

The University of Vermont

Pre-veterinary/Pre-professional Option













Department of Animal and Veterinary Sciences

Pre-veterinary Information for Prospective Students

s a student with an interest in pre-veterinary studies, you may have many questions about how you'll approach your undergraduate career. At UVM, we're proud of our strong advising network of staff who can help guide you through the process of selecting a major, enrolling in relevant course work, exploring professional options, and ultimately applying to veterinary school.

To assist you at this stage of your educational planning, the UVM Admissions Office has prepared the following information which answers many questions commonly asked by first-year candidates interested in pre-veterinary studies at the University of Vermont.

Selecting a Major

Like most colleges and universities today, UVM does not offer a pre-veterinary major. Most students who are interested in veterinary medicine choose the pre-professional option of Animal Science. With few exceptions, a UVM undergraduate student can prepare for professional school from any program offered at the university. True, many pre-veterinary students pursue degrees in the physical, biological, or animal sciences; however these are not a prerequisite for entry to veterinary school. When it comes to applying, most professional schools are interested in overall academic quality and in the scope and diversity of a student's academic work.

It's important to follow your interests when selecting a major, maintain high standards, and to be flexible. Not all well-prepared students gain admission to highly competitive veterinary schools; remain open to related or alternate careers.

Required Courses

Each veterinary school has its own criteria for admission. If you have an interest in a particular school, you should consult the individual page for that school. The link to the U. S. Veterinary Medical Colleges is http://www.aavmc.org. The general requirements for most veterinary school applicants are as follows:

Biology: A minimum of one year is required. Our twosemester sequence of Principles of Biology (Bio 1, 2) generally satisfies this requirement. **Chemistry:** One year of general chemistry is required. This is fulfilled by our introductory Chemistry sequence (Chem 31, 32). One year of Organic Chemistry (Chem 141, 142) is also required, and some veterinary schools suggest quantitative analysis, physical chemistry, or other related areas of theoretical or quantitative chemistry, including biochemistry.

Physics: There is a one-year requirement, and course work must include a laboratory component. At UVM, you can take either Elementary Physics (Phys 11, 12) or General Physics (Phys 31, 42) depending on your math preparation. The lab is Phys 21/22.

Mathematics: One semester of calculus is recommended, and in some cases required, for veterinary school admission. UVM's Math 19, is recommended. Lower level mathematics courses may prove helpful for students not ready to study calculus; strong math preparation may also improve achievement in physics and organic chemistry.

Additional Requirements: Many veterinary schools require a year of English, often with specific requirements in composition and literature. Many veterinary schools also encourage broad, diverse study in the humanities, social sciences, and foreign languages. Some schools also require animal related courses. Since some schools have specific requirements in these areas, it is important to consult listings for the schools in which you're interested.

Pre-veterinary Advising Process

During the First and Second Years

Your first two years at UVM are a time for adjusting to college life, selecting a major, enrolling in the courses recommended or required for entry into the health professions, and exploring career goals. First, discuss your interests with your academic advisor – preferably as early as Orientation – and begin enrolling in the appropriate course sequences. Academic advisors are familiar with the introductory course work recommended for professional schools and will assist in fitting those courses into a major program.

Other steps you can take early in your undergraduate career include participating in relevant volunteer experience, working for a veterinarian, joining the prevet club - a student organization devoted to exploring all aspects of the veterinary profession, doing an internship,

undergraduate research or participating in a class that has hands-on experience such as CREAM.

During Junior and Senior Year

Early in your junior year, the Pre-veterinary Advisor's role becomes more critical. It is important to plan for the GRE and any other standardized tests. Prior to your senior year you should begin to prepare your VMCAS (Veterinary Medical College Application Service) application, or other applications. This process is extensive, and should begin during the summer if you plan to attend veterinary school the following year. You must also identify and contact the individuals you plan to ask for letters of recommendation. Usually this includes your advisor, at least one veterinarian, and one other professional. You must also be sure to have completed and documented your animal experience.

Program Opportunities Available at the University of Vermont

UVM/Tufts School of Veterinary Medicine Program

UVM undergraduates may apply for admission in the spring of their sophomore year. A limited number of students are admitted; they are guaranteed a space in the veterinary school once they graduate if they have maintained the required grade-point average upon graduation.

