

BS in Animal Sciences

Degree Program Description

Humans have been improving the value of animals as companions, transportation, laborers and food since the first dogs, horses, donkeys and cattle were domesticated. Animal Sciences provides an in-depth focus on whole-animal biology and contributes to advances in livestock production, the equine industry, animal health and human health through cutting-edge research and direct application of that new knowledge. Animal Scientists apply the latest in genetics, physiology and nutrition to all of these diverse fields. By employing a whole-animal approach to science, this degree prepares students for any number of career paths, including agribusiness, livestock production, the equine industry, research, pre-veterinary medicine, captive wild animal management, and animal products. In agribusiness, our graduates are in demand to fill sales and management positions with feed and pharmaceutical companies such as Land O'Lakes, MFA, Zoetis and Elanco. In livestock production, graduates who prefer to work directly with animals find rewarding positions as managers of various farm companies, such as Tyson Foods, Smithfield, Cargill and other private companies. In the equine industry students are placed in positions at prominent equine breeding, sales, or training facilities. Graduates with a passion for research are needed as lead scientists and laboratory technicians in industry and academia. An animal sciences degree provides a solid science and husbandry foundation for the study of veterinary medicine. Some vets specialize in care for companion animals, such as dogs and cats, while others focus on livestock, horses or wildlife. In captive wild animal management, zoological parks hire animal sciences graduates to manage the care and well-being of the park's collection, and graduates may also be involved with research and conservation efforts. In animal products, students with a specific interest in meat, dairy products and eggs are in high demand for positions with companies such as Farmland, Hormel, Hy-Vee and Sam's Club. Opportunities abound in procurement, sales, quality assurance and food safety.

Major Program Requirements

Students earning a Bachelor of Science in Animal Sciences are required to complete all University general education, (<https://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/>) University graduation, and degree requirements, including selected foundational courses, which may fulfill some University general education requirements.

Foundational Courses

ENGLISH 1000	Writing and Rhetoric	3
MATH 1100	College Algebra	3
STAT 1200	Introductory Statistical Reasoning (or higher STAT course)	3-5
or ABM 2225	Statistical Analysis	
or ESC_PS 4170	Introduction to Applied Statistics	
or MATH 1300	Finite Mathematics	
or MATH 1400	Calculus for Social and Life Sciences I	
or MATH 1500	Analytic Geometry and Calculus I	
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
or F_W 1100	Introductory Zoology with Laboratory	

CHEM 1400 & CHEM 1401	College Chemistry I and College Chemistry I Laboratory	4
BIOCHM 2110	The Living World: Molecular Scale	3
or BIOCHM 2112	Biotechnology in Society	
or CHEM 2030	Survey of Organic Chemistry	
or CHEM 2100	Organic Chemistry I	

ACCTCY 2010	Introduction to Accounting	3
or ABM 1041	Applied Microeconomics	
or ABM 1042	Applied Macroeconomics	
or ECONOM 1014	Principles of Microeconomics	
or ECONOM 1015	Principles of Macroeconomics	
or FINANC 1000	Principles of Finance	
or FINANC 2000	Survey of Business Finance	
or FINPLN 2183	Personal and Family Finance	
COMMUN 1200	Public Speaking	3
or AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	

Degree Requirements

AN_SCI 1010	Orientation to Animal Sciences	1
AN_SCI 1165	Biology of Animal Production I with Laboratory	4
AN_SCI 1175	Biology of Animal Production II with Lab	4
AN_SCI 2010	Careers in Animal Sciences	1
AN_SCI 2214	Animal Products and Biotechnology	4
AN_SCI 2111W	Sophomore Seminar: Societal Issues Facing Animal Agriculture - Writing Intensive	3
AN_SCI 3254	Physiology of Domestic Animals	5
or MPP 3202	Elements of Physiology	
or BIO_SC 3700	Human Physiology	
AN_SCI 3242	Principles and Applications of Animal Nutrition	4
AN_SCI 3213	Genetics of Agricultural Plants and Animals	3
AN_SCI 3264	Physiology of Domestic Animals II	3
AN_SCI 4314	Physiology of Reproduction	3
AN_SCI 4323	Applied Livestock Genetics	3
or AN_SCI 4324	Genomics of Plants and Animals	

