

# MAJOR IN HEALTH AND EXERCISE SCIENCE, EXERCISE SCIENCE CONCENTRATION

The mission of the department is to discover new knowledge through excellence in research in the areas of health and exercise science and to disseminate that knowledge through research, academics, and outreach programs. We are committed to our goal of producing graduates who focus on helping people protect, maintain, and improve their health and quality of life throughout their lifespan. The Exercise Science concentration offers students a strong science-based education dealing specifically with applications of the natural sciences to the study of health and exercise science. The program represents an excellent foundation for students seeking clinical careers such as physical and occupational therapy, medicine, as well as for students planning to continue on to graduate research programs.

## Effective Fall 2024

### Freshman

		AUCC	Credits
CO 150	College Composition (GT-CO2)	1A	3
FSHN 150	Survey of Human Nutrition		3
HES 145	Health and Wellness for Everyone (GT-SS3)	1C	3
HES 202	Introduction to Exercise Physiology		3
MATH 118 <sup>1</sup>	College Algebra in Context II (GT-MA1)	1B	1
MATH 124 <sup>1</sup>	Logarithmic and Exponential Functions (GT-MA1)	1B	1
MATH 125 <sup>1</sup>	Numerical Trigonometry (GT-MA1)	1B	1
Biology - Select one group from the following:			4
Group A			
LIFE 102	Attributes of Living Systems (GT-SC1)	3A	
Group B			
BZ 110	Principles of Animal Biology (GT-SC2)	3A	
BZ 111	Animal Biology Laboratory (GT-SC1)	3A	
Chemistry - Select one group from the following: <sup>2</sup>			5
Group A			
CHEM 107	Fundamentals of Chemistry (GT-SC2)	3A	
CHEM 108	Fundamentals of Chemistry Laboratory (GT-SC1)	3A	
Group B			
CHEM 111	General Chemistry I (GT-SC2)	3A	
CHEM 112	General Chemistry Lab I (GT-SC1)	3A	
Arts and Humanities ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> )			3
Electives			3

### Total Credits

30

### Sophomore

BMS 300	Principles of Human Physiology		4
BMS 302	Laboratory in Principles of Physiology		2
CHEM 113	General Chemistry II		3
CHEM 114	General Chemistry Lab II		1
HES 207	Anatomical Kinesiology		4

## Accelerated Program

The Exercise Science concentration includes an accelerated program option (<https://provost.colostate.edu/accelerated-programs/>) for students to graduate on a faster schedule. Accelerated programs typically include 15-16 credits each fall and spring semester for three years, plus 6-9 credits over two to three summer sessions (<https://summer.colostate.edu/acceleratedprograms/>). [Students who enter CSU with prior credit \(AP, IB, transfer, etc.\) may use applicable courses to further accelerate their graduation. Visit the Office of the Provost website for additional information about Accelerated Programs](#) (<https://provost.colostate.edu/accelerated-programs/>).

Learn more about the Exercise Science concentration on the Department of Health and Exercise Science website. (<https://www.chhs.colostate.edu/hes/programs-and-degrees/b-s-in-health-and-exercise-science/sports-medicine-concentration/>)