UVM/Ontario Veterinary College - The University of Guelph Ontario Veterinary College will hold two places in the first year of the program for students from UVM who meet the requirements for admission.

UVM/Royal (Dick) School of Veterinary Studies, the University of Edinburgh Placement Agreement -

This program is an early entrance admission placement program into Royal (Dick) School of Veterinary Studies that will make available three guaranteed places for UVM early application students.

UVM/University of Glasgow Matriculation Agreement - UVM Students can complete a joint B.S./BVMS degree attending the University of Glasgow in their fourth year at UVM.

Extracurricular Experiences

Entry to veterinary schools is intensely competitive, and successful candidates have usually distinguished themselves both academically and outside the classroom. Significant volunteer experience in a veterinary or medicine-related field, a research internship in a university laboratory, community service work, and leadership roles in student organizations all

constitute excellent preparation for a career in veterinary medicine.

UVM students are fortunate to have an undergraduate, graduate, and medical faculty who welcome qualified undergraduates into their research laboratories. Many opportunities for undergraduate research are sponsored UVM's UROP (Undergraduate Research Opportunities Program) and URECA (Undergraduate Research Enrichment Competitive Awards) programs. More information can be found by going to UVM's Office of Undergraduate Research website. students can also gain experience and become more involved with and connected to the local community by joining a wide range of service organizations active in the Greater Burlington area.

UVM's Placement Rate

UVM takes pride in an excellent record of acceptances for Animal and Veterinary Sciences students. In recent years, approximately 80% of UVM students who applied to veterinary school were accepted. Our students have been admitted to a wide range of academic institutions, including highly rated programs at Cornell, Tufts, and Purdue, the University of North Carolina, and the University of Pennsylvania.

Successful candidates present excellent academic records, with overall undergraduate grade-point averages generally at 3.5 or above on a 4.0 scale, strong GRE scores, and evidence of leadership and appropriate experience.

Not all students interested in veterinary school attend directly upon college graduation. In fact, veterinary schools often prefer candidates seasoned by a number of years of work and other life experiences.

For more information contact:

UVM Department of Animal and Veterinary Sciences

570 Main St., 102 Terrill Building University of Vermont Burlington, VT 05405-0148 (802) 656-0155 ascidept@uvm.edu

ADDITIONAL PRE-VETERINARY/PRE-PROFESSIONAL INFORMATION FOR PROSPECTIVE ANIMAL SCIENCE MAJORS

This page offers additional information that may be of interest to those students who plan to major in Animal Science.

Elective Courses:

Former students admitted to colleges of veterinary medicine highly recommend courses in animal science such as anatomy, physiology, physiology of reproduction, endocrinology, *CREAM* and/or *EQUUS* (see inserts). Courses such as these can also introduce students to exciting possibilities for undergraduate research.

Experience with Animals:

Since veterinary medicine is animal oriented, an applicant's experience in working with animals and understanding the veterinary profession are viewed as important. Such experience should have been obtained after the age of fifteen and could involve breeding, milking, feeding and showing various kinds of animals including pets, livestock, laboratory animals, zoo animals or wildlife. This experience should be of appropriate breadth and depth and should entail more than routine care and feeding of companion animals. A farm experience that includes understanding the management aspects of the enterprise is highly recommended. ASCI 134-135, *CREAM*, is an excellent opportunity for dairy herd management. ASCI 121-*EQUUS* provides an equine management option.

Experience with Veterinarians:

Most applicants to veterinary colleges will have attained experience working with a practicing veterinarian. This should include working in a small animal hospital and traveling with a large animal specialist making farm visits. Getting both kinds of experience is most desirable. Animal Science students are often notified of these opportunities through an e-mail list maintained by the Department.

Other Experiences:

Applicants with unique experiences, related to animals and otherwise, could have an advantage (everything else being equal) when applying to vet schools because it makes them stand out. The attainment of these experiences is one more example that the applicant demonstrated initiative, drive, resourcefulness, etc.

The veterinary schools also like to see evidence of successful teaching and research experience. Independent research of honors quality, plus experience as an undergraduate teaching assistant would strengthen any application. Finally, veterinary schools like to see a long, continuous record of interest in, and involvement with, animals. This can be farm, kennel, stable or veterinary experience - voluntary or paid. Many students set up an internship through the department, or go abroad for a semester. A semester abroad is an opportunity to get experience with animals and cultures that you may not otherwise be exposed to; however, you must plan early to fit it in a pre-veterinary curriculum.

