

ANIMAL SCIENCE, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

Animal Science is the study and integration of the biology and management of animals, highlighted by the disciplines of nutrition, physiology, reproduction, genetics, and behavior. Animals provide companionship, food, and fiber, as well as serving as valuable research models. The Animal Science major offers both coursework and hands-on experiences that develop students' ability to work with and care for animals.

The educational experiences included in this major should prepare the student for a wide range of positions in production agriculture agribusiness, and related industries, and provide preparation for the pursuit of post-baccalaureate studies leading to professional or advanced degrees. The student is expected to develop a comprehensive understanding of the biological and physical sciences underlying the functioning of all types of animals.

Realizing the wide range of career possibilities requiring diverse types of academic preparation, two options of study are available: the Business and Animal Management Option and the Science Option.

Business and Animal Management Option

The primary objective of this option is to prepare the student for positions in agribusiness organizations and in the animal, food and allied industries. The student may develop a program with species specialization or diversity. The student may develop a foundation in accounting, economics, finance, marketing, and other business-related areas. Graduates seek employment opportunities as:

- management trainees, or assistant managers of animal production units or processing plants, and roles in government agencies;
- animal caretakers at zoos or shelters;
- technical service and sales representatives or quality assurance managers for pharmaceutical, agri-chemical, feed or food producing companies;
- loan officers with financial institutions;
- field representatives for breed organizations or producer cooperatives;
- public relations and human resources personnel for agribusiness companies;
- and management trainees for numerous agribusiness firms.

Science Option

The primary objective of this option is to prepare the student for entry into post-baccalaureate study programs in animal and related biological sciences. Graduates who have obtained the proper qualifications may pursue advanced degrees in a wide variety of disciplines, including animal science, biotechnology, genetics, microbiology, nutrition, physiology, molecular biology, pharmaceutical research, and veterinary medicine. Graduates not desiring to pursue advanced studies seek employment opportunities in biomedical research, as research or quality assurance

technicians, technical service representatives for various industrial companies, food inspectors, laboratory animal caretakers, and public relations personnel.

What is Animal Science?

Animal Science focuses on the science and business of producing domestic livestock species, including but not limited to beef cattle, dairy cattle, horses, poultry, sheep, swine and companion animals. This discipline applies principles of biological, physical and social sciences to problems associated with production and management of animals. Animal Science also has a strong focus on food with animal origin including meat, milk and eggs.

Animal Scientists work in efficient production of food animals, processing of high-quality meats and dairy products, use of companion animals for recreation, maintenance of animal health and well-being and many other areas. A growing population with limited land provide complex challenges in the area of Animal Science. This discipline requires highly trained professionals who can identify opportunities and provide innovative solutions.

You Might Like this Program If...

- You want a career working with animals
- You want a hands-on, experiential learning curriculum with exposure to multiple domestic species
- Your interests lie in applied biology
- You are interested in efficiently providing safe, nutritious food to a growing world population
- You like both animals and business
- Your interests are in the practical application of science, business, and animals

Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have third-semester classification (http://www.registrar.psu.edu/registration/semester_classification.cfm).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<http://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major>)

Degree Requirements

For the Bachelor of Science degree in Animal Science, a minimum of 124 credits is required:

Requirement	Credits
General Education	45
Electives	0-13
Requirements for the Major	90-100

18-24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 0-3 credits of GA courses; 9 credits of GN courses; 3-6 credits of GS courses; 6 credits of GQ courses.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills

necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (<http://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program>) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Knowledge Domains

- **Arts (GA):** 6 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 6 credits
- **Social and Behavioral Sciences (GS):** 6 credits
- **Natural Sciences (GN):** 9 credits

Integrative Studies (may also complete a Knowledge Domain requirement)

- **Inter-Domain or Approved Linked Courses:** 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Courses taken as common requirements can not be used to meet requirements within the option.

