What is Veterinary Medicine?

Veterinary medicine is the profession dedicated to protecting the health and welfare of both animals and people through prevention, treatment, and control of animal disease. Although the majority of veterinarians work in private clinical practice, many are also involved in diagnostic investigations, biomedical research, and public health careers. Veterinarians require intensive training in the biological sciences prior to beginning their professional veterinary training. South Dakota State University offers this training and preparation for admission to veterinary colleges through the Pre-Veterinary program.

The SDSU Pre-Veterinary Program

Admission to colleges of veterinary medicine is both competitive and selective. A solid foundation in the sciences is basic to success in veterinary medicine, as are less tangible skills gained during Pre-Veterinary preparation, such as effective learning strategies, time management, and priority setting. SDSU has a long tradition of place top students into veterinary colleges throughout the country. During the Pre-Veterinary preparatory period, the student completes and excels in prerequisite coursework required for admission, works toward an academic degree, and participates in campus life and extracurricular activities. Additionally, exposure to and experiences in the veterinary profession through part-tome employment, job shadowing, and workshop opportunities are important to the Pre-Veterinary student and are highly valued by veterinary college admission committees.

Future Professional Veterinary Medicine Education at SDSU

The Department of Veterinary and Biomedical Sciences and SDSU are currently in the late planning stages of implementing a "2+2" professional veterinary curriculum in collaboration with the University of Minnesota College of Veterinary Medicine (UM CVM), with the initial class planned to start in the Fall term of 2021. This program entails admission to the program following completion of Pre-Veterinary education, either here at SDSU or at another qualifying program. The students would then spend the first 2 years of their veterinary education at SDSU in Brookings, with a closely similar curriculum that is already offered by the UM CVM but emphasizing Rural Veterinary Medicine where applicable. After completing the first half of the curriculum, successful students will be qualified to receive an M.S. degree in Rural Veterinary Sciences. The student then completes their clinical and surgical training at the UM St. Paul campus for an additional 2 years. The total length of the professional program will remain at 4 years, when successful students receive the Doctor of Veterinarian Medicine degree and are qualified to sit for national and state licensing evaluations.

Pre-Veterinary Program at SDSU

- A pre-professional program at SDSU that prepares the student for application to colleges of veterinary medicine throughout the Unites States.
- The program emphasizes academic excellence, curriculum planning through faculty advising, and working toward successful veterinary college application

For more information, please contact:

Russ Daly DVM, MS, DACVPM
Professor; Veterinary Extension & Public Health
(russell.daly@sdstate.edu)

Bev Cassady DVM
Instructor, Veterinarian
(beverly.cassady@sdstate.edu)

Pre-Veterinary Advising

- All incoming Pre-Veterinary Students will have an academic advisor associated with their major, ***and*** a Pre-Veterinary advisor who is a veterinarian on the SDSU faculty.
- The Pre-Veterinary advisor assists the student in working through pre-veterinary course prerequisites, application preparation, and other factors required for successful admission to a veterinary college

For more information, please contact:

CAFES Academic Programs Office
Room SAG 156
Berg Agricultural Hall
Phone: 605-688-5133

Department of Veterinary and Biomedical Sciences (DVBS)

- Part of the College of Agriculture, Food, and Environmental Sciences (CAFES)
- Houses the Pre-Veterinary program, Pre-Veterinary advising, the Animal Disease Research and Diagnostic Lab (ADRDL), academic coursework (VET courses), an academic Minor in Animal Health, and research programs
- Student opportunities for employment and experience in the ADRDL and departmental research laboratories are available.

DVBS Appointments and Assistance

Rita Miller, DVBS Office Supervisor
Veterinary Sciences Building
Phone: 605-688-5172
(rita.miller@sdstate.edu)

Pre-Veterinary Medicine Club

- The club is governed and operated by pre-veterinary students.
- Fain insight and advice from other pre-veterinary colleagues, faculty mentors, and guest speakers.
- Animal-oriented activities and community service are organized and performed by club members.
- Opportunities are also available to visit veterinary schools and related institutions, as planned by the club.