Applying to Veterinary School

Students are usually required to take standardized tests prior to applying to veterinary school. Most schools require the Graduate Record Exam (GRE) or the Veterinary College Admission Test (VCAT). At least 20 vet schools use the VMCAS process for the initial application. This is a standardized application process that is available on the web at http://www.aavmc.org/vmcas/vmcas.htm. Be sure to visit it early since it can be very hard to access it right before applications are due. Many schools will ask for a supplemental application after completion of the VMCAS.

Alternative Careers with a B.S. Degree in Animal Science

Please refer to the page in the packet "Where to – After Your Degree". It lists many careers that are available and other places to explore career possibilities for graduates with a B.S. Degree in Animal Science.

POSSIBLE FOUR-YEAR PROGRAM

Here is an example of a possible four-year undergraduate program in the College of Agriculture and Life Sciences. There are <u>many other options</u> that will satisfy the requirements for colleges of veterinary medicine. However, all options are full and academically challenging. The College requires 120 credit hours to graduate with a B.S. degree.

The following is a possible curriculum for the **Pre-veterinary/Pre-professional Option**:

FIRST YE	AR		
	Course	Credits	
ASCI 001	Intro Animal Sciences	4	
CALS 001/			
CALS 002	Foundations	6	
CHEM 031	General Chemistry 1	4	
CHEM 032	General Chemistry II	4	
MATH	Math 19 or higher	3	
BCOR 012	Biology	4	
ENGS 001	Written Expression	3	
	Cultural Diversity 1	3	
	Elective	3	
	Total	34	
SOPHOM	ORE YEAR		
	Course	Credits	
ASCI 122	Animals in Society/Animal	3	
	Welfare		
ASCI 141	Anat. & Physiol. of Domestic	4	
	Animals		
ASCI 181	Career Seminar	1	
CHEM 141	Organic Chemistry I	4	
CHEM 142	Organic Chemistry II	4	
BCOR 011	Biology	4	
STAT 141	Statistics	3	
ENGS 050	Expository or Creative	3	
Or	Writings		
ENGS 052			
	Electives/Diversity 2	3-6	
	Total	29-32	

JUNIOR Y	EAR	
ocition i	Course	Credits
ASCI 110	Animal Nutrition, Metab. & Feeding	4
ASCI 168	Animal Genetics or BCOR 101	3
MMG 101	Microbiology & Infectious Dis.	4
BCOR 103	Molecular and Cell Biology	4
ASCI 117	Horse Health & Disease	3
ASCI 118	Applied Animal Health	3
ASCI 097/098	Understanding & Speaking Dog	3
ASCI 191	Canine Behavior	3
ENG 050 or ENG 053	English Composition	3
	Electives	2-8
	Total	32-38
SENIOR Y	EAR	
	Course/Hrs	Credits
ASCI 215	Physiology of Reproduction	3
ASCI 192	Animal Plagues & Global Health	3
ASCI 263	Clinical Topics in Companion Medicine	3
ASCI 264	Clinical Topics in Livestock Medicine	3
ASCI 216	Endocrinology	3
PBIO 185	Biochemistry	4
ASCI 220	Lactation Physiology	3
	Physics	5-10
	Electives	3-6
	Total	30-38

<u>Work with your advisor</u> to develop a program, which is academically sound, meets your needs, and meets the requirements of veterinary colleges to which you may apply.

Also, you may make an appointment with the Department Chair (656-0155) if you have further questions about your program or admission to veterinary school.



Department of Animal and Veterinary Sciences

Four veterinary schools have entered into agreements with the University of Vermont to offer guaranteed placement into veterinary school for qualifying students. The following are opportunities available to our students:

UVM/Tufts School of Veterinary Medicine Program

Tufts University Cummings School of Veterinary Medicine offers undergraduates at UVM an opportunity to apply for admission in the spring of their sophomore year. A limited number of students are admitted; they are guaranteed a space in the veterinary school class once they graduate if they have maintained the required grade-point average upon graduation.



