

# MAJOR IN EQUINE SCIENCE



The Equine Science major provides students with an industry-oriented, science-based education that prepares them for careers in a growing equine industry or one of the many industries associated with equine production. The curriculum focuses on in-depth scientific knowledge of equine physiology and function and how to relate those scientific principles to the industry. Equine Science majors develop a broad understanding of the horse as it relates to business, recreational, and production aspects of the industry through selection of specialized courses to enhance their technical, practical, and business skills.

## Learning Objectives

Successful students will be able to:

- Describe the role of horses in our global society.
- Discuss biological principles and apply these principles into equine management systems.

- Identify business/economic principles and their application to equine enterprises.
- Critically evaluate equine industry issues.
- Apply problem-solving and leadership skills that enhance professional success.

## Potential Occupations

- Management of equine production systems such as breeding farms and ranches
- Sales representatives for feed companies, pharmaceutical firms, and equine industry service organizations
- Employment with organizational groups/associations such as breed organizations and clientele groups
- Hosting and planning equine events such as horse shows and competitions
- Cooperative extension agents and other educational positions
- Enrollment in graduate and professional schools

## Advising

Visit Student Resources (<https://agsci.colostate.edu/ansci/student-resources/>) to schedule an appointment with an Academic Success Coordinator.

Benefits of meeting with an Academic Success Coordinator/Advisor include:

- Assistance with navigating program requirements.
- Assistance with identifying courses of interest.
- Referrals to on campus resources.

All Animal Science and Equine Science majors must meet with an Academic Success Coordinator to receive an advising code and register for classes. Students may register for classes, check for registration date and holds, etc. by accessing RamWeb (<https://ramweb.colostate.edu/registrar/Public/Login.aspx>).

Feel free to email the Student Success Team ([cas\\_ansci\\_student\\_success@colostate.edu](mailto:cas_ansci_student_success@colostate.edu)) with any questions.

## Requirements Effective Fall 2024

**A minimum grade of "C-" (1.667) is required for each of the ANEQ courses which are required to complete the major.**

**A maximum of five credits is allowed for ANEQ 352, ANEQ 353, ANEQ 354, ANEQ 355, ANEQ 356, ANEQ 357, ANEQ 361, ANEQ 362, ANEQ 363, and ANEQ 364.**

**A maximum of twelve credits is allowed for any combination of the following: ANEQ 352, ANEQ 353, ANEQ 354, ANEQ 355, ANEQ 356, ANEQ 357, ANEQ 361, ANEQ 362, ANEQ 363, ANEQ 364, ANEQ 384, ANEQ 487B, ANEQ 495, and ANEQ 496.**

**Freshman**

		<b>AUCC</b>	<b>Credits</b>
ANEQ 102	Introduction to Equine Science		4
ANEQ 115	Applied Equine Behavior		2
ANEQ 193	Student Seminar--Exploring Student Success		1
ANEQ 292	Equine Industry Seminar		1
CO 150	College Composition (GT-CO2)	1A	3
LIFE 102	Attributes of Living Systems (GT-SC1)	3A	4
Select one course from the following:			1-4
ANEQ 105	Introduction to Large Animal Anatomy		
BMS 305	Domestic Animal Gross Anatomy		
Select one course from the following:			2-4
AREC 230	Agricultural Data Management and Analysis		
BUS 150	Business Computing Concepts and Applications		
CS 110	Personal Computing		
CS 152	Python for STEM		
Select one group from the following:			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	
Select a minimum of 3 credits from the following:			3-4
MATH 117	College Algebra in Context I (GT-MA1)	1B	
MATH 118	College Algebra in Context II (GT-MA1)	1B	
MATH 120	College Algebra (GT-MA1)	1B	
MATH 124	Logarithmic and Exponential Functions (GT-MA1)	1B	
MATH 125	Numerical Trigonometry (GT-MA1)	1B	
MATH 126	Analytic Trigonometry (GT-MA1)	1B	
MATH 127	Precalculus (GT-MA1)	1B	
MATH 141	Calculus in Management Sciences (GT-MA1)	1B	
MATH 155	Calculus for Biological Scientists I (GT-MA1)	1B	
1C ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc</a> )		1C	3
Electives			0-6
<b>Total Credits</b>			<b>35</b>