For information, please contact:

2019 Club President: Megan Kellen
(megan.kellen@jacks.sdstate.edu)

Faculty Advisor: Bev Cassady
(beverly.cassady@sdstate.edu)

PRE-VETERINARY CURRICULUM WORKSHEET

SGR (BOR) REQUIREMENTS*

SGR GOAL 1 (*Written Communications) - 6 credits*

ENGL 101	Composition I (3)	_____
ENGL 201	Composition II (3)	_____

SGR Goal 2 (*Oral Communications) - 3 credits*

SPCM 101	Fundamentals of Speech (3)	_____

SGR Goal 3 (*Social Sciences) - 6 Credits*

ABS 203	Global Food Systems (3)[1]	_____
ECON 201	Microeconomics (3)[1]	_____
_____	_____	_____

SGR Goal 4. (*Arts & Humanities) - 6 credits 3*

_____	_____	_____
_____	_____	_____

SGR Goal 5 (*Mathematics*) - *3 credits*

Math 104	College Algebra (3) [4,8]	_____
Math 121/L	Survey of Calculus (5)[1,2]	_____

SGR Goal 6 *(Natural Sciences) - 6 credits* [5]

See "Science Prerequisites" list below

SGR Goal 7 *(Information Literacy)*

Fulfilled by courses for SGR Goals 1 and 2; see catalog for details

SCIENCE PREREQUISITES[5,7]

All Majors:

BIOL 101/L	General Biology I with lab (4)	_____
BIOL 153/L	General Biology II with lab (4)	_____
VET 223/L	Anat & Physiol of Domestic Animals (4)[9]	_____
MICR 233/L	Introductory Microbiology with lab (4)[8]	_____
CHEM 112/L	General Chemistry with lab (4)[2]	_____
CHEM 114/L	General Chemistry II with lab (4)	_____
CHEM 326/L	Organic Chemistry I with lab (4)	_____
CHEM 328/L	Organic Chemistry II with lab (4) [9,10]	_____
CHEM 464	Biochemistry I (3)	_____
STAT 281	Intro to Statistics (3)[2,8]	_____
PHYS 111/L	Intro to Physics I with lab (4)	_____
PHYS 113/L	Intro to Physics II with lab (4)[8]	_____

Animal Science Majors:

AS 332	Livestock Breeding & Genetics (4)	_____

Biology, Microbiology, or Other Majors:

BIOL 371	Genetics (3)	_____

- *Prerequisite coursework, an calculation of application GPA, varies among veterinary colleges; consult your pre-vet advisor.*
- *Honor/majors chemistry (CHEM 115, CHEM 127, CHEM 229, and CHEM 236/237) is **NOT** recommended for pre-vet students.*

Other Animal Science Coursework

AES 119	Opportunities in Animal & Vet Sciences (1)	_____
VET 120	Intro to Veterinary Medicine (1)	_____
AS 141	Animal Handling & Husbandry (1)	_____
AS 101/L	Intro to Animal Science with lab (4)	_____
ACCT 210	Principles of Accounting I (3)	_____
AS 219	Principles of Animal Nutrition (3)	_____
AS 214/L	Intro to Meat Science with lab (3)	_____
AS 319/L	Livestock Feeds & Feeding with lab (3)	_____
AS 333/L	Livestock Reproduction with lab (3)	_____
AS 389	Current Issues in Animal Science (2)	_____

ACADEMIC MINOR—ANIMAL HEALTH **18 CREDITS**

Core Coursework (must take 9 credits)

VET 120	Intro to Veterinary Medicine (1)	_____
VET 183	Veterinary Medical Terminology (1)	_____
VET 223	Anat & Physiol of Domestic Animals (4)[9]	_____
VET 403	Animal Diseases and their control (3)	_____