Participants in this program are offered the assurance of veterinary school admission without the substantial investments of time and energy that other pre-veterinary students typically make in the process of preparing, researching, and applying to numerous veterinary schools, and preparing for optimal scores on the GRE. Program participants can select any undergraduate major, explore other areas of interest during their junior and senior years, or choose to study abroad, thus broadening their undergraduate experience.

To be eligible to apply, candidates of this program must be sophomores and must have demonstrated academic proficiency in their course work, particularly in the pre-veterinary science courses.

It is expected that competitive applicants will have:

- Completed at least two science sequences (most typically the year of introductory chemistry and the year of introductory biology) by the spring semester of their sophomore year.
- Completed prerequisite courses at their undergraduate institution or at other universities by special permission of the veterinary school's admissions office.
- Achieved a highly competitive cumulative grade-point average.

AP credit is acceptable as long as it appears on the student's transcript. The GRE is not required for applicants to this joint program; the applicant's SAT scores will be considered during the admissions process.

http://www.tufts.edu/vet/

UVM/Ontario Veterinary College

The University of Vermont and the University of Guelph Ontario Veterinary College (OVC), an accredited veterinary school which provides a degree in Doctor of Veterinary Medicine, have an agreement whereby OVC will hold two places in the first year of the program for students from the University of Vermont who meet the requirements for admission. Both parties agree and acknowledge that these places may not be occupied by students who are Canadian citizens or who hold Canadian Permanent Residence status. The places will be held until the end of March for entrance in September of the same year.



Students may apply for admission to the program via the Veterinary Medical College Application Service or directly to OVC through its normal application process for international applicants. For admission, students must have a minimum GPA of 3.00 in the sciences and meet the minimum score for the Graduate Record Exam (GRE). Additional course work includes two semesters each of inorganic chemistry, organic chemistry, physics, and biology (all the labs) and one semester each of calculus, statistics, biochemistry, genetics, and cell biology. Applicants must have a minimum of fifteen credits in each of their eight semesters of undergraduate work at UVM. For additional information, email assidept@uvm.edu or call 802-656-0155.

http://www.ovc.uoguelph.ca/

UVM/Royal (Dick) School of Veterinary Studies, the University of Edinburgh Placement Agreement

The University of Vermont (UVM) and the Royal (Dick) School of Veterinary Studies, the University of Edinburgh (UoE, R(D)SVS), have entered into an early entrance admission placement program that will make available three guaranteed places for UVM early application students. Application to the UoE, R(D)SVS early admission program can be made at the end of the second year (four semesters) with predetermined science and math courses completed and a minimum



GPA of 3.40. If accepted, the 3.40 or above GPA has to be maintained until the time of graduation. Admitted students must receive adequate animal handling experience throughout their residence at UVM. The type of experience required can be coordinated between the student and the UoE, R(D)SVS. Opportunity will exist to credit some components of UVM teaching in animal husbandry and animal handling as accredited prior learning for the Edinburgh degree. Advice will be given by UoE, R(D)SVS, in consultation with UVM, as to what courses can be credited. If requested, opportunity to undertake a four week vacation clinical placement (companion animal and/or equine) at UoE, R(D)SVS will be available to all students in the program.

http://www.ed.ac.uk/schools-departments/vet/services

UVM/University of Glasgow Matriculation Agreement

The University of Glasgow (UoG), Glasgow, UK and the University of Vermont (UVM), Burlington, VT USA have formed an agreement whereby University of Vermont students can complete a joint B.S./BVMS degree attending UoG in their fourth year at UVM. UVM may send 5-10 students yearly who have successfully completed three years of study in the University of Vermont Animal Science Bachelor of Science (B.S.) program to the Bachelor of Veterinary Medicine and



Surgery programme (BVMS) hosted by the School of Veterinary Medicine, College of Medical, Veterinary and Life Sciences at Glasgow. Participating students will continue as candidates for degrees from their home institution (UVM) and will not, at the end of the first year of UoG, be eligible candidates for degrees from the host institution (UoG). Credit for subjects taken at UoG will be transferred to UVM to fulfill the requirements for awarding successful students a B.S. degree in Animal Science from UVM at the end of their fourth year. University of Vermont students meeting matriculation requirements and successfully completing Year 1 of the BVMS program at the University of Glasgow will be offered a direct entry place in Year 2 of the BVMS program. Applications form University of Vermont students to study at UoG must reach UoG by 1 January for commencement in September of that year. Students interested in this opportunity should confirm their eligibility to study abroad through the Office of International Education, (http://www.uvm.edu/~oies/?Page=study/studyabroad.php&SM=sa_menu.html) paying particular attention to Step 3: Financial considerations (http://www.uvm.edu/~oies/?Page=study/financial.html&SM=sa_menu.html).