**Sophomore**

SPCM 200	Public Speaking		3
Select one course from the following:			3-4
ANEQ 230	Farm Animal Anatomy and Physiology		
ANEQ 305	Functional Large Animal Physiology		
BMS 300	Principles of Human Physiology		
Select one course from the following:			3
ANEQ 328	Foundations in Animal Genetics		
SOCR 330	Principles of Genetics		
Select one course from the following:			3
AREC 202	Agricultural and Resource Economics (GT-SS1)	3C	
ECON 202	Principles of Microeconomics (GT-SS1)	3C	
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		
Business/Economics Electives <sup>1</sup>			3
Arts and Humanities ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> )		3B	3
Historical Perspectives ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives</a> )		3D	3
Electives			5-6
<b>Total Credits</b>			<b>30</b>

**Junior**

ANEQ 320	Principles of Animal Nutrition	4B	3
ANEQ 334	Principles of Equine Genetics		3
ANEQ 344	Principles of Equine Reproduction	4B	3
ANEQ 346	Equine Disease Management		4
Select one course from the following:			3
RS 300	Rangeland Conservation and Stewardship		
SOCR 320	Sustainable Forage Management for Livestock		
Experience Equine Science Electives – Select a minimum of 2 credits from the following:			2
ANEQ 487B	Internship: Equine		
Department-approved Study Abroad			
Applied Equine Science Electives (see list below)			4
Business/Economics Elective <sup>1</sup>			3
Arts and Humanities ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> )		3B	3
<b>Total Credits</b>			<b>28</b>

**Senior**

ANEQ 324	Principles of Applied Equine Nutrition		1
ANEQ 440	Equine Industry and Issues	4A,4C	3
Select one course from following:			2
ANEQ 441	Integrated Equine Science		
ANEQ 444	Equine Business Management		
Advanced Science Course Electives (see list below)			3-4
Applied Equine Science Electives (see list below)			4
Business/Economics Elective <sup>1</sup>			3
Advanced Writing ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing</a> )		2	3
Electives <sup>2</sup>			7-8
<b>Total Credits</b>			<b>27</b>
<b>Program Total Credits:</b>			<b>120</b>

**Applied Equine Sciences Electives (select a minimum of 4 courses for a total of 8 credits)**

Code	Title	Credits			
Minimum of 4 courses may be selected from the following courses:					
ANEQ 200	Applied Horsemanship and Equitation	2	ANEQ 204	Equine Facilities Management	3
ANEQ 201A	Preparation of Horses for Competition: Western	2	ANEQ 205	Equine Assessment, Evaluation and Retraining	2
ANEQ 201B	Preparation of Horses for Competition: English	2	ANEQ 249	Introduction to the Trail Riding Industry	1
ANEQ 203	Equine Management	2	ANEQ 303	Equine Digital Photography	3
			ANEQ 315	Equine Behavior	2
			ANEQ 325	Equine Exercise Physiology	2
			ANEQ 340	Horse Training and Sale Preparation I	3
			ANEQ 341	Horse Training and Sale Preparation II	3
			ANEQ 349	Packing and Outfitting	2
			ANEQ 351	Techniques in Therapeutic Riding	2