Elective Coursework (must take 9 credits)

VET 424	Med & Vet Virology (3)	_____
WL 425/L	Wildlife Nutrition & Disease (3)	_____
MICR 433	Medical Microbiology (3)	_____
MICR 439	Med & Vet Immunology (3)	_____
MICR 440L	Infectious Disease Laboratory (3)	_____
HSC 445	Epidemiology (3)	_____
BIOL 467/L	Parasitology (3)	_____
VET 476	Advanced Mammalian Physiology (4)	_____

Pre-Veterinary Related Courses (Electives)

DS 130/L	Intro to Dairy Science (3)	_____
ABS 205	Biotech in Agriculture & Medicine (2)	_____
RANG 205	Intro to Range Management (3)	_____
RANG 215	Intro to Integrated Ranch Mgmt (3)	_____
WL 220	Intro to Wildlife & Fish Mgmt (3)	_____
FS 251	Food Safety and Quality Mgmt (3)	_____
DS 312/L	Dairy Cattle Breeding & Evaluation (4)	_____
PHIL 320	Professional Ethics (3)	_____
BADM 334	Small Business Management (3)	_____
PHYS 337	Foundation of Health Physics (3)	_____
PHIL 383	Bioethics (4)	_____
DS 413	Physiology of Lactation (3)	_____
STAT 435	Applied Bioinformatics (3)	_____
MICR 448	Molecular & Microbial Genetics (4)	_____
VET 491	Independent Study (1-3)	_____
VET 492	Topics in Vet Science (1-3)	_____
VET 496	Field Experience (1-4)	_____
VET 498	Undergraduate Research (1-4)	_____

Footnotes

*Required for SDSU general education requirements, but not necessarily CVM admission; please see page 4 for more information.

1. Required or recommended for Animal Science majors (not necessary during 1st term), but **not** for admission to veterinary schools.
2. MATH 114 or higher placement is required co-requisite/prerequisite.
3. Music performance or foreign language coursework are **not** accepted for CVM admission; music history, music theory, or foreign literature courses are acceptable.
4. Or higher course number, based on math placement testing.
5. Any two 100 level "Science Prerequisites" can fulfill SGR goal 6.
6. Definitive information regarding academic majors should be provided by the student's academic advisor and their department
7. These prerequisite guidelines are based on the student applying to veterinary college at both Iowa State and Minnesota. For prerequisite coursework at other veterinary colleges, please see online materials provided by the college, or consult with your advisor.
8. Required for University of Minnesota CVM admission (but not ISU)
9. Required for Iowa State University CVM admission (but not UMinn)
10. CHEM 328/L is a pre-requisite for Biochemistry (CHEM 464)

Freshman Year NSO Registration Guidelines

Incoming Pre-Veterinary Students—Animal Science Majors

INSTRUCTIONS

1) **These Guidelines are based on an academic major of Animal Science;** for Dairy Production, Microbiology, or other majors, please consult your advisor.
2) Pick a scenario that best fits your situation regarding your status in general placement, Math placement, and Chemistry background. None of these scenarios will be an exact fit for your situation; work with your advisor to devise a study plan that fits best with your goals.

Scenario #1

- Math Index > 1299, and/or ACT Math score > 24, **AND** High School Background Chemistry

FALL SEMESTER			SPRING SEMESTER		
AS 119	Opportunities in Animal & Vet Sciences	1 credit	BIOL 153/L	General Biology II With lab	4 credits
VET 120	Into to Veterinary Medicine	1	CHEM 114/L	Into to Veterinary Medicine	4
AS 101/L	Intro to Animal Science with lab[1]	4	MATH 121/L	Survey of Calculus with Lab	5
BIOL 151/L	General Biology I with lab	4	VET 183	Veterinary Terminology (Online)[2]	1
CHEM 112/L	General Chemistry with lab	4		**OR**	
(SGR 1 or 2)	SPCM 101 or ENGL 101	3	AS 141	Animal Handling & Husbandry[3]	1
			[SGR 1 or 2]	SPCM 101, ENGL 101, Or ENGL 201	3
Total Credits		**17**	**Total Credits**		**17**