http://www.gla.ac.uk/

Veterinary Medicine

Dedicated to the diagnosis, treatment and prevention of diseases of animals

Types of Careers

1. Private Practice

The majority of veterinary positions are in private practice. Private Practitioners provide health care for all species of animals. Some veterinarians limit their practices to certain species of animals.

<u>Companion animal practice</u>: treatment of diseases of pets such as dogs, cats and horses.

<u>Food animal practice</u>: treatment of diseases of livestock such as cattle, sheep, pigs, goats,

chickens.

Exotic animal practice: treatment of diseases in animals such as birds, reptiles, amphibians, fish, and pocket pets (mice, hamsters, gerbils, etc.)

Specialty practices: Birds only, Cats only, Equine only, etc.

Veterinarians may also receive additional training in a specialized area of medicine.

Specialization within Veterinary Practices

(Board Certification)

<u>Anesthesiology</u>: The science of anesthetizing animals for surgical procedures.

<u>Animal Behavior:</u> The study of animal behavior in their environment

<u>Clinical Pharmacology</u>: The science of drugs, their actions and drug therapy for animal diseases.

<u>Dentistry</u>: The prevention and treatment of diseases of the teeth and oral cavity.

Dermatology: The study of animal skin diseases.

<u>Emergency and Critical Care:</u> The art of treating animal emergencies.

<u>Internal Medicine</u>: The study of internal diseases; diagnosis and treatment.

<u>Laboratory Animal Medicine</u>: The study of disease prevention and treatment in research animals.

<u>Microbiology</u>: The science of disease-causing organisms.

<u>Nutrition</u>: Many veterinarians specialize in the nutritional needs of animals.

Ophthalmology: The study of eye diseases and ocular conditions in animals.

Pathology: The study of the nature of disease.



<u>Poultry Medicine</u>: A few veterinarians only work with poultry.

<u>Private Practice:</u> Specializing in private practice

<u>Preventive Medicine</u>: The science of disease prevention. <u>Radiology</u>: A study of x-rays and radioactive substances in disease diagnosis and treatment.

<u>Surgery</u>: Additional experience in the art of surgery is mastered by some veterinarians.

<u>Theriogenology</u>: The study of animal reproduction, diseases and animal breeding.

<u>Toxicology</u>: The science of poisons, chemicals, etc. <u>Zoological Medicine</u>: The study of "Zoo" animals.

2. Government Practice

Military and non-military positions are available.

Public Health: These veterinarians monitor communicable diseases between animals and humans. They may work with the Centers for Disease Control (CDC).

Wildlife Medicine: These professionals work with Fish and Wildlife Service or private organizations in monitoring and maintaining the health of wild animals.

Food Inspection and Safety: Veterinarians may work with the Animal and Plant Inspection Service and the



military veterinary corps in monitoring the quality of food products.

Animal Importation: Federal and state veterinarians monitor the movement of animals from foreign

countries into the United States and the transportation of livestock across state lines.

Food and Drug Administration: Veterinarians also monitor the safety of all chemicals, foods, drugs, etc. that will be used by humans.

3. Private Industry

<u>Research</u>: Veterinarians are employed in all aspects of pharmaceutical, biotechnological and chemical research done to improve the health and well-being of animals and/or humans.

<u>Product Development and Sales</u>: Careers in product discovery, testing, advertising, marketing and sales are available for veterinarians.

<u>Animal Training</u>: Working with the "Seeing-eye dog" program, animals in motion pictures, amusement



parks, zoos, etc. is an exciting employment area for veterinarians. Zoological/Wildlife Medicine: Zoos and wildlife parks also employ veterinarians.

Marine Biology: Some veterinarians work with the aquatic mammals like whales and seals.

4. Academia

<u>Teaching</u>: Many veterinarians teach veterinary students, graduate students, other health-care professionals, animal scientists, biologists, etc.

<u>Research</u>: Veterinarians also study the diseases that afflict both man and animals in an effort to discover new cures, treatments and preventatives.