Code	Title	Credits
Prescribed Courses		
ANSC 100	Introduction to Animal Industries	3
ANSC 290	Careers in Animal Agriculture	1
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BMB 211	Elementary Biochemistry	3
<i>Prescribed Courses: Require a grade of C or better</i>		
ANSC 201	Animal Science	4
ANSC 207	Animal Products Technology	2
ANSC 208	Animal Products Technology Laboratory	1
ANSC 300	Integrated Animal Biology	3
ANSC 301	Principles of Animal Nutrition	3
Additional Courses		
AGBM 101	Economic Principles of Agribusiness Decision Making	3
or ECON 102	Introductory Microeconomic Analysis and Policy	
ANSC 322	Animal Genetics and Selection	3
or BIOL 222	Genetics	
CHEM 202	Fundamentals of Organic Chemistry I	3
or CHEM 210	Organic Chemistry I	
Select 6-8 credits from the following:		6-8
Select 3-4 credits from the following:		
MATH 21	College Algebra I	
MATH 22	College Algebra II and Analytic Geometry	
MATH 26	Plane Trigonometry	
MATH 41	Trigonometry and Analytic Geometry	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	
Select 2-4 credits from the following:		
CMPSC 101	Introduction to Programming	
CMPSC 203	Introduction to Spreadsheets and Databases	
MATH 22	College Algebra II and Analytic Geometry	
MATH 111	Techniques of Calculus II	
MATH 141	Calculus with Analytic Geometry II	
STAT 200	Elementary Statistics	

STAT 250	Introduction to Biostatistics	
<i>Additional Courses: Require a grade of C or better</i>		
Select 6-8 credits from the following:		6-8
ANSC 305	Companion Animal Nutrition	
ANSC 306	Swine Production and Management	
ANSC 308	Sheep and Goat Production and Management	
ANSC 309	Beef Cattle Production and Management	
ANSC 310	Dairy Cattle Production and Management	
ANSC 311	Poultry Production and Management	
ANSC 315	Small Animal Health and Disease	
ANSC 324	Value Determination of Meat Animals	
ANSC 327	Horse Production and Management	

Supporting Courses and Related Areas

Select 3-5 credits in communication skills courses from department list¹ 3-5

Requirements for the Option

Select an option 43-46

¹ Certain courses may double count as general education courses; consult with your adviser.

Requirements for the Option**Business and Management Option (43-45 credits)**

Code	Title	Credits
Prescribed Courses		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
Additional Courses		
MICRB 106 & MICRB 107	Elementary Microbiology and Elementary Microbiology Laboratory	4-5
or MICRB 201 & MICRB 202	Introductory Microbiology and Introductory Microbiology Laboratory	
Select 3 credits from the following:		3
CHEM 101	Introductory Chemistry	
CHEM 110	Chemical Principles I	
CHEM 130	Introduction to General, Organic, and Biochemistry	
Select 3 credits from the following:		3
AGBM 102	Economics of the Food System	
BA 303	Marketing	
MKTG 301	Principles of Marketing	
Select 3 credits from the following:		3
AGBM 200	Introduction to Agricultural Business Management	
or MGMT 10	Survey of Management	
BA 304	Management and Organization	
MGMT 301	Basic Management Concepts	
Select 3-4 credits from the following:		3-4
ANSC 420	Animal Nutrition and Feed Technology	
ANSC 423	Comparative Physiology of Domestic Animals	
ANSC 427	Milk Secretion	
ANSC 431	Physiology of Animal Reproduction	

Supporting Courses and Related Areas

Select 23 credits from department list (at least 9 credits of business, 23 9 credits of production courses, and 5 credits of either business or production courses)¹

¹ 12 credits must be 400-level courses; students may apply 6 credits of ROTC

Science Option (42-46 credits)

Code	Title	Credits
Prescribed Courses		
ANSC 423	Comparative Physiology of Domestic Animals	3
ANSC 431	Physiology of Animal Reproduction	4
BMB 212	Elementary Biochemistry Laboratory	1
BMB 221	Applied Biochemistry	2
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
MICRB 201	Introductory Microbiology	3
MICRB 202	Introductory Microbiology Laboratory	2
PHYS 250	Introductory Physics I	4

Additional Courses

Select 3-5 credits from the following: 3-5

CHEM 203	Fundamentals of Organic Chemistry II	
CHEM 212 & CHEM 213	Organic Chemistry II and Laboratory in Organic Chemistry	

Select 4 credits of the following: 4

BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	

Select 3 credits of the following: 3

AGRO 28	Principles of Crop Management	
ANSC 211	Introduction to Avian Biology	
ANSC 213	Introduction to Animal Biotechnology	
SOILS 101	Introductory Soil Science	

Supporting Courses and Related Areas

Select 5-7 credits of 400-level courses from department list¹ 5-7

¹ Students may apply 6 credits of ROTC.