Scenario #2

- Math Index = 1150 to 1299, and/or ACT Math score = 20 to 24, **AND** High School Background Chemistry

AS 119	Opportunities in Animal & Vet Sciences	1 credit	BIOL 153/L	General Biology II With lab	4 credits
VET 120	Into to Veterinary Medicine	1	CHEM 114/L	Intro to Veterinary Medicine	4
AS 101/L	Intro to Animal Science with lab[1]	4	VET 183	Veterinary Terminology (Online)[2]	1
MATH 114	College Algebra	3		**OR**	
BIOL 151/L	General Biology I with lab	4	AS 141	Animal Handling & Husbandry[3]	1
CHEM 112/L	General Chemistry with lab	4	[SGR 1]	ENGL 101, Or ENGL 201	3
			[SGR 2]	SPCM 101	3
			[SGR 3 or 4]	Elective	3
Total Credits		**17**	**Total Credits**		**18**

Scenario #3

- Math Index = 1150 to 1299, and/or ACT Math score = 20 to 24, **BUT** Little or no High School Background Chemistry

BIOL 151/L	General Biology I with lab	4 credits	BIOL 153/L	General Biology II With lab	4 credits
CHEM 105	Foundations of Chemistry[4]	3	CHEM 112/L	General Chemistry I with lab	4
AS 101/L	Intro to Animal Science with lab[1]	4	VET 183	Veterinary Terminology (Online)[2]	1
Math 114	College Algebra	3		**OR**	
As time allows:			AS 141	Animal Handling & Husbandry[3]	1
(AS 119	Opportunities in Animal & Vet Sciences)	(1)	STAT 281	Intro to Statistics	3
(VET 120	Intro to Vet Medicine)	(1)	[SGR 1 or 2]	SPCM 101, ENGL 101, or ENGL 201	3
			[SGR 3 or 4]	Elective	3
Total Credits (Without AS 119 or VET 120)		**17**	**Total Credits**		**17**

Scenario #4

- Math Index < 1150, and/or ACT Math score < 20; Reading or Writing placement below ENGL 101

BIOL 151/L	General Biology I with lab	4 credits	BIOL 153/L	General Biology II With lab	4 credits
CHEM 105	Foundations of Chemistry[4]	3	CHEM 112/L	General Chemistry I with lab	4
AS 101/L	Intro to Animal Science with lab[1]	4	MATH 114	College Algebra	3
ENGL ###	[English Placement]	2 to 3	VET 183	Veterinary Terminology (Online)[2]	1
MATH ###	[Math Placement][5]	3 to 4		**OR**	
As time allows:			AS 141	Animal Handling & Husbandry[3]	1
(AS 119	Opportunities in Animal & Vet Sciences)	(1)	[SGR 1 or 2]	SPCM 101, ENGL 101, or ENGL 201	3
(VET 120	Intro to Vet Medicine)	(1)	[SGR 3 or 4]	Elective	3
Total Credits (Without AS 119 or VET 120)		**16 to 18**	**Total Credits**		**17**

Footnotes

1 Not generally required for CVM admission, but a requirement for the B.S. in Animal Science at SDSU.
2 Suggested elective for all Pre-Veterinary students, and required course for Minor in Animal Health; an online class that can be taken any semester.
3 Recommended by Animal Science for those students with limited livestock experience.
4 Recommended by SDSU Chemistry Department for building skills toward success in CHEM 112 and CHEM 114 without prior background in Chemistry.
5 Math Index < 950, and/or ACT Math < 18 —> MATH 103 & MATH 093; Math Index 950 to 1149 and/or ACT Math 18 to 19 —> MATH 114 & MATH 094.