## Requirements

PSY 100	General Psychology (GT-SS3)	3C	3
SPCM 200	Public Speaking		3
Arts and Humanities ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> )		3B	3
Historical Perspectives ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives</a> )		3D	3
Electives			6
<b>Total Credits</b>			<b>32</b>
<b>Junior</b>			
CHEM 245 <sup>3</sup>	Fundamentals of Organic Chemistry		4
CHEM 246 <sup>3</sup>	Fundamentals of Organic Chemistry Laboratory		1
CO 301B	Writing in the Disciplines: Sciences (GT-CO3)	2	3
HES 319	Neuromuscular Aspects of Human Movement		4
HES 340	Exercise Prescription		3
HES 403	Physiology of Exercise	4B	3
HES 404	Physiology of Exercise Laboratory	4B	1
PH 121	General Physics I (GT-SC1)	3A	5
Statistics - Select one course from the following:			3
STAT 201	General Statistics (GT-MA1)	1B	
STAT 301	Introduction to Applied Statistical Methods		
STAT 307	Introduction to Biostatistics		
Electives			3
<b>Total Credits</b>			<b>30</b>
<b>Senior</b>			
BMS 301	Human Gross Anatomy		5
HES 307	Biomechanical Principles of Human Movement		3
HES 345	Population Health and Disease Prevention		3
Exercise Science Capstone - select one course from the following: <sup>4</sup>			3
HES 478A	Exercise Science Capstone: Seminar	4A,4C	
HES 478B	Exercise Science Capstone: Research	4A,4C	
HES 478C	Exercise Science Capstone: Teaching	4A,4C	
HES 478D	Exercise Science Capstone: Service Learning	4A,4C	
Exercise Science Guided Electives - Select 10 credits from the list below:			10
Electives <sup>5</sup>			4
<b>Total Credits</b>			<b>28</b>
<b>Program Total Credits:</b>			<b>120</b>

### Exercise Science Guided Electives List:

Code	Title	AUCC	Credits
Select a minimum of 10 credits from the list.			
BC 351	Principles of Biochemistry		4
BMS ***	Upper-Division course(s) not required elsewhere		3-5
BZ 310	Cell Biology		4
BZ 350	Molecular and General Genetics		4
FSHN***	Upper-Division course(s)		3-6
HDFS***	Upper-Division course(s)		3-6
HES ***	Upper-Division course(s) not required elsewhere		1-10
LIFE ***	3-5 credits from Life Sciences (not including LIFE 102)		3-5
MATH 155	Calculus for Biological Scientists I (GT-MA1)	1B	4

or MATH 160	Calculus for Physical Scientists I (GT-MA1)		
MATH 161	Calculus for Physical Scientists II (GT-MA1)	1B	4
MIP 300	General Microbiology		3
MIP 302	General Microbiology Laboratory		2
MIP 315	Pathology of Human and Animal Disease		3
OT 215	Medical Terminology		1
PH 122	General Physics II (GT-SC1)	3A	5
or PH 142	Physics for Scientists and Engineers II (GT-SC1)		
PSY 252	Mind, Brain, and Behavior		3
PSY 260	Child Psychology		3
or PSY *** Upper-Division course			
SOCR 330	Principles of Genetics		3
SOCR 331	Genetics Laboratory		1

<sup>1</sup> MATH 155 or MATH 160 may be substituted for MATH 118, MATH 124 and MATH 125. Students may not count MATH 155 or MATH 160 for a Guided Elective if they have substituted one of these courses for MATH 118, MATH 124, or MATH 125.

<sup>2</sup> CHEM 111/CHEM 112 can be substituted for CHEM 107/CHEM 108 and should be seriously considered by students who want to go on to graduate studies. Students should select CHEM 111/CHEM 112 as it better prepares students for CHEM 113/CHEM 114.

<sup>3</sup> CHEM 341/CHEM 343/CHEM 344 may be substituted for CHEM 245/CHEM 246 provided that all three courses are completed.

<sup>4</sup> Students taking the capstone will initially enroll in HES 478A, but have the option of applying for HES 478B/HES 478C/HES 478D, those selected will be re-enrolled in the appropriate course and section.

<sup>5</sup> Select enough elective credits to bring the program total to a minimum of 120 credits, of which at least 42 must be upper-division (300- to 400-level).

## Major Completion Map

### Freshman

Semester 1		Critical	Recommended	AUCC	Credits
CO 150	College Composition (GT-CO2)	X		1A	3
HES 145	Health and Wellness for Everyone (GT-SS3)	X		1C	3
MATH 118	College Algebra in Context II (GT-MA1)	X		1B	1
MATH 124	Logarithmic and Exponential Functions (GT-MA1)	X		1B	1
Biology - Select one group from the following		X			4
Group A					
LIFE 102	Attributes of Living Systems (GT-SC1)			3A	
Group B					
BZ 110	Principles of Animal Biology (GT-SC2)			3A	
BZ 111	Animal Biology Laboratory (GT-SC1)			3A	
Electives					3