ANEQ 352	Introduction to Horse Evaluation	2
ANEQ 353	Advanced Horse Evaluation	3
ANEQ 358	Equine Event and Sales Management	2
ANEQ 359	Equine Sales Production	2
ANEQ 365	Principles of Teaching Therapeutic Riding	3
ANEQ 384	Supervised College Teaching	Var.
ANEQ 386B	Equine Practicum: Equine Reproductive Management	2
ANEQ 386C	Equine Practicum: Equine Farrier Management	1
ANEQ 442	Riding Instructor Training	2
ANEQ 445	Foaling Management	2
ANEQ 486	Therapeutic Riding Instructor Practicum	2
ANEQ 495	Independent Study	Var.
ANEQ 496	Group Study	Var.
L*** 2** 200-Level Foreign Language		Var.
<b>Students may select a maximum of two courses from the following:</b>		
ANEQ 250	Live Animal and Carcass Evaluation	3
ANEQ 286	Livestock Practicum	2
ANEQ 300A	Topics in Animal Sciences: Livestock Handling	1
ANEQ 300E	Topics in Animal Sciences: Family Ranching	1
ANEQ 300L	Topics in Animal Sciences: Quality Assurance	2
ANEQ 300N	Topics in Animal Sciences: Seedstock Management and Merchandising	3
ANEQ 300R	Topics in Animal Sciences: Calving and Calf Care	2
ANEQ 300U	Topics in Animal Sciences: Seedstock Sale Management–Sale Planning	1
ANEQ 310	Animal Reproduction	3
ANEQ 312	Animal Ultrasonography	2
ANEQ 321	Principles of Applied Animal Nutrition	1
ANEQ 330	Principles of Animal Breeding	3
ANEQ 366	Animal Welfare Evaluation	2
ANEQ 410	Applied Food Animal Behavior	3
ANEQ 420	Applied Nutrition–Computer Diet Formulation	3
ANEQ 448	Sustainable Animal Agriculture	3
GES 201	Systems Thinking in Sustainability	3
SOCR 210	Microbiome Roles in a Sustainable Earth (GT-SC2)	3

**Freshman****Semester 1**

ANEQ 102	Introduction to Equine Science
ANEQ 193	Student Seminar–Exploring Student Success
LIFE 102	Attributes of Living Systems (GT-SC1)

Select one course from the following:

AREC 230	Agricultural Data Management and Analysis
BUS 150	Business Computing Concepts and Applications

**Advanced Science Course List**

Code	Title	Credits
ANEQ 510	Bovine Reproduction Management	4
ANEQ 522	Animal Metabolism	3
ANEQ 545	Molecular Methods in Animal Genetics	3
BC 351	Principles of Biochemistry	4
BC 401	Comprehensive Biochemistry I	3
BC 403	Comprehensive Biochemistry II	3
BMS 325	Cellular Neurobiology	3
BMS 345	Functional Neuroanatomy	4
BMS 430	Endocrinology	3
CHEM 245	Fundamentals of Organic Chemistry	4
CHEM 335	Introduction to Analytical Chemistry	3
CHEM 341	Modern Organic Chemistry I	3
CHEM 343	Modern Organic Chemistry II	3
LIFE 205	Microbial Biology	3
LIFE 220/LAND 220	Fundamentals of Ecology (GT-SC2)	3
LIFE 320	Ecology	3
MIP 300	General Microbiology	3
MIP 342	Immunology	4
PSY 320	Psychopathology	3
PSY 454	Biological Psychology	3
PSY 458	Cognitive Neuroscience	3

<sup>1</sup> Select credits from any AREC, ECON, or business course, of which 3 credits may be a computer course. AREC 202, ECON 202, and CS 110 will not be accepted. Access granted for the following business courses: ACT 205, BUS 205, FIN 305, MGT 305, MKT 305.

<sup>2</sup> Select enough elective credits to bring the program to a minimum of 120 credits, of which at least 42 must be upper-division (300- to 400-level).

**Major Completion Map**

**Distinctive Requirements for Degree Program:** A minimum grade of "C-" (1.667) is required for each of the ANEQ courses which are required to complete the major.

A maximum of five credits is allowed for ANEQ 352, ANEQ 353, ANEQ 354, ANEQ 355, ANEQ 356, ANEQ 357, ANEQ 361, ANEQ 362, ANEQ 363, and ANEQ 364.

