



**SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS**

New Specialization

UNIVERSITY:	SDSU
TITLE OF PROPOSED SPECIALIZATION:	Food Animal Health
NAME OF DEGREE PROGRAM IN WHICH SPECIALIZATION IS OFFERED:	Animal Science (B.S.)
INTENDED DATE OF IMPLEMENTATION:	2020-2021 Academic Year
PROPOSED CIP CODE:	01.0903
UNIVERSITY DEPARTMENT:	Animal Science
BANNER DEPARTMENT CODE:	SANS
UNIVERSITY DIVISION:	Agriculture, Food & Environmental Sciences
BANNER DIVISION CODE:	3F

Please check this box to confirm that:

- The individual preparing this request has read [AAC Guideline 2.6](#), which pertains to new specialization requests, and that this request meets the requirements outlined in the guidelines.
- This request will not be posted to the university website for review of the Academic Affairs Committee until it is approved by the Executive Director and Chief Academic Officer.

University Approval

To the Board of Regents and the Executive Director: I certify that I have read this proposal, that I believe it to be accurate, and that it has been evaluated and approved as provided by university policy.

Institutional Approval Signature
President or Chief Academic Officer of the University

5/6/2020

Date

1. Level of the Specialization:

Baccalaureate Master's Doctoral

2. What is the nature/purpose of the proposed specialization? Please include a brief (1-2 sentence) description of the academic field in this specialization.

South Dakota State University (SDSU) requests authorization to offer a specialization in Food Animal Health for the B.S. in Animal Science. The Food Animal Health specialization is requested in conjunction with the proposed Professional Program in Veterinary Medicine (PPVM) and Biological Sciences (M.S.) – Veterinary Medicine Specialization. The PPVM is a

non-degree program at SDSU, providing the first two years of coursework towards the Doctor of Veterinary Medicine (DVM) degree, which will be completed at the University of Minnesota College of Veterinary Medicine. This specialization will allow students to complete course requirements for acceptance to veterinary school, along with a strong foundation in large animal production and management, in approximately 3 years. Ultimately, this will aid in reducing time and money students incur in pursuit of a professional Doctor of Veterinary Medicine degree, while improving the graduate rate of students pursuing DVM degrees.

The University does not request new state resources.

- 3. Provide a justification for the specialization, including the potential benefits to students and potential workforce demand for those who graduate with the credential.** *For workforce related information, please provide data and examples. Data may include, but are not limited to the South Dakota Department of Labor, the US Bureau of Labor Statistics, Regental system dashboards, etc. Please cite any sources in a footnote.*

The overall employment prospects for veterinarians are very good. According to the U.S. Bureau of Labor Statistics, the projected employment growth rate from 2018-2028 for employment of veterinarians is 18%, far exceeding the average for all occupations (5%).¹ The national average annual wage of veterinarians was \$105,240 and the national median wage was \$93,830. The 2018 average annual salary for veterinarians in South Dakota was \$100,050, exceeding that of all adjoining states.

For individuals who elect to graduate with the BS degree and not continue on to the DVM, other potential animal health related careers include veterinary technicians and veterinary assistants. Job growth for both these occupations is expected to be 19%, much faster than the average for all occupations.² Graduates will also be well qualified to enter animal health product sales positions. The Occupational Outlook Handbook does not separate animal health product sales from other sales, but given the expected growth in veterinary careers, it is reasonable to assume at least moderate growth in animal health product sales careers. Lastly, graduates will have strong training in science and may choose careers as agricultural or food scientists. Projected employment growth rate for these scientists from 2018-2028 is 7%, and average annual salary in 2018 was over \$64,000.³

South Dakota and the region need more veterinarians, especially those who work with large animals. Veterinarians who understand the animal health needs and are willing to serve rural areas and livestock production are needed in particular, along with those in administration, diagnostics, regulatory, public health and food safety careers. Among AVMA's member veterinarians in the US in 2018, only 5,601 described their practices as exclusively or

¹ Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Veterinarians, on the Internet at <https://www.bls.gov/ooh/healthcare/veterinarians.htm> (visited February 24, 2020).

² Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Veterinary Technologists and Technicians, on the Internet at <https://www.bls.gov/ooh/healthcare/veterinary-technologists-and-technicians.htm> (visited March 16, 2020).

³ Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Agricultural and Food Scientists, on the Internet <https://www.bls.gov/ooh/life-physical-and-social-science/agricultural-and-food-scientists.htm> (visited March 16, 2020).