Integrated B.S. in Animal Science and Master of Biotechnology in Biotechnology CURRENTLY ON HOLD; NOT ACCEPTING NEW STUDENTS
Begin Date of Enrollment Hold: March 8, 2018

Integrated B.S. in Animal Science and Master of Biotechnology in Biotechnology

Qualified students should formally apply to the Master of Biotechnology degree when they have earned a minimum of 75 credits in their B.S. curriculum. To make sure students finish within the shortest time-to-degree, students intending to apply to the integrated program will be closely mentored by their respective undergraduate program coordinators to guide their progress through their B.S. curriculum. The undergraduate program coordinators will be directly consulted by the Director of the Master of Biotechnology in Biotechnology program regarding admission of a student applicant to the Master of Biotechnology in Biotechnology program.

Students admitted to the integrated program will follow their undergraduate curriculum until the beginning of their fourth year, at which time, they start taking courses required for the Master of Biotechnology

degree. In the summer following the Spring semester of their fourth year, students will participate in off-campus internships and have the option of either continuing at their off-campus location for their research project in the following Fall semester, or coming back to campus to do a research project. The final Spring semester will be devoted to completing the course and credit requirements for the Master of Biotechnology degree. As designed, students can opt to graduate with a B.S. degree at the end of the Spring semester of their 4th year, when they should have completed the credit requirements of the B.S. degree program (124 credits). The following table outlines the program of study for students in this program:

First Year

Fall	Credits Spring	Credits
Select 15 credits	15 Select 16 credits	16
15		16

Second Year

Fall	Credits Spring	Credits
Select 15.5 credits	15.5 Select 16 credits	16
15.5		16

Third Year

Fall	Credits Spring	Credits
Select 15 credits	15 Select 15.5 credits	15.5
15		15.5

Fourth Year

Fall	Credits Spring	Credits Summer	Credits
Select 15 credits ¹	15 Select 16 credits ¹	16 IBIOS 595 (or equivalent ANSC Internship)	2
15		16	2

Fifth Year

Fall	Credits Spring	Credits
IBIOS 594	3-6 MCIBS 590	1-3
	Electives, 500-level	3-6
	Other graduate level electives	6
3-6		10-15

Total Credits 139-147

¹ The following courses to be taken in these semesters will be cross-counted towards the B.S. and Master of Biotechnology degrees:

- BIOTC 479
- BMB 400
- MCIBS 571
- MCIBS 591
- MCIBS 593

Total credits cross-counted in B.S. and Master of Biotechnology degrees: 12 credits, 6 of which are 500-level credits.

Master of Biotechnology in Biotechnology (30 credits required, 18 of which must be 500-level)

Fourth Year

Summer	Credits
IBIOS 595 (or equivalent in ANSC)	2
2	

Fifth Year

Fall	Credits Spring	Credits
IBIOS 594	3-6 MCIBS 590	1
	Electives, 500-level	3-6
	Other Graduate Level Electives	6
3-6		10-13

Total Credits 15-21

Minimum total credits earned for Summer and 5th year: 18 credits, at least 12 of which are 500-level credits.

Admission Requirements

Students must have a GPA of 3.5 at the time of application to the integrated degree program when they have completed at least 75 credits of their B.S. curriculum. The GRE scores normally required in the Master of Biotechnology in Biotechnology program will be waived for applicants to the integrated B.S.-Master of Biotechnology degree.

Program Learning Objectives

Graduates from the Animal Science major will be able to:

1. Actively and effectively discuss complex animal agriculture issues including:
 - a. the economic, environmental, animal welfare and societal impacts of animal production at both local and global levels.
 - b. the role of science in informing debates in animal agriculture.
2. Locate, critically evaluate, and apply information related to animal science from scientific literature and other resources.
3. Communicate effectively and professionally with a variety of audiences in both written and oral formats.
4. Apply comprehensive knowledge from areas in animal science including genetics, reproduction, behavior, nutrition, animal products, husbandry and business/farm management.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<http://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy>)

University Park

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2019-20 academic year. To access previous years' suggested academic plans, please visit the archive (<http://bulletins.psu.edu/undergraduate/archive>) to view the appropriate Undergraduate Bulletin edition (*Note: the archive only contain suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin*).