Advanced Nutrition (select 1)

AN_SCI 4312	Monogastric Nutrition	3-4
or AN_SCI 4332	Ruminant Nutrition	

Animal Sciences Production Systems (Choose 2; 1 must be WI)

AN_SCI 4975	Beef Production and Management	3
or AN_SCI 4975W	Beef Production and Management - Writing Intensive	
AN_SCI 4976	Dairy Production	3
or AN_SCI 4976W	Dairy Production - Writing Intensive	
AN_SCI 4977	Horse Production	3
AN_SCI 4978	Swine Production	3
or AN_SCI 4978W	Swine Production - Writing Intensive	
AN_SCI 4979	Poultry Production	3
or AN_SCI 4979W	Poultry Production - Writing Intensive	

Animal Science Senior Electives (Select 3)

(7 hr. Min)

AN_SCI 3085	Problems in Animal Science (Swine Science On-Line; min. 2 courses; see advisor or Undergraduate Advising Office for specific courses that qualify)	1-6
AN_SCI 3214	Principles of Meat Science	3

AN_SCI 3231	Principles of Dairy Foods Science	3
AN_SCI 3270	Forage Crops	3
AN_SCI 3275	Meat Animal Evaluation	3
AN_SCI 4010	Pasture-Based Dairy Management	2
AN_SCI 4312	Monogastric Nutrition	4
AN_SCI 4323	Applied Livestock Genetics	3
AN_SCI 4324	Genomics of Plants and Animals	3
AN_SCI 4332	Ruminant Nutrition	3
AN_SCI 4344	Processing Muscle Foods	3
AN_SCI 4354	Physiology and Biochemistry of Muscle as Food	3
AN_SCI 4384	Reproductive Management	3
AN_SCI 4386	Equine Reproduction	3-5
or AN_SCI 4387	Equine Breeding Management	
AN_SCI 4436	Animal Welfare	4
AN_SCI 4437	Stress Physiology	3
AN_SCI 4940	Internship in Animal Science & Technology	2-3
AN_SCI 4950	Undergraduate Research in Animal Science	2-3
AN_SCI 4973	Molecular and Cellular Techniques in Animal Science	4
AN_SCI 4975	Beef Production and Management	3
AN_SCI 4976	Dairy Production	3
AN_SCI 4977	Horse Production	3
AN_SCI 4978	Swine Production	3
AN_SCI 4979	Poultry Production	3
AFNR 2190	International Agriculture, Food and Natural Resources (or approved international study)	3

AN_SCI 2214	4 AN_SCI 3254	5
CHEM 1400	3 AGSC_COM 2220	3
CHEM 1401	1 Humanities	3
Humanities		3
Social Science		3

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Third Year			
Fall	CR	Spring	CR
AN_SCI 3242		4 AN_SCI 4314	3
AN_SCI 3213		3 AN_SCI 4323 or 4324	3
CHEM 2030 or 2100		3 AN_SCI 3264	3
Elective		6 STAT 1200	3
		Elective	3

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Fourth Year			
Fall	CR	Spring	CR
Production System (WI)		3 Production System	3
Sr. Elective		3 Sr. Elective	3
Sr. Elective		3 Elective	3
Adv. Nutr.		4 Elective	3
Elective		3 Elective	3

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Total Credits: 120

Accelerated BS to DVM in Veterinary Medicine

Students who complete prescribed undergraduate courses in the MU College of Agriculture, Food and Natural Resources, Division of Animal Sciences, and are then successful in being selected to a class in the MU College of Veterinary Medicine, will receive elective credits concurrently for up to 32 hours of professional degree courses. This enables qualifying students to receive a BS degree with three or four years of undergraduate work and two semesters of professional studies.

Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
AN_SCI 1010		1 AN_SCI 1175	4
AN_SCI 1165		4 BIO_SC 1500 or F_W 1100	5
ABM 1041		3 ENGLISH 1000	3
MATH 1100		3 Elective	3
HIST 1100		3	

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Second Year			
Fall	CR	Spring	CR
AN_SCI 2010		1 AN_SCI 2111W	3