

**B.S. Degree in Animal Science
Required / Elective Courses**

Animal Science degree requirements are organized into five groups, Group A-1, A-2, A-3, B, and C.

- All courses in Group A-1 must be completed.
- Options exist for Group A-2 (General and Organic Chemistry) depending on the student's interest area.
- One course from each of Group A-3, Group B, and Group C must be completed.
- Additionally, one course from either Group B or Group C must be completed.
- A single class cannot be used to satisfy more than one degree requirement.

Group A-1: ANSC [1001](#), [1111](#), [3121](#), [3122](#), [3194](#); PATH [2100](#); BIOL [1107](#) and [1108](#)

Group A-2: General Chemistry: CHEM [1122](#) OR [1127Q](#) OR CHEM [1124Q](#) and [1125Q](#)
Organic Chemistry: CHEM [2241](#) OR CHEM [2443](#) and [2444](#)

Group A-3: ANSC [4341](#), MCB [2000](#), MCB [2610](#) (ANSC 4341 fulfills either a Group A-3 or C requirement)

Group B: ANSC [2251](#), [2271](#), [3261](#), [3272](#), [3273](#)

Group C: ANSC [3311](#), [3313](#), [3316](#), [3323](#), [3343](#), [3641](#), [4311](#), [4341](#) (4341 fulfills either a Group A-3 or C requirement)

Course titles, credits and semester offered:

Group	Course	Title	Credits	Semester
A	ANSC 1001	Introduction to Animal Science	3	Fall
A	ANSC 1111	Principles of Animal Nutrition and Feeding	3	Spring
A	ANSC 3121	Principles of Animal Genetics	3	Fall
A	ANSC 3122	Reproductive Physiology	4	Spring
A	ANSC 3194	Seminar	1	Spring
A/C	ANSC 4341	Food Microbiology and Safety	3	Spring
A	BIOL 1107	Principles of Biology I	4	Fall, Spring
A	BIOL 1108	Principles of Biology II	4	Fall, Spring
A	CHEM 1122	Chemical Principles and Applications	4	Fall, Spring
A	CHEM 1124Q	Fundamentals of General Chemistry I	4	Fall, Spring
A	CHEM 1125Q	Fundamentals of General Chemistry II	3	Fall, Spring
A	CHEM 1127Q	General Chemistry	4	Fall, Spring
A	CHEM 2241	Organic Chemistry	3	Fall, Spring
A	CHEM 2443	Organic Chemistry	3	Fall, Spring
A	CHEM 2444	Organic Chemistry	3	Fall, Spring
A	MCB 2000	Introduction to Biochemistry	4	Fall, Spring
A	MCB 2610	Fundamentals of Microbiology	4	Fall, Spring
A	PATH2100	Anatomy and Physiology of Animals	4	Fall
B	ANSC 2251	Horse Science	3	Fall, Spring
B	ANSC 2271	Principles of Poultry Science	3	Spring
B	ANSC 3261	Dairy Cattle Management	3	Fall
B	ANSC 3272	Laboratory Animal Science	3	Fall, Spring
B	ANSC 3273	Livestock Management	4	Fall
C	ANSC 3311	Comparative Exercise Physiology	3	Spring
C	ANSC 3313	Growth Biology and Metabolism in Domestic Livestock	3	Fall
C	ANSC 3316	Endocrinology of Farm Animals	3	Spring
C	ANSC 3323	Animal Embryology and Biotechnology	3	Fall
C	ANSC 3343	Animal Food Products	3	Fall
C	ANSC 3641	Animal Food Products: Dairy Technology	3	Spring
C	ANSC 4311	Advanced Animal Nutrition	3	Fall

W Requirement: The University requires that students complete at least one writing-intensive course in their major. All ANSC Group C courses have an associated W course. In addition, the W requirement may be satisfied by completing ANSC 4662W, Dairy Herd Management, a 3-credit course taught in Spring semester.

ANSC Courses Not Required: A list of [ANSC elective courses not required can be found here](#).

Pre-Vet/Pre-Grad, Biotechnology or Food Science Interest Recommended Sequence of Courses

The following courses are recommended for specific interests. Note that completion of additional courses beyond these recommendations will be necessary to meet University requirements, such as a minimum of 120 credits to complete a B.S. degree. Courses are listed in approximate chronological order to incorporate pre-requisite requirements; when pre-requisites are not required, more flexibility in semester scheduling is possible.