Business AND ANIMAL Management Option, University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30, or ESL 15 ^{††}	3 AGBM 101 or ECON 102 ^{††}	3
BIOL 110 [†]	4 CHEM 101, 110, or 130 [†]	3
MATH 21, 22, 26, 41, 110, or 140 ^{††}	3-4 ANSC 100	3
General Education Course	3 CMPSC 101, 203, MATH 22, MATH 111, MATH 141, STAT 200, or STAT 250 ^{††}	2-4
First Year Seminar	1-3 General Education Course	3
	14-17	14-16

Second Year

Fall	Credits Spring	Credits
ANSC 290	1 ANSC 201 [*]	4
ANSC 207 [*]	2 ACCTG 211	4
ANSC 208 [*]	1 AGBM 200, BA 304, or MGMT 301	3
MICRB 106 or 201	3 General Education Course	3
MICRB 107 or 202	1-2 Communication Skills selection ²	3
AGBM 102, BA 303, or MKTG 301	3	
CHEM 202	3	

General Education Course (GHW)	1.5	
	15.5-16.5	17
Third Year		
Fall	Credits Spring	Credits
ANSC 301 [*]	3 ANSC 300 [*]	3
ANSC 305, 306, 308, 309, 310, 311, 315, 324, or 327 [*]	3-4 ANSC 305, 306, 308, 309, 310, 311, 315, 324, or 327 [*]	3
ANSC 322 or BIOL 222	3 CAS 100, 100A, 100B, or 100C ^{††}	3
BMB 211	3 Supporting Course ³	3
General Education Course	3 Supporting Course ³	3
	15-16	15
Fourth Year		
Fall	Credits Spring	Credits
ANSC 420, 423, 427, or 431	3-4 Supporting Course ³	3
ENGL 202A, 202B, 202C, or 202D ^{††4}	3 Supporting Course ³	3
Supporting Course ³	3 Supporting Course ³	3
Supporting Course ³	3 Supporting Course ³	2
Elective	3 Elective	3
General Education Course	3 General Education Course (GHW)	1.5
	18-19	15.5

Total Credits 124-132

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

- 1 Students must adhere to one of the following course sequences: ECON 102, BA 303, BA 304; or AGBM 101, AGBM 102, AGBM 200.
- 2 Required to complete one of the following: ANSC 202W, ANSC 217 and 426, or ANSC 421 and 426, or ANSC 226 and 426, or ANSC 424 and 426; ENGL 50, ENGL 210, ENGL 212, ENGL 213, ENGL 215; any world language (level 1-3), SPAN 105 or SPAN 106; CAS 212, 213, 250, 352; AEE 330, AEE 360, AEE 440. If an ANSC course is selected, it cannot count as a supporting course and fulfill the Communication Skills requirement.
- 3 Required to complete 23 credits from the department list (at least 9 credits of production courses and 9 credits of business courses from department lists; 12 credits must be at the 400-level). Courses that fulfill major requirements or the additional production course for the option will not count in this area. Students interested in meats or livestock judging should enroll in ANSC 324; students interested in horse judging should enroll in ANSC 217; students interested in poultry judging should enroll in ANSC 421.
- 4 Recommended to complete ENGL 202D

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

GWS, GQ, GHW, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

All incoming Schreyer Honors College first-year students at University Park will take ENGL/CAS 137 in the fall semester and ENGL/CAS 138 in the spring semester. These courses carry the GWS designation and replace both ENGL 30 and CAS 100. Each course is 3 credits.

Science Option, University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
ENGL 15, 30, or ESL 15 ^{††}	3 AGBM 101 or ECON 102 [†]	3
CHEM 110 [†]	3 CHEM 112 [†]	3
CHEM 111 [†]	1 CHEM 113 [†]	1
MATH 21, 22, 26, 41, 110, or 140 ^{††1}	3-4 ANSC 100	3
General Education Course	3 CMPSC 101, 203, MATH 22, MATH 111, MATH 141, STAT 200, or STAT 250 ^{††}	2-4
First Year Seminar	1-3 General Education Course	3
	14-17	15-17

Second Year

Fall	Credits Spring	Credits
BIOL 110 [†]	4 ANSC 201 [*]	4
ANSC 290	1 BIOL 220W, 230W, or 240W	4
ANSC 207 [*]	2 CHEM 203 or 212 and 213 ²	3-5
ANSC 208 [*]	1 AGRO 28, SOILS 101, ANSC 211, or ANSC 213	3
CHEM 202 or 210	3 General Education Course	3
General Education Course (GHW)	1.5	
General Education Course	3	
	15.5	17-19

Third Year

Fall	Credits Spring	Credits
ANSC 301 [*]	3 ANSC 300 [*]	3
ANSC 305, 306, 308, 309, 310, 311, 315, 324, or 327 [*]	3-4 MICRB 201	3

ANSC 322, BIOL 133, or BIOL 222	3 MICRB 202	2
BMB 211	3 BMB 221	2
BMB 212	1 PHYS 250	4
CAS 100 ^{††}	3 General Education Course (GHW)	1.5
	16-17	15.5