### Total Credits

15

Semester 2		Critical	Recommended	AUCC	Credits
FSHN 150	Survey of Human Nutrition	X			3
HES 202	Introduction to Exercise Physiology	X			3
MATH 125	Numerical Trigonometry (GT-MA1)	X		1B	1
Chemistry - Select one group from the following:		X			5
Group A					
CHEM 107	Fundamentals of Chemistry (GT-SC2)	X		3A	
CHEM 108	Fundamentals of Chemistry Laboratory (GT-SC1)	X		3A	
Group B					
CHEM 111	General Chemistry I (GT-SC2)	X		3A	
CHEM 112	General Chemistry Lab I (GT-SC1)	X		3A	

Arts and Humanities ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> )		X	3B	3
AUCC 1B (Quantitative Reasoning) and CO 150 must be completed by the end of Semester 2.		X		
<b>Total Credits</b>				<b>15</b>
<b>Sophomore</b>				
<b>Semester 3</b>		<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>
HES 207	Anatomical Kinesiology	X		4
PSY 100	General Psychology (GT-SS3)	X		3
SPCM 200	Public Speaking	X		3
Arts and Humanities ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> )			X	3B
Historical Perspectives ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives</a> )			X	3D
CHEM 107/CHEM 108 or CHEM 111 /CHEM 112 and LIFE 102 or BZ 110/ BZ 111 must be completed by the end of Semester 3.		X		3
<b>Total Credits</b>				<b>16</b>
<b>Semester 4</b>		<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>
BMS 300	Principles of Human Physiology	X		4
BMS 302	Laboratory in Principles of Physiology	X		2
CHEM 113	General Chemistry II	X		3
CHEM 114	General Chemistry Lab II	X		1
Electives			X	6
BMS 300, FSHN 150, HES 145, and HES 207 must be completed by the end of semester 4.		X		
<b>Total Credits</b>				<b>16</b>
<b>Junior</b>				
<b>Semester 5</b>		<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>
CHEM 245	Fundamentals of Organic Chemistry	X		4
CHEM 246	Fundamentals of Organic Chemistry Laboratory	X		1
CO 301B	Writing in the Disciplines: Sciences (GT-CO3)	X		2
HES 340	Exercise Prescription	X		3
PH 121	General Physics I (GT-SC1)	X		3A
<b>Total Credits</b>				<b>16</b>
<b>Semester 6</b>		<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>
HES 319	Neuromuscular Aspects of Human Movement	X		4
HES 403	Physiology of Exercise	X		4B
HES 404	Physiology of Exercise Laboratory	X		4B
Statistics - Select one course from the following:		X		3
STAT 201	General Statistics (GT-MA1)			1B
STAT 301	Introduction to Applied Statistical Methods			
STAT 307	Introduction to Biostatistics			
Electives			X	3
<b>Total Credits</b>				<b>14</b>
<b>Senior</b>				
<b>Semester 7</b>		<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>
BMS 301	Human Gross Anatomy	X		5
HES 307	Biomechanical Principles of Human Movement	X		3
HES 345	Population Health and Disease Prevention	X		3
Guided Elective (See List on Concentration Requirements Tab)		X		3
(HES 307 or HES 319), HES 340, and HES 403 must be completed by the end of semester 7.		X		
<b>Total Credits</b>				<b>14</b>

<b>Semester 8</b>	<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>	<b>Credits</b>
Exercise Science Capstone - Select one course from the following:	X			3
HES 478A   Exercise Science Capstone: Seminar			4A,4C	
HES 478B   Exercise Science Capstone: Research			4A,4C	
HES 478C   Exercise Science Capstone: Teaching			4A,4C	
HES 478D   Exercise Science Capstone: Service Learning			4A,4C	
Guided Elective (See List on Concentration Requirements Tab)	X			7
Electives	X			4
The benchmark courses for the 8th semester are the remaining courses in the entire program of study.	X			
<b>Total Credits</b>				<b>14</b>
<b>Program Total Credits:</b>				<b>120</b>