These professionals also provide <u>support</u> for all aspects of veterinary medicine in Industry, Government and Private Practice.

What does it take to become a Veterinarian?

Begin preparing for a career in veterinary medicine as soon as possible. In high school, take lots of classes in areas such as science, math and English. Try to gain experience working with animals at a nearby farm, at the humane society, through 4-H programs or in a veterinary practice. Enter an undergraduate program that focuses



on providing necessary prerequisite classes for veterinary college. "Prevet" programs usually allow students to achieve degrees in either biological or animal sciences while gaining animal

experience. Concentrate on obtaining experience with as many different species of animals as possible during your college career. Typically, at least 180 hours of animal-related experience are required to apply to "Vet School".

Veterinary College

There are 28 Veterinary Schools in the United States and nineteen international schools that are accredited by the American Veterinary Medical Association. All schools provide the necessary education to fulfill your career goals.

In the United States each year approximately 2,000 veterinarians graduate from the 28 accredited schools of veterinary medicine. High academic records and lots of animal experience are necessary for admission.

To become a practicing Doctor of Veterinary Medicine requires the completion of a four-year Veterinary Professional Program, and the passing of national and state board exams.

Additional specialization takes additional years of college.

So, how long does it take?



After completing high school, you will have to meet all prerequisite requirements while in an undergraduate college program. This usually takes four years. Once admitted into Veterinary College, you will have to go another four years. If you then decide to specialize, you will have to spend another three to five years (or longer) in

college. The average veterinarian completed eight years of college. Specialists, Ph.D.'s, and Academicians will have completed 11 to 15 years of college. You will probably be between 26 and 30 years old when you graduate and start your new career.

What are salaries like in Veterinary Medicine?

According to the American Veterinary Medical Association (AVMA), the median entry-level salary for first-year practitioners in 2014 was \$67,000, but veterinary medicine salaries can vary greatly, depending on type of medical practice and location.

What are the job outlooks?

Veterinary professionals continue to be in demand because of the diversity of types of jobs that veterinarians are qualified to do. Increases in pet ownership, escalation of population and food needs, and establishment of programs to save endangered species are but a few of the potential areas that will be filled by veterinarians well into the $21^{\rm st}$ century.

Office of Animal Care Management University of Vermont (802) 656-0459 <u>PRE-VETERINARY SCIENCE OPTION</u> - This option is designed for the individual whose career goals include an advanced degree; and/or veterinary, medical or dental school; or pharmacy training. Several of the courses listed below will also meet either the College or Animal and Veterinary Sciences program requirements. The courses listed in bold are generally required by U.S. vet schools. Other courses represent electives from which the student and adviser will select depending upon program interests. See Pre-professional advising sheet and/or individual medical/dental or veterinary school entry guidelines to check required courses. (These elective credits are in addition to the required ASCI courses and the CALS requirement.)

Courses in bold are normally required courses for US Schools of Veterinary Medicine