If you are interested in **Pre-Vet/Pre-Grad**, recommended courses are*:

Course	Credits	Recommended Semester
COMM 1100 Principles of Public Speaking	3	1 or 2
MATH 1131Q Calculus I	4	1 or 2
STAT 1100Q Elementary Concepts of Statistics	4	1 or 2
CHEM 1127Q and CHEM 1128Q	8	2 and 3
PHYS 1201Q General Physics	4	3 or 4
PHYS 1202Q General Physics	4	3 or 4
CHEM 2443, 2444, and 2445	9	4, 5, and 6
MCB 2610 Fundamentals of Microbiology	4	5 or 6
MCB 2000 Introduction to Biochemistry	4	7

*Check with advisor or the VMCAS [website](#) for requirements of particular veterinary schools

If you are interested in a **Biotechnology** focus, recommended courses are:

ANSC 1602 Behavior and Training of Domestic Animals	3	2
COMM 1100 Principles of Public Speaking	3	1 or 2
STAT 1100Q Elementary Concepts of Statistics	4	1 or 2
MCB 2410 Genetics	3	3 or 4
MCB 2610 Fundamentals of Microbiology	4	5 or 6
SPSS 3230 Biotechnology – Science, Application, Impact	3	5 or 7
ANSC 3323 Animal Embryology and Biotechnology	3	5 or 7
MCB 3412 Genetic Engineering and Functional Genomics	3	5 or 7
ANSC 5619 Signaling Pathways	3	5 or 7
ANSC 2699 Independent Study (Research Project)	Var	7 or 8
CHEM courses	Check with advisor for requirements and refer to Pages 1 and 4	

If you are interested in a **Food Science** focus, recommended courses are:

STAT 1100Q Elementary Concepts of Statistics	4	1 or 2
NUSC 1167 Food, Culture and Society	3	1 or 3
ANSC 1645 The Science of Food	3	2 or 4
ANSC 3343 Animal Food Products	3	5 or 7
MCB 2610 Fundamentals of Microbiology	4	5 or 6
MCB 2000 Introduction to Biochemistry	4	5 or 6
NUSC 3233 Food Composition and Preparation	3	5 or 7
ANSC 3318 Probiotics and Prebiotics	3	6 or 8
ANSC 3641 Animal Food Products: Dairy Technology	3	6 or 8
ANSC 4241 Food Microbiology and Safety	3	6 or 8
ANSC 4642 Food Microbiology Laboratory (<i>meets in even years</i>)	1	6 or 8
ANSC 5618 Probiotics and Prebiotics	3	6 or 8
ANSC 5641 Food Chemistry	3	8
CHEM courses	Check with advisor for requirements and refer to Pages 1 and 4	

Equine, Business or Production Interest

Recommended Sequence of Courses

The following courses are recommended for specific interests. Note that completion of additional courses beyond these recommendations will be necessary to meet additional University requirements, such as a minimum of 120 credits to complete a B.S. degree. Courses are listed in approximate chronological order in order to incorporate pre-requisite requirements; when pre-requisites are not involved, more latitude in semester scheduling can be incorporated into academic progress. For CHEM courses, please check with your advisor and refer to Pages 1 and 4.

Course	Title	Credits	Recommended Semester
If you are interested in an Equine focus, recommended courses are:			
MATH 1030Q	Elementary Discrete Mathematics	3	1 or 2
PYSC 1100	General Psychology I	3	1 or 2
ANSC 1602	Behavior and Training of Domestic Animals	3	2
ANSC 2251	Horse Science	3	3 or 4
PSYC 3201	Animal Behavior	3	3 or 4
ANSC 3551	Equine Training I - Foundations	2	3 or 4
ANSC 3552	Equine Training II - Backing	2	4 or 6
ANSC 3553	Equine Training II - Advanced	2	5 or 7
ANSC 3554	Equine Sports Rehabilitation Practicum	2	4, 5, 6 or 7
ANSC 3555	Equine Rehabilitation Seminar	1	5 or 7
ANSC 3453	Pleasure Horse Appreciation and Use	1	3 or 5
PATH 2301	Health and Disease Management of Animals	3	4
ANSC 3452	Horse Breeding Farm Management	3	4 or 6
ARE 3215	Business Management	3	5 or 6
ANSC 3455	Developing the Driving Horse	2	5 or 7
ANSC 3273	Livestock Management	4	5 or 7
ANSC 3311	Comparative Exercise Physiology	3	6 or 8
ANSC 3454	Horse Selection and Evaluation	2	6 or 8
ANSC 3457	Advanced Broodmare and Foal Management	2	6 or 8
ANSC 4457	Methods of Equitation Instruction	2	4 or 6

If you are interested in a **Business** focus, recommended courses are:

ECON 1202	Principles of Macroeconomics	3	1 or 2
MATH 1070Q	Mathematics for Business and Economics	3	1 or 2
COMM 1100	Principles of Public Speaking	3	1 or 2
STAT 1100Q	Elementary Concepts of Statistics	4	1 or 2
ARE 1150	Principles of Agriculture and Resource Economics	3	2 or 3
ECON 1201	Principles of Microeconomics	3	2 or 3
MATH 1071Q	Calculus for Business and Economics	3	2 or 3
ACCT 2001	Principles of Financial Accounting	3	3 or 4
ARE 3215	Business Management	3	5 or 6
ARE 3225	Price Analysis and Futures Trading	3	5 or 7
MKTG 3101	Introduction to Marketing Management	3	5 or 6
BLAW 3175	Legal and Ethical Environment of Business	3	5
MGMT 3101	Managerial and Interpersonal Behavior	3	5 or 6
BLAW 3671	Contract and Property Law	3	6
ARE 3221	Business Strategies and Policy in Food Industries	3	5 or 7
ARE 4217	Business Finance In Food and Resource Industries	3	5 or 7
ARE 4275	Managerial Economics	3	5 or 7
ARE 3260	Food Policy	3	6 or 8

If you are interested in a **Production** focus, recommended courses are:

ECON 1201	Principles of Microeconomics	3	1 or 2
ECON 1202	Principles of Macroeconomics	3	2 or 3
ANSC 1602	Behavior and Training of Domestic Animals	3	2 or 4
ARE 1150	Principles of Agriculture and Resource Economics	3	2 or 3
PATH 2301	Health and Disease Management of Animals	3	2 or 4
ANSC 2271	Principles of Poultry Science	3	2 or 4
ANSC 3273	Livestock Management	4	5 or 7
ANSC 3261	Dairy Cattle Management	3	5 or 7
ARE 4311	Advanced Nutrition	3	5 or 7
ANSC 3343	Animal Food Products	3	5 or 7
ARE 3215	Business Management	3	5 or 6
ANSC 3313	Growth Biology and Metabolism in Domestic Animals	3	5 or 7

Example of Eight Semester Schedule for Required Courses

The Department of Animal Science offers six areas of interest within the ANSC B.S. degree program: **Pre-Vet/Pre-Grad, Animal Biotechnology, Food Science, Equine Science, Business, and Production.**

Note that only required courses are listed below; please refer to the Undergraduate Catalog for additional courses.

Required courses fill quickly.

First Semester

ANSC 1001 Introduction to Animal Sciences
BIOL 1107 Principles of Biology I
Then add courses in: ENGL, UNIV (FYE & LC),
GERs (*General Education Requirements*)

Second Semester

ANSC 1111 Principles of Animal Nutrition and Feeding
BIOL 1108 Principles of Biology II
Then add courses in: CHEM, ENGL, GERs
(*General Education Requirements*)

Third Semester

PATH 2100 Anatomy and Physiology of Animals
ANSC 3121 Principles of Animal Genetics
Then add courses in: CHEM, ANSC Group B/C,
GERs (*General Education Requirements*)

Fourth Semester

ANSC 3122 Reproductive Physiology
ANSC 3194 Seminar
Then add courses in: CHEM, ANSC Group B/C,
GERs (*General Education Requirements*)

Fifth Semester

ANSC Group B/C, courses in: CHEM or GERs
(*General Education Requirements*)

Sixth Semester

ANSC Group B/C, GERs (*General Education Requirements*)

Seventh and Eighth Semesters

Complete ANSC Group B/C and ANSC W Requirements

Additional Courses by Areas of Interest:

• Pre-Vet/Pre-Grad, Biotechnology, or Food Science interest:

(Complete as scheduled above or as soon as possible)

ENGL 1007 or 1010 or 1011 or 2011 (only one course required)
General Chemistry: CHEM 1124Q, 1125Q, and 1126Q, or CHEM 1127Q and 1128Q,
Organic Chemistry: CHEM 2443, 2444, and 2445

Recommended for freshmen in their first semester:

UNIV 1810 (ANSC Learning Community) or UNIV 1800 or UNIV 1820

• Equine, Business, or Production interest:

(Complete as scheduled above or as soon as possible)

ENGL 1007 or 1010 or 1011 or 2011 (only one course required)
CHEM 1122, 2241

Recommended for freshmen in their first semester:

UNIV 1810 (FYE; ANSC Learning Community) or UNIV 1800 or UNIV 1820

Group A, B, C, and W Courses Listed by Semester:

Group A **Fall:** ANSC 1001, 3121, BIOL 1107, PATH 2100 **Spring:** ANSC 1111, 3122, 3194

Group B **Fall:** ANSC 2251, 3261, 3272, 3273 **Spring:** ANSC 2251, ANSC 2271, 3272

Group C **Fall:** ANSC 3313, 3323, 3343, 4311 **Spring:** ANSC 3311, 3316, 3641, 4341

Group C **Summer:** ANSC 3343 and 3344W

Note that 1 credit W courses are taken concurrently with the associated Group C lecture course.