Fourth Year

Fall	Credits Spring	Credits
ANSC 305, 306, 308, 309, 310, 311, 315, 324, or 327 [*]	3-4 ANSC 423	3
ANSC 431	4 Supporting Course ⁵	3
ENGL 202C ^{††3}	3 Supporting Course ⁵	3
Elective ⁴	3 Communication Skills Selection ⁶	3
General Education Course	3 Elective	3
	16-17	15

Total Credits 124-133

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

1 Complete MATH 110 or MATH 140 for veterinary school admission

2 CHEM 213 must also be completed along with CHEM 212

3 Recommended to complete ENGL 202C

4 PHYS 251 is required for admission to veterinary school

5 Required to complete 5-7 credits from the department list. Courses that fulfill major requirements do not count in this area.

6 Required to complete one of the following: ANSC 202W, ANSC 217 and 426, or ANSC 421 and 426, or ANSC 226 and 426 or ANSC 424 and 426; ENGL 50, ENGL 210, ENGL 212, ENGL 213, ENGL 215; any world language (level 1-3), SPAN 105 or 106; CAS 212, 213, 250, 352; AEE 330, AEE 360, AEE 440. If an ANSC course is selected, it cannot count as a supporting course and fulfill the Communication Skills requirement.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

GWS, GQ, GHW, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

All incoming Schreyer Honors College first-year students at University Park will take ENGL/CAS 137 in the fall semester and ENGL/CAS 138 in the spring semester. These courses carry the GWS designation and replace both ENGL 30 and CAS 100. Each course is 3 credits.

Business AND ANIMAL Management Option, Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
ENGL 15, 30, or ESL 15 ^{††}	3 AGBM 101 or ECON 102 ^{†1}	3
BIOL 110 [†]	4 CHEM 101, 110, or 130 [†]	3
MATH 21, 22, 26, 41, 110, or 140 ^{††}	3-4 ANSC 100	3
General Education Course	3 CMPSC 101, 203, MATH 22, MATH 111, MATH 141, STAT 200, or STAT 250 ^{††}	2-4
First Year Seminar	1-3 General Education Course	3
	14-17	14-16

Second Year		
Fall	Credits Spring	Credits
MICRB 106 or 201	3 ANSC 201 [*]	4
General Education Course	3 ACCTG 211	4
MICRB 107 or 202	1-2 AGBM 200, BA 304, or MGMT 301	3
AGBM 102, BA 303, or MKTG 301	3 General Education Course	3
CHEM 202	3 Communication Skills selection ²	3
General Education Course (GHW)	1.5	
	14.5-15.5	17

Third Year		
Fall	Credits Spring	Credits
ANSC 301 [*]	3 ANSC 300 [*]	3
ANSC 305, 306, 308, 309, 310, 311, 315, 324, or 327 [*]	3-4 ANSC 305, 306, 308, 309, 310, 311, 315, 324, or 327 [*]	3
ANSC 322 or BIOL 222	3 CAS 100, 100A, 100B, or 100C ^{††}	3
BMB 211	3 Supporting Course ³	3
ANSC 290	1 Supporting Course ³	3
ANSC 207 [*]	2	
ANSC 208 [*]	1	
	16-17	15

Fourth Year		
Fall	Credits Spring	Credits
ANSC 420, 423, 427, or 431	3-4 Supporting Course ³	3
ENGL 422A, 202B, 202C, or 202D ^{††4}	3 Supporting Course ³	3

Supporting Course ³	3 Supporting Course ³	3
Supporting Course ³	3 Supporting Course ³	2
Elective	3 Elective	3
General Education Course	3 General Education Course (GHW)	1.5
	18-19	15.5

Total Credits 124-132

- * Course requires a grade of C or better for the major
 - † Course requires a grade of C or better for General Education
 - # Course is an Entrance to Major requirement
 - † Course satisfies General Education and degree requirement
- 1 Students must adhere to one of the following course sequences: ECON 102, BA 303, BA 304; or AGBM 101, AGBM 102, AGBM 200.
 - 2 Required to complete one of the following: ANSC 202W, ANSC 217 and 426, or ANSC 421 and 426, or ANSC 226 and 426, or ANSC 424 and 426; ENGL 50, ENGL 210, ENGL 212, ENGL 213, ENGL 215; any world language (level 1-3), SPAN 105 or 106; CAS 212, 213, 250, 352; AEE 330, AEE 360, AEE 440. If an ANSC course is selected, it cannot count as a supporting course and fulfill the Communication Skills requirement.
 - 3 Required to complete 23 credits from the department list (at least 9 credits of production courses and 9 credits of business courses from department lists; 12 credits must be at the 400-level). Courses that fulfill major requirements or the additional production course for the option will not count in this area. Students interested in meats or livestock judging should enroll in ANSC 324; students interested in horse judging should enroll in ANSC 217; students interested in poultry judging should enroll in ANSC 421.
 - 4 Recommended to complete ENGL 202D

