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	4	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
PHYS	1201Q	General Physics	4	3 or 4
PHYS	1202Q	General Physics	4	3 or 4
MCB	2610	Fundamentals of Microbiology	4	5 or 6
ANSC	3313	Growth Biology and Metabolism in Domestic Animals	3	5 or 7
ANSC	3323	Animal Embryology and Biotechnology	3	5 or 7
ANSC	5619	Signaling Pathways	3	5 or 7
ANSC	3311	Comparative Exercise Physiology	3	6 or 8
MCB	2000	Introduction to Biochemistry	4	7
ANSC	3316	Endocrinology of Farm Animals	3	6 or 8
CHEM courses		Check with advisor for requirements and refer to Pages 1 and 4		

*Check with advisor 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 *(meets in even years)*	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-reqs 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.

If you are interested in an **Equine** focus, recommended courses are:

Course		Title	Credits	Recommended Semester
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	1	3 or 4
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	2215	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	8

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	2215	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	2215	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)
CHEM courses (Check with advisor for veterinary school requirements)
CHEM 1124Q, 1125Q, 1126Q, 1127Q, 1128Q, 2443, 2444, 2445 (Not all courses are required)

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

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