·		Credits	Semester taken
CHEM 031 & 032	General Chemistry I & II	8	
CHEM 141 & 142	Organic Chemistry I & II	8	
BCOR 011 & 012	Exploring Biology	8	
ASCI 168	Animal Genetics & Breeding	3	
or	G		
BCOR 101	Genetics	3	
BCOR 103	Molecular and Cell Biology	4	
MMG 101	Microbiology & Infectious Dis.	4	
BIOC 205/206/207 and	Biochemistry I & II / Lab and Discussion	ı	
0r		4.0	
PBIO 185/187	Survey of Biochemistry / Lab	4-9	
MATH 019 & 020	Fund. of Calculus I & II		
or MATH 021	Calculus I	4-6	
STAT 141 or higher	Basic Statistical Methods	3	
PHYS 011/021	Elementary Physics I / Lab		
and	T1	4.0	
PHYS 012/022	Elementary Physics II / Lab	10	
ENGS 001	Written Expression	3	
ENGS 050	Expository Writing		
or ENGS 053	Intro. to Creative Writing	3	
ASCI 117	Horse, Health & Disease	3	
ASCI 118	Horse, Health & Disease		
	Applied Animal Health	_	
	Applied Animal Health	4	
ASCI 134/135	CREAM	4 8	
ASCI 134/135 ASCI 161	CREAM Laboratory Animal Health & Diseases	4 8 3	
ASCI 134/135 ASCI 161 ASCI 192	CREAM Laboratory Animal Health & Diseases Equine Reproduction Workshop	4 8 3 1	
ASCI 134/135 ASCI 161 ASCI 192 ASCI 192	CREAM Laboratory Animal Health & Diseases Equine Reproduction Workshop Artificial Insemination	4 8 3 1	
ASCI 134/135 ASCI 161 ASCI 192 ASCI 192 ASCI 263	CREAM Laboratory Animal Health & Diseases Equine Reproduction Workshop Artificial Insemination Topics in Companion Animal Med.	4 8 3 1 1 3	
ASCI 134/135 ASCI 161 ASCI 192 ASCI 192 ASCI 263 ASCI 264	CREAM Laboratory Animal Health & Diseases Equine Reproduction Workshop Artificial Insemination Topics in Companion Animal Med. Clinical Topics in Livestock Med.	4 8 3 1 1 3 3	
ASCI 134/135 ASCI 161 ASCI 192 ASCI 192 ASCI 263 ASCI 264 ASCI 195/196	CREAM Laboratory Animal Health & Diseases Equine Reproduction Workshop Artificial Insemination Topics in Companion Animal Med. Clinical Topics in Livestock Med. Field Experience	4 8 3 1 1 3 3 .5-15	
ASCI 134/135 ASCI 161 ASCI 192 ASCI 192 ASCI 263 ASCI 264 ASCI 195/196 ASCI 216	CREAM Laboratory Animal Health & Diseases Equine Reproduction Workshop Artificial Insemination Topics in Companion Animal Med. Clinical Topics in Livestock Med. Field Experience Endocrinology	4 8 3 1 1 3 3 .5-15 3	
ASCI 134/135 ASCI 161 ASCI 192 ASCI 192 ASCI 263 ASCI 264 ASCI 195/196 ASCI 216 ASCI 220	CREAM Laboratory Animal Health & Diseases Equine Reproduction Workshop Artificial Insemination Topics in Companion Animal Med. Clinical Topics in Livestock Med. Field Experience Endocrinology Lactation Physiology	4 8 3 1 1 3 3 .5-15 3 3	
ASCI 134/135 ASCI 161 ASCI 192 ASCI 192 ASCI 263 ASCI 264 ASCI 195/196 ASCI 216 ASCI 220 ASCI 277	CREAM Laboratory Animal Health & Diseases Equine Reproduction Workshop Artificial Insemination Topics in Companion Animal Med. Clinical Topics in Livestock Med. Field Experience Endocrinology Lactation Physiology Human & Animal Parasitology	4 8 3 1 1 3 3 .5-15 3 3	
ASCI 134/135 ASCI 161 ASCI 192 ASCI 192 ASCI 263 ASCI 264 ASCI 195/196 ASCI 216 ASCI 220 ASCI 277 ASCI 297	CREAM Laboratory Animal Health & Diseases Equine Reproduction Workshop Artificial Insemination Topics in Companion Animal Med. Clinical Topics in Livestock Med. Field Experience Endocrinology Lactation Physiology	4 8 3 1 1 3 3 .5-15 3 3	
ASCI 134/135 ASCI 161 ASCI 192 ASCI 192 ASCI 263 ASCI 264 ASCI 195/196 ASCI 216 ASCI 220 ASCI 277 ASCI 297 Elective	CREAM Laboratory Animal Health & Diseases Equine Reproduction Workshop Artificial Insemination Topics in Companion Animal Med. Clinical Topics in Livestock Med. Field Experience Endocrinology Lactation Physiology Human & Animal Parasitology	4 8 3 1 1 3 3 .5-15 3 3	
ASCI 134/135 ASCI 161 ASCI 192 ASCI 192 ASCI 263 ASCI 264 ASCI 195/196 ASCI 216 ASCI 220 ASCI 277 ASCI 297	CREAM Laboratory Animal Health & Diseases Equine Reproduction Workshop Artificial Insemination Topics in Companion Animal Med. Clinical Topics in Livestock Med. Field Experience Endocrinology Lactation Physiology Human & Animal Parasitology	4 8 3 1 1 3 3 .5-15 3 3	

Courses in bold are normally required courses for US Schools of Veterinary Medicine.