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

GWS, GQ, GHW, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

Science Option, Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year		
Fall	Credits Spring	Credits
ENGL 15, 30, or ESL 15 ^{††}	3 AGBM 101 or ECON 102 [†]	3
CHEM 110 [†]	3 CHEM 112 [†]	3
CHEM 111 [†]	1 CHEM 113 [†]	1
MATH 21, 22, 26, 41, 110, or 140 ^{††1}	3-4 ANSC 100	3
General Education Course	3 CMPSC 101, 203, MATH 22, MATH 111, MATH 141, STAT 200, or STAT 250 ^{††}	3
First Year Seminar	1-3 General Education Course	3
	14-17	16
Second Year		
Fall	Credits Spring	Credits
BIOL 110 [†]	4 ANSC 201 [*]	4
CHEM 202 or 210	3 BIOL 220W, 230W, or 240W	4
PHYS 250	4 CHEM 203 or 212 <i>and</i> 213 ²	3-5
General Education Course (GHW)	1.5 AGRO 28, SOILS 101, ANSC 211, or ANSC 213	3
General Education Course	3 General Education Course	3
	15.5	17-19
Third Year		
Fall	Credits Spring	Credits
ANSC 301 [*]	3 ANSC 300 [*]	3
ANSC 305, 306, 308, 309, 310, 311, 315, 324, or 327 [*]	3-4 MICRB 201	3
BMB 211	3 MICRB 202	2
BMB 212	1 BMB 221	2
ANSC 290	1 CAS 100, 100A, 100B, or 100C ^{††}	3
ANSC 207 [*]	2 General Education (GHW)	1.5
ANSC 208 [*]	1	
ANSC 322 or BIOL 222	3	
	17-18	14.5
Fourth Year		
Fall	Credits Spring	Credits
ANSC 305, 306, 308, 309, 310, 311, 315, 324, or 327 [*]	3-4 ANSC 423	3
ANSC 431	4 Supporting Course ⁵	3
ENGL 202C ^{††3}	3 Supporting Course ⁵	3
Elective ⁴	3 Communication Skills Selection ⁶	3
General Education Course	3 Elective	3
	16-17	15

Total Credits 125-132

- * Course requires a grade of C or better for the major
 ‡ Course requires a grade of C or better for General Education
 # Course is an Entrance to Major requirement
 † Course satisfies General Education and degree requirement

¹ Complete MATH 110 or MATH 140 for veterinary school admission² CHEM 213 must also be completed along with CHEM 212³ Recommended to complete ENGL 202C⁴ PHYS 251 is required for admission to veterinary school⁵ Required to complete 5-7 credits from the department list. Courses that fulfill major requirements do not count in this area.⁶ Required to complete one of the following: ANSC 202W, ANSC 217 and 426, or ANSC 421 and 426, or ANSC 226 and 426, or ANSC 424 and 426; ENGL 50, ENGL 210, ENGL 212, ENGL 213, ENGL 215; any world language (level 1-3), SPAN 105 or 106; CAS 212, 213, 250, 352; AEE 330, AEE 360, AEE 440. If an ANSC course is selected, it cannot count as a supporting course and fulfill the Communication Skills requirement.**University Requirements and General Education Notes:**

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

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Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

Career Paths

Science Option graduates enter careers in biomedical or agricultural research, food safety, technical service, vivarium management, and government service. Business/Management Option graduates find careers in allied industry sales (feed, pharmaceuticals, etc.); agricultural finance and credit; industry relations and communications; farm management; animal caretaking at zoos and shelters; and food safety and quality assurance.

Opportunities for Graduate Studies

- Veterinary or other life science professional school
- Graduate studies in multiple fields of biological and life sciences (genetics, nutrition, reproduction, behavior, physiology, and health)
- Graduate studies in production and management of domestic food animal species
- Graduate studies in food product production and safety
- Graduate studies in linked agricultural fields (agricultural business management, agronomy, agricultural education, etc.)

Contact

University Park

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