⁴ <https://www.avma.org/KB/Resources/Statistics/Pages/Market-research-statistics-AVMA-membership.aspx>

predominantly large animal, whereas 57,034 described their practices as exclusively or predominantly companion animal.⁴

The proposed Food Animal Health specialization, in conjunction with the PPVM, will address needs for food animal veterinarians, thus supporting animal health, food safety, and biosecurity needs of South Dakota’s large livestock industries. Students will be trained in animal disease diagnostics and most are expected to directly participate in animal health research.

Currently some students pursuing a Doctor of Veterinary Medicine degree complete the requirements for acceptance to veterinary school without completing a Bachelor of Science degree. This specialization will allow students to complete the requirements for acceptance to veterinary school in approximately 3 years and graduate with a Bachelor’s degree after completion of their first year in the Professional Program for Veterinary Medicine. The accelerated program will allow students to apply 19 credits from the PPVM towards the Animal Science (B.S.) - Food Animal Health Specialization while actively pursuing their M.S. and DVM, thus reducing total time and cost to attain the B.S. and M.S. (from SDSU) and DVM (from UMN) degrees.

List the proposed curriculum for the specialization (including the requirements for completing the major – *highlight courses in the specialization*):

Animal Science (B.S.) – Food Animal Health Specialization	Credit Hours	Credit Hours	Percent
System General Education Requirements	32-34		
Subtotal, Degree Requirements		32-34	27-28%
College of Agriculture, Food & Environmental Sciences Requirements		--	0%
Major Requirements	88		
Subtotal, Program Requirements		88	73%
General Electives		--	0%
Degree Total ²		120	100%

System General Education Requirements

Prefix	Number	Course Title	Credit Hours	New (yes, no)
ENGL	101	Composition I (SGR #1)	3	No
ENGL	201	Composition II (SGR #1)	3	No
SPCM	101	Fundamentals of Speech (SGR #2)	3	No
ECON	201	Principles of Microeconomics (SGR #3)	3	No
		Student Choice (SGR #3)	3	No
		Student Choice (SGR #4)	3	No
		Student Choice (SGR #4)	3	No
MATH OR	114	College Algebra (3) (SGR #5)	3-5	No

² Board Policy 2:29 requires each baccalaureate level degree program to require 120 credit hours and each associate degree program to require 60 credit hours. Exceptions to this policy require documentation that programs must comply with specific standards established by external accreditation, licensure, or regulatory bodies or for other compelling reasons and must receive approval by the Executive Director in consultation the President of the Board of Regents.

Prefix	Number	Course Title	Credit Hours	New (yes, no)
MATH	121-121L	Survey of Calculus and Lab (5) (SGR #5)		
BIOL	151-151L	General Biology I and Lab (SGR #6)	4	No
BIOL	153-153L	General Biology II and Lab (SGR #6)	4	No
Subtotal			32-34	

College of Agriculture, Food & Environmental Sciences Requirements

Prefix	Number	Course Title	Credit Hours	New (yes, no)
		<p>Students who wish to complete a Bachelor of Science in Agriculture, Food and Environmental Sciences must complete a minimum of <u>10</u> credits from the approved list of Group 1 courses. Some departments require specific courses from the list, whereas others leave the selection entirely to the student and the advisor. Other programs require 11 credits; however, this program has been granted an exception and students need to only complete 10 credits of Group 1 electives to meet College of Agriculture, Food and Environmental Sciences requirements.</p> <p>*System General Education Requirements and/or major coursework may satisfy some or all of the above requirements. Review major requirements and the Group 1 list to determine if additional courses are required.</p>		
AS	101-101L	Introduction to Animal Science and Lab (Major requirement)	--	No
AS	241-241L	Introduction to Meat Science and Lab (Major requirement)	--	
AS	319-319L	Livestock Feeds and Feeding and Lab (Major requirement)	--	No
Subtotal*			0	

Major Requirements

Prefix	Number	Course Title	Credit Hours	New (yes, no)
AS	101-101L	Introduction to Animal Science and Lab	4	No
AS	119	Opportunities in Animal and Veterinary Science	1	No
AS OR VET	120	Survey of Animal Science	1	No
AS	120	Introduction to Veterinary Medicine		
AS	219	Principles of Nutrition	3	No
AS	241-241L	Introduction to Meat Science and Lab	3	No
AS	319-319L	Livestock Feeds and Feeding and Lab	3	No
AS	332	Livestock Breeding and Genetics	4	No
AS	333-333L	Livestock Reproduction and Lab	3	No

