjects. Come to lab prepared to exercise. When students are finished with this course, they will be well prepared to take the CSCS exam given by the National Strength and Conditioning Association. Corequisite: EXSC 34201. Prerequisite: (BIOL 24003 and BIOL 24001) and (BIOL 24103 and BIOL 24101). (Typically offered: Spring)

### EXSC 35303. Laboratory Techniques. 3 Hours.

Practical experience in testing physical fitness in both the laboratory and non-laboratory settings. Pre- or Corequisite: EXSC 31503. (Typically offered: Fall, Spring and Summer)

### EXSC 372H3. Honors Research Methods in Exercise Science. 3 Hours.

This course will provide an overview of research methods for experimental research designs in exercise science. The students will learn facets of research including: developing a research idea, getting funding for research, obtaining IRB/IACUC approval, data collection, data input, statistical analyses, and preparing manuscripts for publication. Designed for exercise science honors students in spring of their junior year or the summer prior to their senior year to prepare them for their honor's thesis. Prerequisite: Honors standing. (Typically offered: Spring)

**EXSC 390H1. Exercise Science Honors Thesis Tutorial. 1 Hour.**

Designed to provide the foundation for the Honors Thesis/Project. Students and faculty tutors work "one-on-one" exploring a specific topic which has been agreed upon by the student and the professor. Prerequisite: Honors candidacy and EXSCBS major. (Typically offered: Fall, Spring and Summer)

**EXSC 3910V. Special Topics in EXSC. 1-3 Hour.**

Designed to cover specialized topics not presented in exercise science coursework. (Typically offered: Irregular) May be repeated for up to 9 hours of degree credit.

**EXSC 40103. Clinical Exercise Physiology. 3 Hours.**

The course is designed to build upon prior knowledge of Exercise Physiology and Exercise Testing. We will examine the physiological impacts of exercise and exercise training with specific emphasis on how they relate to clinical outcomes and clinical testing. At the end of the course students should have developed competencies congruent with the objectives of the American College of Sports Medicine's (ACSM) certification for Clinical Exercise Physiologist. Prerequisite: EXSC 31503 and EXSC 35303. (Typically offered: Fall)

**EXSC 4050V. Independent Study. 1-3 Hour.**

Provides students an opportunity to pursue special study of research problems. (Typically offered: Fall, Spring and Summer) May be repeated for up to 12 hours of degree credit.

**EXSC 405HV. Honors Independent Study. 1-4 Hour.**

Provides students an opportunity to pursue special study of research problems. Prerequisite: Instructor consent. (Typically offered: Fall, Spring and Summer) May be repeated for up to 4 hours of degree credit.  
This course is equivalent to EXSC 4050V.

**EXSC 43203. Exercise Prescription. 3 Hours.**

This course is designed to provide knowledge and application of sound exercise prescription principles and design of exercise programs in cardiorespiratory fitness, muscular fitness, body composition, flexibility, and balance. Pre- or corequisite: EXSC 35303. Prerequisite: EXSC 31503. (Typically offered: Fall and Spring)

**EXSC 432H3. Honors Exercise Prescription. 3 Hours.**

This course is designed to provide knowledge and application of sound exercise prescription principles and design of exercise programs in cardiorespiratory fitness, muscular fitness, body composition, flexibility, and balance. Pre- or corequisite: EXSC 35303. Prerequisite: EXSC 31503. (Typically offered: Fall and Spring)

**EXSC 44403. Pediatric Exercise Science. 3 Hours.**

This course explores exercise and physical activity in children and adolescents. Students will survey the anatomical, physiological and psychosocial issues related to exercise and physical activity in children such as effects of maturation, growth and puberty on the fitness components (body composition, cardiorespiratory endurance, muscle strength, muscle endurance and flexibility), normal responses to exercise, and adaptations of exercise training in healthy and clinical pediatric populations. The course will include a discussion of national physical activity recommendations and the local and national policies and programs to promote physical activity in diverse youth populations. Corequisite: EXSC 35303. Prerequisite: EXSC 31503. (Typically offered: Irregular)

**EXSC 47703. Performance and Drugs. 3 Hours.**

The pharmacological and physiological effects of ergogenic aids upon the athlete and sport performance, coupled with the ethical and moralistic viewpoints of drug taking. Explores the historic and contemporary doping scandals in sport and the efforts towards anti-doping. Prerequisite: EXSC 31503. (Typically offered: Fall and Spring)

**EXSC 477H3. Honors Performance and Drugs. 3 Hours.**

The pharmacological and physiological effects of ergogenic aids upon the athlete and sport performance, coupled with the ethical and moralistic viewpoints of drug taking. Explores the historic and contemporary doping scandals in sport and the efforts towards anti-doping. Prerequisite: EXSC 31503 and honors standing. (Typically offered: Fall and Spring)

**EXSC 47803. Sport and Exercise Psychology. 3 Hours.**

This course examines how individuals behave in physical activity, exercise, and sport settings. Psychological antecedents and consequences of primary and secondary involvement in exercise, sport, and related physical activities will be introduced. Prerequisite: PSYC 20003. (Typically offered: Fall and Summer)

**EXSC 478H3. Honors Sport and Exercise Psychology. 3 Hours.**

This course examines how individuals behave in physical activity, exercise, and sport settings. Psychological antecedents and consequences of primary and secondary involvement in exercise, sport, and related physical activities will be introduced. Prerequisite: Honors standing and PSYC 20003. (Typically offered: Fall)

**EXSC 48303. Exercise Applications for Special Populations. 3 Hours.**

The study of the effects of exercise, exercise training, and other stressors in special groups. A detailed study of the biomechanical and physiological effects of exercise on the elderly, the diabetic, the post-coronary, and the individual with functional limitations. Prerequisite: EXSC 33503, EXSC 31503, EXSC 35303, and EXSC 43203. (Typically offered: Fall and Spring)

**EXSC 483H3. Honors Exercise Applications for Special Populations. 3 Hours.**

The study of the effects of exercise, exercise training, and other stressors in special groups. A detailed study of the biomechanical and physiological effects of exercise on the elderly, the diabetic, the post-coronary, and the individual with functional limitations. Prerequisite: EXSC 33503, EXSC 31503, EXSC 35303, EXSC 43203 and honors standing. (Typically offered: Fall and Spring)

**EXSC 49003. Internship in Exercise Science. 3 Hours.**

Provides opportunities for students in Exercise Science to gain experience in clinics, hospitals, fitness centers, athletic training facilities or related settings. Pre- or Corequisite: EXSC 35303. Prerequisite: EXSC 33503 and EXSC 31503. (Typically offered: Fall, Spring and Summer)

**EXSC 498HV. Exercise Science Honors Thesis/Project. 1-3 Hour.**

Designed to provide facilitation of the Honors Thesis/Project. Students and faculty work "one-on-one" to complete the honors thesis/project. Prerequisite: Honors candidacy, EXSCBS, KINSBS, or PHEDBS major, and EXSC 390H1 or EXSC 372H3. (Typically offered: Fall, Spring and Summer) May be repeated for up to 3 hours of degree credit.