A maximum of twelve credits is allowed for any combination of the following: **ANEQ 352, ANEQ 353, ANEQ 354, ANEQ 355, ANEQ 356, ANEQ 357, ANEQ 361, ANEQ 362, ANEQ 363, ANEQ 364, ANEQ 384, ANEQ 487B, ANEQ 495, and ANEQ 496.**

Critical	Recommended	AUCC	Credits
X			4
X			1
X		3A	4
X			2-4

CS 110	Personal Computing				
CS 152	Python for STEM				
Select a minimum of three credits from the following:		X		1B	3-4
MATH 117	College Algebra in Context I (GT-MA1)			1B	
MATH 118	College Algebra in Context II (GT-MA1)			1B	
MATH 120	College Algebra (GT-MA1)			1B	
MATH 124	Logarithmic and Exponential Functions (GT-MA1)			1B	
MATH 125	Numerical Trigonometry (GT-MA1)			1B	
MATH 126	Analytic Trigonometry (GT-MA1)			1B	
MATH 127	Precalculus (GT-MA1)			1B	
MATH 141	Calculus in Management Sciences (GT-MA1)			1B	
MATH 155	Calculus for Biological Scientists I (GT-MA1)			1B	
Electives					0-6
<b>Total Credits</b>					<b>17</b>
<b>Semester 2</b>		<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>	<b>Credits</b>
ANEQ 115	Applied Equine Behavior	X			2
ANEQ 292	Equine Industry Seminar	X			1
CO 150	College Composition (GT-CO2)	X		1A	3
Select one course from the following:		X			1-4
ANEQ 105	Introduction to Large Animal Anatomy				
BMS 305	Domestic Animal Gross Anatomy				
Select one group from the following:		X			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	
1C ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc</a> )			X	1C	3
<b>Total Credits</b>					<b>18</b>
<b>Sophomore</b>					
<b>Semester 3</b>		<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>	<b>Credits</b>
Select one course from the following:					3-4
ANEQ 230	Farm Animal Anatomy and Physiology				
ANEQ 305	Functional Large Animal Physiology		X		
BMS 300	Principles of Human Physiology				
Select one course from the following:		X			3
AREC 202	Agricultural and Resource Economics (GT-SS1)			3C	
ECON 202	Principles of Microeconomics (GT-SS1)			3C	
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				
Business/Economics Elective (See requirements tab)			X		3
Elective			X		2-3
<b>Total Credits</b>					<b>15</b>
<b>Semester 4</b>		<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>	<b>Credits</b>
SPCM 200	Public Speaking	X			3
Select one course from the following:		X			3
ANEQ 328	Foundations in Animal Genetics		X		
SOCR 330	Principles of Genetics				

Arts and Humanities ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> )		X	3B	3	
Historical Perspectives ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives</a> )		X	3D	3	
Elective		X		3	
<b>Total Credits</b>				<b>15</b>	
<b>Junior</b>					
<b>Semester 5</b>		<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>	<b>Credits</b>
ANEQ 320	Principles of Animal Nutrition	X		4B	3
ANEQ 344	Principles of Equine Reproduction	X	X	4B	3
ANEQ 346	Equine Disease Management		X		4
Applied Equine Science Electives (See list on requirements tab.)		X			4
<b>Total Credits</b>				<b>14</b>	
<b>Semester 6</b>		<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>	<b>Credits</b>
ANEQ 334	Principles of Equine Genetics	X			3
Select one course from the following:					3
RS 300	Rangeland Conservation and Stewardship				
SOCR 320	Sustainable Forage Management for Livestock				
Experience Equine Science Electives - Select a minimum of 2 credits from the following:		X			2
ANEQ 487B	Internship: Equine				
Department-approved Study Abroad					
Arts and Humanities ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> )				3B	3
Business/Economics Elective (See requirements tab)			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>	<b>Credits</b>
ANEQ 440	Equine Industry and Issues	X		4A,4C	3
Advanced Writing ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing</a> )		X		2	3
Applied Equine Science Elective (See list on requirements tab.)		X			4
Business/Economics Elective (See requirements tab)			X		3
ANEQ 346 must be completed by the end of Semester 7.		X			
<b>Total Credits</b>				<b>13</b>	
<b>Semester 8</b>		<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>	<b>Credits</b>
ANEQ 324	Principles of Applied Equine Nutrition	X			1
Select one course from the following:		X			2
ANEQ 441	Integrated Equine Science				
ANEQ 444	Equine Business Management				
Advanced Science Electives (See list on requirements tab)		X			3-4
Electives		X			7-8
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>	