Prefix	Number	Course Title	Credit Hours	New (yes, no)
AS	389	Current Issues in Animal Science	3	No
		<i>Capstone Requirement: Select 6 credits from the following. One course must be AS 474/L, AS 475/L, AS 476/L, AS 477/L or AS 478/L.</i>	6	No
AS OR AS OR AS OR AS OR AS OR AS	445-445L 450 474-474L 475-475L 476-476L 477-477L 478-478L	Value-Added Meat Products and Lab (3) Meat Product Safety and HACCP (3) Cow/Calf Management and Lab (3) Feedlot Operations and Management and Lab (3) Horse Production and Lab (3) Sheep and Wool Production and Lab (3) Swine Production and Lab (3)		
CHEM	112-112L	General Chemistry I and Lab	4	No
CHEM	114-114L	General Chemistry II and Lab	4	No
CHEM	326-326L	Organic Chemistry I and Lab	4	No
CHEM	328-328L	Organic Chemistry II and Lab	4	No
CHEM	464	Biochemistry	3	No
MICR OR MICR	231-231L 233-233L	General Microbiology and Lab (4) Introductory Microbiology and Lab (4)	4	No
PHYS OR PHYS	111-111L 211-211L	Introduction to Physics I and Lab (4) University Physics I and Lab (4)	4	No
PHYS OR PHYS	113-113L 213-213L	Introduction to Physics II and Lab (4) University Physics II and Lab (4)	4	No
STAT OR NRM	281 282-282L	Introduction to Statistics (3) Natural Resources Statistics and Lab (3)	3	No
VET	223-223L	Anatomy and Physiology of Domestic Animals and Lab	4	No
VET	602	Integrated Biochemistry and Physiology	7	yes
VET	604	Clinical Skills I	2	Yes
VET	606	Critical Scientific Reading	1	Yes
VET	626	Agents of Disease I	4	Yes
VET	627	Preventative Medicine	5	Yes
Subtotal			88	

Total number of hours required for completion of specialization
Total number of hours required for completion of major
Total number of hours required for completion of degree

53
88
120

4. Delivery Location

Note: The accreditation requirements of the Higher Learning Commission (HLC) require Board approval for a university to offer programs off-campus and through distance delivery.

A. Complete the following charts to indicate if the university seeks authorization to deliver the entire program on campus, at any off campus location (e.g., UC Sioux Falls, Capital University Center, Black Hills State University-Rapid City, etc.) or deliver the entire specialization through distance technology (e.g., as an on-line program)?

	Yes/No	Intended Start Date
On campus	Yes	2020-2021 Academic Year

	Yes/No	If Yes, list location(s)	Intended Start Date
Off campus	No		

	Yes/No	If Yes, identify delivery methods Delivery methods are defined in AAC Guideline 5.5 .	Intended Start Date
Distance Delivery (online/other distance delivery methods)	No		

B. Complete the following chart to indicate if the university seeks authorization to deliver more than 50% but less than 100% of the specialization through distance learning (e.g., as an on-line program)? This question responds to HLC definitions for distance delivery.

	Yes/No	If Yes, identify delivery methods	Intended Start Date
Distance Delivery (online/other distance delivery methods)	No		

20% of the courses required for the Animal Science major, Food Animal Health specialization are available online. The courses available online are predominantly System General Education Requirements.

5. Additional Information:

Admission Requirements

Students will be required to complete one year of courses at SDSU and be successfully admitted to the University of Minnesota VetFAST program to declare this specialization.

Student Learning Outcomes

Upon completion of the Animal Science major with a Food Animal Health Specialization, students will:

- Acquire knowledge of the core sciences and best management practices that are the foundation of animal science and husbandry.
- Demonstrate effective written and oral communication skills using a variety of mediums and with various audience types.
- Demonstrate the ability to function as an effective member of a team. (*Cross-curricular Skill: Teamwork*)

- Develop fact-based comparisons of both sides of contemporary issues that impact diversity, inclusion, equity, and professional ethics as related to animal agriculture. (*Cross-curricular Skill: Information Literacy; Ethical Reasoning; Diversity, Inclusion and Equity*)
- Interpret, critically evaluate, and apply information in order to recognize problems and create solutions. (*Cross-curricular Skill: Inquiry and Analysis; Critical and Creative Thinking; Problem Solving*)