The Pre-Veterinary Curriculum

The following prerequisite curricula are examples from two regional veterinary schools, and their prerequisites combines for those applying to both schools. These lists are typical of the Pre-Veterinary coursework required for admission by most colleges of veterinary medicine (CVM). There are many unique requirements at specific colleges, however. The student should ask their Pre-Veterinary advisor, or refer to online materials provided by the individual veterinary college for more information.

University of Minnesota CVM*		**Iowa State Universiry CVM***		**Both UM and ISU CVMs (SDSU coursework)**	
General Prerequisites	***Credits***	***General Prerequisites***	***Credits***	***General Prerequisites***	***Credits***
Written Communications	6	Written and Oral Communications	9	Written & Oral Communications	9
Liberal Education	9	Humanities & Social Sciences	8	Humanities & Social Sciences	9
College Algebra (or higher)	3	Additional Electives	8	Additional Electives	8
Statistics	3			College Algebra (or higher)	3
				Statistics	3
Science Prerequisites		***Science Prerequisites***		***Science Prerequisites***	
General Biology with lab (2 sem)	6	General Biology with lab (2 sem)	8	General Biology with lab (2 sem)	8
Microbiology with lab	3	Anatomy & Physiol with lab	3	Microbiology with lab	4
Genetics (classic & molecular)	3	Genetics (classic & molecular)	3	Anatomy & Physiol with lab	4
Physics with lab (2 sen(	6	Physics with lab	4	Genetics (classic & molecular)	3
General Chemistry with lab (2 sem)	6	General Chemistry with lab (2 sem)**	7	Physics with lab (2 sem)	8
Organic Chemistry with lab (1 sem)	3	Organic Chemistry with lab (2 sem)	7	General Chemistry with lab (2 sem)	8
Biochemistry ***	3	Biochemistry	3	Organic Chemistry with lab (2 sem)	8
				Biochemistry	3
UM CVM Course Prerequisites:	51	ISU CVM Course Prerequisites:	6	Combined CVM Prerequisites Based on SDSU coursework:	78
General and additional coursework toward completion of academic major:	69	General and additional coursework toward completion of academic major:	60	General and additional coursework toward completion of academic major:	42
Total credit hours for U Minn CVM Application and B.S. degree (SDSU)	**120**	**Total credit hours for ISU CVM Application and B.S. Degree (SDSU)**	**120**	**Total credit hours for both CVM Applications and B.S. degree (SDSU)**	**120**

Notes:

* Listed prerequisites as of 8 March 2018 (http://aavmc.org/data/files/vmcas/prereqchart.pdf)

** College Algebra (Math 114) or higher placement is a prerequisite/co-requisite for General Chemistry I (Chem 112/L)

***The second semester of Organic Chemistry (CHEM 328/L) is a prerequisite for Biochemistry (CHEM 464) at SDSU

1) A Bachelor of Science degree (B.S.) is ***not*** required for admission to most colleges of veterinary medicine in the Unites States, although students may choose to complete their B.S. degree prior to application to veterinary school.
2) Listed credit requirements for CVM pre-requisites do not do not necessarily correspond to semester credits for qualifying coursework at SDSU.

REMEMBER TO HAVE A PRE-VETERINARY ADVISOR ASSIGNED TO YOU DURING YOUR SUMMER VISIT

(OR CALL THE COLLEGE ACADEMIC PROGRAMS OFFICE AT 605-688-5133)

☐	Dr. Cassady	(beverly.cassady@sdsate.edu)	☐	Dr. Holler	(larry.holler@sdstate.edu)
☐	Dr. Chase	(christopher.chase@sdstate.edu)	☐	Dr. Miskimins	(dale.miskimins@sdstate.edu)
☐	Dr. Daly	(russell.daly@sdstate.edu)	☐	Dr. Pillatzki	(angela.pillatzki@sdstate.edu)
☐	Dr. Gackstetter	(gary.gackstetter@sdstate.edu)			

Comments and Notes: