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University of Minnesota Mission Statement

The University of Minnesota, founded in the belief that all people are enriched by understanding, is dedicated to the advancement of learning and the search for truth; to the sharing of this knowledge through education for a diverse community; and to the application of this knowledge to benefit the people of the state, the nation, and the world.

The University’s mission, carried out on multiple campuses and throughout the state, is threefold:

Research and Discovery—Generate and preserve knowledge, understanding, and creativity by conducting high-quality research, scholarship, and artistic activity that benefit students, scholars, and communities across the state, the nation, and the world.

Teaching and Learning—Share that knowledge, understanding, and creativity by providing a broad range of educational programs in a strong and diverse community of learners and teachers, and prepare graduate, professional, and undergraduate students, as well as non-degree-seeking students interested in continuing education and lifelong learning, for active roles in a multiracial and multicultural world.

Outreach and Public Service—Extend, apply, and exchange knowledge between the University and society by applying scholarly expertise to community problems, by helping organizations and individuals respond to their changing environments, and by making the knowledge and resources created and preserved at the University accessible to the citizens of the state, the nation, and the world.

In all of its activities, the University strives to sustain an open exchange of ideas in an environment that embodies the values of academic freedom, responsibility, integrity, and cooperation; that provides an atmosphere of mutual respect, free from racism, sexism, and other forms of prejudice and intolerance; that assists individuals, institutions, and communities in responding to a continuously changing world; that is conscious of and responsive to the needs of the many communities it is committed to serving; that creates and supports partnerships within the University, with other educational systems and institutions, and with communities to achieve common goals; and that inspires, sets high expectations for, and empowers the individuals within its community.

History

Veterinary medicine deals with the prevention, control, and treatment of diseases of animals. Legal documents and other records from about 2200 B.C. found in Babylonia, China, Egypt, and India contain the earliest references to veterinary medical practice. In India, where veterinary hospitals were established by the state, the practice of veterinary medicine became very sophisticated.

Veterinary medical education in the United States originated with the Veterinary College of Philadelphia’s charter, granted in 1852. During the next 75 years, 55 veterinary schools opened in this country, and 34 of them closed. The oldest successful veterinary college in the United States is the College of Veterinary Medicine of Iowa State University, established in 1879. Currently there are 31 veterinary schools in the United States and Canada.

Veterinary Medical Education at the University

The College of Veterinary Medicine (CVM) at the University of Minnesota was established in 1947 in response to the veterinary medical needs of the livestock industry and pet owners, the need for research in animal diseases, and growing student interest in the study of veterinary medicine. Since its establishment, the college has graduated 50 classes, with a total of 3,164 veterinarians.

CVM is fully accredited by the Council on Education of the American Veterinary Medical Association.

Career Opportunities

Career opportunities for veterinarians are available in a wide variety of work settings and involve diverse activities. Most veterinarians are engaged in private clinical practice. Veterinarians in general practice provide care for food and companion animals, both large and small. Those in specialized practice may provide care primarily for a single species, or they may concentrate in clinical disciplines such as animal reproduction, surgery, or diseases of specific systems. Other veterinarians pursue careers in education, research, and
industry. Challenging careers are offered by government agencies such as the Department of Health and Human Services, the Department of Agriculture, the Armed Forces, the Department of Energy, and the National Aeronautics and Space Administration. Careers in laboratory animal medicine, zoo animal practice, public health, and food inspection also are available. There are new opportunities for research and service in such areas as comparative medical research and aquatic and wildlife animal medicine.

The demand for veterinarians remains strong. In 1996 the American Veterinary Medical Association (AVMA) reported that 85 percent of U.S. veterinary students had received an offer for employment or advanced study at the time of graduation. The AVMA reports that the face of veterinary medicine is changing as well. From 1990 to 1995, the number of women entering the veterinary profession grew at a rate almost six times greater than that of men. If the trend continues, the number of female veterinarians will equal the number of male veterinarians in the first five years of the 21st century. Currently, 38 percent of the nation’s veterinarians are female.

Resources

This biennial catalog is the basic source of information about CVM.

The Class Schedule, distributed with registration materials before the registration period each semester, lists course offerings with prerequisites, class hours, rooms, and instructors. It also includes registration instructions, fees, final exam schedules, and other useful information.

Information about evening and summer courses is contained in the Continuing Education Catalog and Summer Session Catalog, respectively.

Policies

Access to Educational Records—In accordance with regents’ policy on access to student records, information about a student generally may not be released to a third party without the student’s permission. (Exceptions under the law include state and federal educational and financial aid institutions.) Some student information—name, address, electronic (e-mail) address, telephone number, dates of enrollment and enrollment status (full time, part time, not enrolled, withdrawn and date of withdrawal), college and class, major, advisor, academic awards and honors received, and degrees earned—is considered public or directory information. Students may prevent the release of public information. To do so, they must notify the records office on their campus (see below).

Students have the right to review their educational records and to challenge the contents of those records. The regents’ policy is available for review on the Web <http://onestop.umn.edu/registrar/Grades/gradereporting/index.html>, at 200 Fraser Hall, Minneapolis, and at records offices on other campuses of the University. Questions may be directed to the Office of the Registrar, 200 Fraser Hall (612-625-5333).

Catalog Use—The information in this catalog and other University catalogs, publications, or announcements is subject to change without notice. University offices can provide current information about possible changes.

This publication is available in alternative formats on request. Contact the Office of Admissions, University of Minnesota, 240 Williamson Hall, 231 Pillsbury Drive S.E., Minneapolis, MN 55455 (612-625-2008; e-mail admissions@umn.edu).

Equal Opportunity—The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.

In adhering to this policy, the University abides by the Minnesota Human Rights Act, Minnesota Statute Ch. 363; by the Federal Civil Rights Act, 42 U.S.C. 2000e; by the requirements of Title IX of the Education Amendments of 1972; by Sections 503 and 504 of the Rehabilitation Act of 1973; by the Americans With Disabilities Act of 1990; by Executive Order 11246, as amended; by 38 U.S.C. 2012, the Vietnam Era Veterans Readjustment Assistance Act of 1972, as amended; and by other applicable statutes and regulations relating to equality of opportunity.
Inquiries regarding compliance may be directed to Julie Sweitzer, director, Office of Equal Opportunity and Affirmative Action, University of Minnesota, 419 Morrill Hall, 100 Church Street S.E., Minneapolis, MN 55455 (612-624-9547).

**Extracurricular Events**—No extracurricular events requiring student participation may be scheduled from the beginning of study day to the end of finals week. Exceptions to this policy may be granted by the Senate Committee on Educational Policy. The Senate advises all faculty that students who are unable to complete course requirements because of approved events during finals week will be provided an alternative and timely opportunity to do so.

**Immunization**—Students born after 1956 who take more than one University class are required under Minnesota law to submit an Immunization Record.

The form, which is sent along with the official University admission letter, must be filled out and returned to Boynton Health Service within 45 days of the first term of enrollment in order for students to continue registering for classes.

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**Welcome to Prospective Students**

Thank you for your interest in the University of Minnesota’s College of Veterinary Medicine. Our college has a long tradition of training professional and graduate students, discovering new knowledge, and providing consultative and referral services to the livestock industry and veterinary practitioners in Minnesota and the Upper Midwest.

Our goal is to prepare veterinary and graduate students to enter a wide variety of careers. The first two years of the veterinary curriculum provides students with a broad basic science background. In the third and fourth years, students learn and practice the skills needed to become successful clinicians. Following graduation from the professional program, many of our students enter companion animal, large animal, or mixed animal practices. Others find opportunities in private industry or the military or enter advanced clinical or basic science training programs. These postgraduate programs prepare students for specialty practice and for research and teaching careers. In addition to the D.V.M. degree, the College of Veterinary Medicine offers M.S. and Ph.D. degrees in basic and clinical sciences and a variety of clinical internship and residency training opportunities.

The college’s faculty is nationally and internationally recognized for teaching and research excellence. In addition, the college’s extensive veterinary medical library, well-equipped computer laboratories, multimedia classrooms, state-of-the-art laboratories, and modern large animal and small animal hospitals will facilitate your studies. Our proximity to the Medical School; College of Biological Sciences; and College of Agricultural, Food, and Environmental Sciences provide many collaborative opportunities for students and faculty.

This catalog describes our college’s academic programs. Please direct questions to my office, the Office of Academic and Student Affairs, or to appropriate faculty. We are pleased that you are interested in veterinary medicine and the University of Minnesota.

Jeffrey S. Klausner, Dean
Professional Curriculum

CVM awards two degrees, the bachelor of science (B.S.) in veterinary science and the doctor of veterinary medicine (D.V.M.). Students who wish to earn a B.S. in veterinary science may do so at the end of the second year of the veterinary curriculum, providing they have not already earned a B.S. from another college or university.

The veterinary curriculum provides students with the education and training needed to practice veterinary medicine. The curriculum also allows students to pursue specialized training. Graduates of the program are prepared to enter veterinary medical practice or residency or graduate education programs.

The curriculum focuses on providing students with a sound foundation of training in the basic biomedical sciences to enable them to understand the causes and control of animal diseases and the maintenance of animal health. Students develop clinical skills in the diagnosis, treatment, and prevention of disease. Students can obtain additional education or training in areas of special interest. Studies develop students’ professional identity, including their commitment to lifelong learning and service to clients and the community. The curriculum provides background for evaluating and assimilating new information in the biomedical sciences and helps develop the future veterinarian’s ability to apply this information.

A substantial portion of the veterinary training takes place in the teaching hospital, where students apply knowledge of the basic sciences to solving clinical problems. By working directly with clients’ animals and hospital equipment under the supervision of clinical faculty, students gain the experience necessary to integrate classroom knowledge with the practice of veterinary medicine.

In the first year of the veterinary curriculum, students examine the structure and function of normal animals and begin to study the pathogenesis of diseases and pathophysiologic concepts. In the second year, emphasis is on the pathogenesis of diseases. The third year of the program is devoted chiefly to the study of the prevention, alleviation, and clinical therapy of diseases. In the fourth year, students learn methods of veterinary care and develop skills needed for professional practice by dealing with clients and diagnosing and managing patients.

Animal Use

Animals are used in the D.V.M. curriculum to illustrate medical principles and to provide students with firsthand experience in the art and practice of veterinary medicine and surgery. The animals are treated with genuine concern for their welfare. In some cases, however, animals must eventually be euthanized in accordance with the Animal Welfare Act. Efforts have been made and are ongoing to reduce the number of animals required in non-clinical teaching.

Given the need to use animals for instructional purposes, prospective students must recognize that successful completion of the D.V.M. curriculum requires that both live and dead animals be incorporated into students’ learning experience. In all instances the animals will be treated with dignity and handled in accordance with the Animal Welfare Act. In some cases, procedures will result in termination of an animal’s life.

The University’s animal care committee reviews all courses offered in CVM and determines the appropriateness of using animals in each course.

Facilities

CVM is housed primarily in four buildings on the St. Paul campus. Most of the classrooms and laboratories that students use during their first two years in the professional curriculum are in the Animal Science-Veterinary Medicine and the Veterinary Science buildings. Extensive research facilities and the CVM library and computer lab are also located in these buildings. In the Veterinary Teaching Hospitals building, space and facilities are provided for various diagnostic and therapeutic procedures. Clinical laboratories for hematology, chemistry, pathology, toxicology, parasitology, microbiology, and radiology, as well as animal holding facilities, are housed in this building. In addition, the Veterinary Diagnostic Laboratory is attached to the east end of the Veterinary Teaching Hospitals building.

Additional animal holding facilities, for teaching and research, are located east of Gortner Avenue and across from the Veterinary Teaching Hospitals building.
The off-campus facilities of the Minneapolis and St. Paul Health Departments, Minnesota Board of Animal Health, veterinary services of the Department of Agriculture, and food industries in the state are also used in teaching the public health aspects of veterinary medicine.

**High School Preparation**

First consideration should be given to meeting the admission requirements of the college or university the student plans to attend to complete the preprofessional course requirements. Furthermore, prospective students are urged to take as many mathematics and science courses as possible in high school, including biology, chemistry, and physics.

**Preprofessional Curriculum**

To qualify for admission to CVM, students must complete specified courses—about three years of work—at an accredited college. Application to the professional curriculum must be made nearly one year in advance or not later than October 1 in the year before the fall semester in which they wish to be admitted.

All coursework used to meet the preprofessional requirements should be evaluated with the A-F letter grading system, except when a college does not offer a required course under that grading system or when advanced placement (exemption) is granted.

The required areas of study, including the number of semester credits required for admission to CVM, are

**Biology (12-20 credits)**
- General biology or plant biology (3 credits with lab)
- Zoology or animal biology (3 credits with lab)
- Genetics (3 credits)
  - To include the mechanisms of heredity and their applications.
- Microbiology (4 credits)
  - An introductory course with lab to include taxonomy, morphology, physiology, and ecology of microbes.

**Chemistry (16-27 credits)**
- General chemistry with lab (8 credits)
- Organic chemistry with lab (6 credits, two quarters or one semester)
- Biochemistry with or without lab (3 credits)

**Liberal arts and humanities (12-18 credits)**
- History and social science (6 to 9 credits)
- Anthropology, economics, geography, history, political science, psychology, social science and sociology courses can usually be used to fulfill this requirement.
- Arts and humanities (6 to 9 credits)
  - Art, literature and music courses can usually be used to fulfill this requirement as can many humanities, theater and foreign language literature courses.

**Mathematics (3 credits)**
- College algebra (with prerequisite high school higher algebra) or precalculus or calculus.

**Physics (8-12 credits)**
- To include mechanics, heat, sound, light, electricity, magnetism, and atomic physics, topics normally covered in an introductory sequence with laboratory.

**Writing skills (8 credits)**
- Students must satisfy the requirement for graduation of the college they are attending.

**Electives**
- Electives may be selected on the basis of the student’s interests in a broad educational program and completion of a degree program in a desired major(s). Students are encouraged to choose courses in the care and management of cattle, dogs, horses, sheep, and swine when such courses are available. Students not having experiences with food-producing animals are especially encouraged to select courses in the care and management of cattle, sheep, and swine. Other recommended electives include courses in animal nutrition, electronic communication, statistics, economics, public speaking, and business management.
Liberal Education Requirements

The following requirements apply to undergraduates enrolling at the Twin Cities campus fall 1999 or later.

A liberal education introduces students to the modes of inquiry and subject matter of the major branches of knowledge, including the factual information and theoretical or artistic constructs that form their foundations; the “ways of knowing” (i.e., the kinds of questions asked and ways in which insight, knowledge, and data are acquired and used); the changes over time of their central ideas or expressive forms; and the interrelationships among them and human society in general. To these ends, study by all undergraduate students on the Twin Cities campus is guided by a common framework.

The Diversified Core Requirements

**Physical and Biological Sciences**—at least two courses totaling at least 8 credits, including one course in physical science with a laboratory or field experience, and one course in biological science with a laboratory or field experience.

**Social Science and Humanities**—at least 15 credits distributed as follows:

- **Social Science**—at least 6 credits.
- **Humanities**—at least 6 credits, including one course in literature and one course in “other humanities.” (The new “other humanities” category includes all courses in the current categories of philosophy, visual or performing arts, and other humanities or arts.)

**Historical Perspective**—at least 3 credits. A course fulfilling the historical perspective requirement will also apply toward the social science core requirement or the humanities core requirement, but the course may not also fulfill a designated theme.

**Mathematical Thinking**—one course of at least 3 credits.

The Designated Themes of Liberal Education

The designated themes of liberal education offer a dimension to liberal learning that complements the diversified core curriculum. Each of the themes focuses on an issue of compelling importance to the nation and the world, the understanding of which is informed by many disciplines and interdisciplinary fields of knowledge.

**Requirement:** one course of at least 3 credits in each of the following—

- Environment
- Cultural diversity
- International perspectives
- Citizenship and public ethics

Guidelines for courses that fulfill multiple requirements:

- A course in the physical and biological sciences core or mathematical thinking core may fulfill at most one core requirement and one designated theme.

- A course in the social sciences core or the humanities core that does not carry the historical perspective designation may fulfill at most one core requirement and one designated theme. A course that fulfills the historical perspective requirement may not fulfill a designated theme.

- A course that does not fulfill any core requirement may fulfill no more than two designated themes simultaneously.

Each semester, the Class Schedule will publish the requirements and list all courses that satisfy them. In addition, the Class Schedule will list which of these courses are offered that semester and which are tentatively scheduled for the subsequent terms during the academic year.

Writing Requirement

This requirement is effective fall 1999 for freshmen, fall 2001 for transfers. One or two first-year writing courses are required, depending on the student’s college of enrollment. Four writing intensive courses are required. Two of the courses must be upper division courses, one of which should be taken in the student’s major.

Minnesota Transfer Curriculum

If students complete the Minnesota Transfer Curriculum at any participating Minnesota college or university, they fulfill the University’s Twin Cities campus liberal education requirements. However, students will still need to complete a portion of the writing requirements. College advising offices have information about these requirements. For more information on using transfer credits for the liberal education requirements, contact the Office of Admissions (612-625-2008).
Students planning academic or research careers should consider additional courses in science, mathematics, and computer science.

Applicants who have not earned a baccalaureate degree before entering CVM and who wish to receive the B.S. in veterinary science at the end of the second year of the D.V.M. curriculum must meet the University’s liberal education requirements before entering the D.V.M. program. (See liberal education requirements on page 8.)

Examples of courses offered on the University of Minnesota, Twin Cities campus that meet the admission requirements follow.

- Biol 1009—General Biology
- Biol 2012—General Zoology
- Chem 1021—Chemistry Principles I
- Chem 1022—Chemistry Principles II
- Chem 2301/2311—Organic Chemistry I/Lab
- Chem 3021—Biochemistry
- GCB 2311—Genetics
- Math 1031—College Algebra
  or Math 1051—Short Calculus
  or Math 1151—Precalculus
- Phys 1101—Physics I/Lab
- Phys 1102—Physics II/Lab
- VPB 2032—General Microbiology

Writing skills—Students must satisfy the graduation requirement of the college they are attending.

Admission Procedures for the Professional Curriculum

Enrollment in CVM’s professional curriculum is limited; many applicants cannot be accepted. A first-year class enters the program in the fall semester of each year, and applicants must satisfy the admission requirements by the end of the preceding spring term. CVM belongs to the national Veterinary Medical College Application Service (VMCAS). Students may use the same application to apply to any of the veterinary colleges belonging to VMCAS. The VMCAS application is online and may be accessed at <www.aavmc.org/vmcas.htm> beginning mid-summer each year for the next application cycle. Applicants unable to access the Web should request a paper application by writing to VMCAS at 1101 Vermont Avenue N.W., Suite 701, Washington, D.C. 20005-3521. Neither the University of Minnesota Graduate School nor advanced-standing applications may be used to apply to CVM. First priority is given to residents of Minnesota and of states and Canadian provinces with which reciprocity agreements exist. These states/provinces are North Dakota, South Dakota, and Manitoba. Residents of other states are welcome to apply.

Information about the VMCAS application process can be viewed at any time at the above Web site. Applicants are encouraged to follow directions closely. Please contact the CVM Office of Student Affairs and Admissions with any questions regarding application procedures (612-624-4747).

Applicants are rated according to a 100-point scale based on the following areas of evaluation. The evaluation procedures are reviewed annually by the Admissions and Scholastic Standing Committee of CVM, and applicants are encouraged to obtain information for the year for which they would be seeking admission.

**Academic measures (70 points)**

1. GPA in required courses (20 points)
2. Cumulative GPA for most recent terms, starting with the fall the student applies and going back to include at least 45 semester (60 quarter) credits of letter-graded undergraduate or graduate courses (25 points)
3. Graduate Record Examination (25 points)

**Nonacademic measures (30 points)**

1. Knowledge of and interest in the veterinary medical profession and animals—experiences with veterinarians and experiences with and responsibility for the care and management of animals (15 points)
2. Maturity and reliability—employment experience and responsibilities, ability to communicate with others, experience demonstrating leadership, extracurricular activities, academic load, and amount of time devoted to employment and other activities while enrolled in college (15 points)

**Residence**—Because the University is a state institution, Minnesota residents pay lower tuition than nonresidents and receive priority consideration for admission. To qualify for resident status, students must reside in Minnesota for at least one calendar year before the first day of class attendance. To qualify as a
resident applicant to the D.V.M. program, students must establish residency by March 1 of the year they wish to enter the program. For more information, contact the Resident Classification and Reciprocity Office, 240 Williamson Hall, 231 Pillsbury Drive S.E., Minneapolis, MN 55455 (612-625-6330), or the residency office on your campus.

Reciprocity—The University has reciprocity agreements with North Dakota, South Dakota, and Manitoba that cover the veterinary medicine program. If a student is a resident of either of these states or this province, he or she may qualify for reciprocity tuition rates, which are comparable to resident rates. For more information, contact the Resident Classification and Reciprocity Office, 240 Williamson Hall, 231 Pillsbury Drive S.E., Minneapolis, MN 55455 (612-625-6330), or the residency office on your campus.

Estimated Yearly Expenses

Students pay the following fees and expenses for the 2001-2002 academic year. These fees and expenses are subject to change.

Tuition

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident</td>
<td>$12,251.60</td>
</tr>
<tr>
<td>Nonresident</td>
<td>$24,003.20</td>
</tr>
<tr>
<td>Student services fee</td>
<td>$552.84</td>
</tr>
<tr>
<td>Computer</td>
<td>$2,400.00</td>
</tr>
<tr>
<td>Books, lab equipment, notes, dissecting set, and supplies</td>
<td>$1,000.00–$1,600.00</td>
</tr>
</tbody>
</table>

Fourth year veterinary students pay an additional term of tuition for summer semester. The above expenses do not include room and board, laundry and clothing, required health insurance, recreation, travel, and other incidental expenses. Applicants who are offered admission must make a nonrefundable “intent to enroll” deposit of $250. This deposit is applied to the first semester’s tuition. For more information, consult the Office for Student Affairs, 460 Veterinary Teaching Hospitals, 1365 Gortner Avenue, St. Paul, MN 55108 (612-624-4747).

Awards, Scholarships, and Loans

CVM students compete for awards and scholarships designated specifically for veterinary medical students. More than $100,000 in scholarships is awarded annually at the college’s spring awards banquet.

The following is a representative list of awards and scholarships available to veterinary medical students. Awarding of individual scholarships is subject to availability of funds. Most awards are available only to students in the second, third, and fourth years of the veterinary medicine program.

AAHA (American Animal Hospital Association) Award—To a senior with clinical proficiency in medicine and surgery.
Dr. John Aldrich Memorial Scholarship—To a senior who has chosen to enter a large animal practice.
The American Board of Veterinary Practitioners—SCAVMA Case Report Contest.
American College of Veterinary Radiology Award—To a senior who excels in clinical radiology.
American College of Veterinary Surgeons Student Surgery Award—To two students selected by surgery faculty.
Banfield Family/Pet Bond Award—To a senior who has given of himself/herself to best illustrate and promote the importance of the human/pet bond.
James Ford Bell, Jr. Memorial Award—To students who have completed three years in CVM. Based on academic achievement and professionalism as reflected in willingness to work well with classmates, faculty, and staff. Provided by Dr. Ford Bell in memory of his father, James Ford Bell, Jr.
Bil-Jac Pet Foods Nutrition Award—To a junior with an interest in small animal nutrition.
Caleb Dorr—Cash awards to top individuals in the sophomore, junior, and senior classes.
Caleb Dorr Certificates—To individuals in the top 10 percent of each class.
Class of 1953 Memorial Scholarship—Members of the class of 1953 have created a fund to honor third-year students interested in small animal medicine.
Class of 1961 Memorial Scholarship—Members of the class of 1961 have created a fund in memory of their classmates and give this award to a senior to acknowledge excellence and motivate students toward excellence based on scholastic standing and good collegiate citizenship.
Winton G. Evans Memorial Scholarship—To a third-year student.
Hill’s Buddy Award—To a senior who has demonstrated superior ability to apply principles of small animal clinical nutrition in the practice of medicine and surgery.
Harvey H. Hoyt Memorial Scholarship Award—Given in memory of Dr. Harvey H. Hoyt to an outstanding senior based on scholarship and intent to pursue a career in teaching and research in veterinary medicine. Emphasizes clinical veterinary medicine.

IAMS/Emergency and Critical Care Society Scholarship—Cash award in recognition of an interest in emergency and critical-care medicine.

IDEXX/Dr. Allan H. Hart Memorial Scholarship—Awarded to a senior who displays exceptional proficiency in diagnostic clinical pathology.

H. C. H. Kernkamp Student Award—Provided through the generosity of the alumni of CVM to a senior in recognition of student contributions to veterinary medicine.

Colin A. Krog Memorial Award—To a senior with a commitment to large animal practice and academic excellence.

Dr. Allen D. Leman Outstanding Award in Swine Medicine—To an outstanding student who has demonstrated good citizenship, clinical proficiency, and scholastic achievement in swine medicine.

Lee McDonald Memorial Award in Feline Medicine—To a senior with expertise in feline medicine and surgery.

Dr. Jeffrey Lindstrom Memorial Scholarship—To a third-year student who has completed the first two years at the University, has financial need, and (preferably) has an interest in large animal medicine.

Maxwell Award—To a third- or fourth-year student who has a definite interest in any field of veterinary medicine.

Dr. Robert A. Merrill Memorial Scholarship—To an entering D.V.M. student from Minnesota who plans to pursue a career in large animal medicine. (renewable annually)

Minneapolis Kennel Club Scholarship in Veterinary Medicine—Provides recognition and financial assistance to several qualified students in veterinary medicine at the University. Preference is given to Minnesota residents with special interest in the treatment of small animals.

Minnesota Veterinary Medical Association Foundation—Four awards given to second-, third-, and fourth-year students in recognition of high achievement and contributions to the state of Minnesota.

Gordon Nelson Memorial Foundation Scholarship—Awarded to a third-year student with an interest in equine medicine.

Novartis Scholarship—Cash award to a second- or third-year student with a strong interest in parasitology.

Ned E. Olson Memorial Scholarship Award—To a senior who demonstrates great proficiency and professional promise in large animal medicine.

Pfizer Animal Health Award—To a senior, based on scholarship, leadership, and financial need.

The Pharmacia Awards—Cash awards to a senior with proficiency in large animal clinical medicine and a senior with proficiency in small animal clinical medicine.

Pharmacia Swine Proficiency Award—To a senior who has exhibited a high level of interest and achievement in swine medicine and swine production during his or her matriculation at the University.

Ralston Purina Leadership Award—To a second-year student who has demonstrated outstanding leadership inside and outside the classroom.

Ralston Purina Nutrition Award—Awarded to a senior with a strong interest in nutrition and physiology. Based on academic achievement, collegiality, and financial need.

Steve Ramsdell Memorial Scholarship Fund—To a junior, based on “a positive attitude toward life and people, having strong interests outside of veterinary school, and being liked by all but not necessarily being the most popular member of the class—an all-around nice person.”

Dr. J. E. Salsbury Veterinary Medicine Scholarships—To juniors, based on superior scholarship, initiative, perseverance, and potential for leadership.

Carl F. and John C. Schlotthauer Memorial Surgery Award—To a senior who has demonstrated strong interest and outstanding ability in veterinary surgery or veterinary pathology.

Augustus Searsles Scholarship for Women—For women veterinary students, based on scholastic standing.

The Sime Family Scholarship—Awarded to a junior who is interested in small animal practice and is in the middle third of the class academically.

Veterinary Medicine Student Council Awards—To students who have been active in extracurricular activities and service to the University, the college, and the community.

The Willmus Family Trust/Roseville Community Bank Scholarship—Awarded to a junior who is a graduate of a Minnesota high school and will pursue a career in food animal medicine.

In general, it is the responsibility of the interested student to obtain, complete, and submit appropriate applications for loans and other financial aid. Loans administered by the Office of Student Finance include the following.

Ford Federal Direct Subsidized Loan—Loans up to $8,500 are available for students who qualify via the needs test. Interest is waived while the student is enrolled at least half time in school. Repayment installments and interest begin six months after graduation or termination.

Ford Federal Direct Unsubsidized Loan—Loans up to $10,000 per year are available for students who qualify via the needs test. Interest will be charged but may be deferred while the student is enrolled at least half time in school; however, repayment installments begin six months after graduation or withdrawal, or when the student drops below half time.

Health Professions Loan—Available in limited amounts to students who have financial need. Interest of 5 percent is deferred while the student is enrolled.
Financial aid for all veterinary medical students is administered by the Office of Student Finance, University of Minnesota, 210 Fraser Hall, 106 Pleasant Street S.E., Minneapolis, MN 55455.

American Veterinary Medical Foundation—Loans are available to junior, senior, and graduate students in veterinary medicine. Seniors receive preference. The debt limit is $8,000.

For more information on the foundation loans, contact the Office for Student Affairs and Admissions, 460 Veterinary Teaching Hospitals, 1365 Gortner Avenue, St. Paul, MN 55108 (612-624-4747).

Student Services

High school and college students interested in entering CVM are urged to contact the Student Affairs and Admissions Office, 460 Veterinary Teaching Hospitals (612-624-4747), for assistance in planning their educational programs. The office arranges meetings for advisers, applicants, and prospective applicants each fall before the October 1 application deadline for discussion of selection criteria and application procedures. Meetings are held in Minnesota and surrounding states. High school counselors and college advisers are encouraged to contact the office for current information about admission requirements.

Minority students interested in veterinary medicine as a career are encouraged to contact the Student Affairs and Admissions Office (612-624-4747) for special assistance in planning their educational programs.

The Student Affairs and Admissions Office serves faculty committees on admissions, scholastic standing, and awards and scholarships. The office is administratively responsible for maintenance of student records, admission, registration, scholastic standing, and degree requirements and for issuance of awards and scholarships specific to CVM and the D.V.M. graduation ceremony.

Each of the four classes in CVM has a faculty adviser, and a formal mentorship program is in place for entering D.V.M. students. The Student Affairs and Admissions Office provides administrative assistance to advisers, to student organizations such as Student Council, Honor Case Commission, and Student Chapter of the American Veterinary Medical Association, and to specialty organizations such as Production Animal Medicine Club; Holistic Medicine Club; Equine Club; Feline Club; Sheep, Goat, and Llama Club; Zoo, Exotic, and Wildlife Club; Veterinary Medicine Business Club; and Emergency and Critical Care Society.
Student Activities

CVM Student Council advises and makes recommendations to the dean on matters of student concern, elects members to several faculty committees, and coordinates its activities with the St. Paul Board of Colleges and the Twin Cities Student Assembly. Members are elected to represent D.V.M. students. Several students serve as representatives on other units of student government in CVM.

The Student Chapter of the American Veterinary Medical Association sponsors a variety of activities, including the annual CVM Open House (held on a Sunday in April), a speakers bureau that provides speakers for groups located in the metropolitan area, lectures by prominent scientists, and a variety of social events. Most activities of the chapter are joint efforts with CVM, its alumni, or the Minnesota Veterinary Medical Association.

The national honor society of veterinary medicine, Phi Zeta, recognizes and promotes scholarship and research in matters pertaining to the welfare and diseases of animals. The local chapter sponsors lectures by outstanding scientists in fields related to veterinary medicine.

The St. Paul Board of Colleges directs and coordinates student activities on the St. Paul campus and encourages student leadership. Its membership is drawn from the five colleges located on the campus. The board cooperates with the Minnesota Student Association, brings questions from the student body to the attention of the colleges, and discusses matters of general interest to students and faculty.

The Twin Cities Student Unions Board of Governors guides the activities of the St. Paul Student Center and Coffman Memorial Union on the Minneapolis campus. The student unions serve as the focal point for student activities, programs, and special events at the University of Minnesota, Twin Cities. Membership on the Board of Governors is drawn from all colleges, including CVM.

Graduate Programs

Graduate study at the University is coordinated and administered by the Graduate School. The college offers M.S. and Ph.D. degrees in two major programs: molecular veterinary biosciences and veterinary medicine. Areas of study in molecular veterinary biosciences include cellular and molecular biology, genetics and genomics, microbiology, immunobiology, neuroscience, pathology, physiology, pharmacology, and virology. Areas of study in veterinary medicine include internal medicine, surgery, radiology, anesthesiology, population medicine, theriogenology, and infectious diseases.

Refer to the Graduate School Catalog for details about general policies regarding admission requirements, registration procedures, and requirements for graduate degrees. Application materials may be obtained from the directors of graduate studies or by e-mailing vetresgp@umn.edu.

Questions regarding specific programs should be addressed to the directors of graduate studies in the appropriate program area.

Molecular veterinary biosciences ................. 612-624-2700
Mark Rutherford, director of graduate studies
Veterinary Medicine ..................................... 612-624-0750
Tom Molitor, director of graduate studies
CVM Web site ..... <www.cvm.umn.edu/research/graduate/>

Veterinary Outreach Programs

The Veterinary Outreach Office provides continuing education programs for Minnesota veterinarians, veterinary technicians, and animal owners. The office offers conferences, small-group meetings, computer-based instruction, and hands-on clinical workshops. The programs introduce new concepts, recent research developments, and innovative clinical procedures in dairy, swine, small animal, avian, equine, and ruminant species. Included in the offerings is a swine medicine specialist program for practicing and industrial veterinarians, with coursework leading to an M.S. in veterinary medicine and an opportunity to participate in two-week professional clinical rotations to update veterinary skills. For more information, call 612-624-3434 or 1-800-380-8636 or, on the Web, visit <www.cvm.umn.edu/outreach/>.
CVM Alumni and Friends Society

All graduates of CVM are members of the college’s Alumni and Friends Society. The society promotes interest and support, including financial, for the benefit of CVM and its faculty, students, and alumni. The society encourages communication and cooperation among alumni, the college, the University, the University of Minnesota Alumni Association, and the community. The society also advises the dean on the dispersal of undesignated gifts to CVM.

Society activities include an award winning mentor program, a senior reception, international externships, undergraduate research, a senior directory, student council awards, alumni receptions, and an alumni newsletter.

The society encourages membership in the University of Minnesota Alumni Association and annual gifts to the College Fund.

University Counseling & Consulting Services

University Counseling & Consulting Services (UCCS), 109 Eddy Hall on the East Bank and 199 Coffey Hall on the St. Paul campus (612-624-3323 for both), offers counseling for academic, career, personal, or relationship concerns. Besides counseling, UCCS features a variety of services. The Career Development Center and the Learning and Academic Skills Center offer workshops, courses, and materials for career development or academic skills improvement. The Organizational Development Program offers consultation, assessment, team building, conflict mediation, training, and workshops. UCCS’s Office of Measurement Services (OMS) scores exams, surveys, and research instruments and provides consultation to University faculty and staff. OMS operates the Minnesota Statewide Testing Program for Minnesota elementary and secondary schools. The Testing Center administers admissions, placement, and national tests. For more information, see <www.ucs.umn.edu> on the Web.
Areas of Study

Following are brief descriptions of areas of study in CVM. Students in veterinary medicine take courses in each of these areas. In addition, fourth-year students learn through various field experiences described under Clinic Rotations.

Anatomy—Professors Beitz, Collister, Cox, Fletcher, Gallant. Anatomy is divided into four related areas: anatomy and imaging, cells and tissues, organology, and neurobiology. In anatomy and imaging, students learn basic mammalian anatomy, including essentials of developmental anatomy and normal radiographic anatomy. In cells and tissues, students use microscopy to examine the cellular features of tissues and organs. In organology, students study microscopic and ultra-structured morphology of organ systems. The focus in neurobiology is the study of the central nervous system anatomy and physiology that control perception, movement, and overall behavior.

Anesthesiology, Critical Care, and Emergency Medicine—Professor Robinson. Anesthesiology lectures cover the clinical pharmacology of anesthetic agents and the use of anesthetic agents and equipment in veterinary species. Monitoring of anesthetized patients and anesthetic management of high-risk, diseased animals are taught. Critical care medicine lectures teach students how to deal with emergencies such as shock and cardiopulmonary arrest and how to manage the traumatized or critically ill patient. Techniques are practiced in anesthesiology laboratories, surgery-teaching laboratories, and veterinary hospitals.

Avian Health—Professors Halvorson, Nagaraja, Redig, Sharma. Acquaints students with the normal anatomy and physiology of birds and with the host-parasite-environment interaction in the pathophysiology of avian diseases. Provides a working knowledge of management practices in domestic avian production and companion bird medicine. The courses are arranged by system and deal with a wide variety of etiologies, including nutritional and management factors and infectious agents. Courses are offered at the undergraduate, professional, and graduate, levels. (Courses are also offered through the College of Continuing Education.) Their structure includes lectures, laboratories, autotutorial programs, and field trips. Additional exposure is available at the Raptor Center.

Biochemistry—Professors Abrahamsen, Alexander. Describes the structure and function of cells and tissues at a cellular, sub-cellular, and molecular level. Examines mechanisms by which animals digest, absorb, and metabolize carbohydrates, proteins, lipids, and nucleic acids; how animals use absorbed molecules to derive energy and maintain normal physiological processes; how the end products of metabolism are created and eliminated; and the role of different hormones in regulating metabolism during different physiological states. The specific roles of the major metabolically active tissues are described, and the molecular basis for some metabolic abnormalities provides a foundation for understanding disease processes at the molecular level. In addition, recombinant DNA applications in animal health are introduced, and molecular biological aspects of growth and regulation of gene expression are presented.

Clinical Pathology—Professor Weiss. A broad area of laboratory medicine that crosses several disciplines, including hematology, cytology, surgical pathology, immunohematology, blood coagulation, clinical chemistry, and urine analysis. Although students learn techniques, appropriate text selection and interpretation are emphasized.

Diagnostic Medicine—Professors Aird, Bouljihad, Carlson, Collins, Frank, Goyal, Hayden, Kurtz, Murphy, O’Brien, Rossow, Singh, Walser, Wunschmann. Identifies the etiologic basis of animal diseases by collecting, correlating, and interpreting laboratory and epidemiological data. Techniques of various disciplines—including anatomical pathology, biochemistry, endocrinology, epidemiology, genetics, hematology, immunology, microbiology, nutrition, parasitology, toxicology, and virology—are applied to the evaluation of animal and environmental specimens and feeds submitted to the Diagnostic Laboratory by veterinary practitioners. Food animals, poultry, equine, companion animals, zoo animals, and wildlife are evaluated.

Genetics—Professors Alexander, Mickelson, Patterson, Reed, Valberg, Weber. The elective course in applied veterinary genetics provides students with an overview of classical genetics, cytogenetics, and diagnostic molecular genetics relevant to animal health and disease, and to animal breeding and production. Such a background is increasingly necessary in a profession that is seeing a rapid growth in the use of molecular biology to define genes.
responsible for inherited diseases, disease resistance, and important performance traits relevant to each particular species.

**Microbiology and Immunobiology**—Professors Bey, Kapur, Maheswaran, Molitor, Murtaugh, Njenga, Rutherford, Sharma, Walcheck. Microbiology includes the areas of virology, bacteriology, and mycology. Courses expand students’ basic background in microbiology acquired in the pre-veterinary curriculum. Microbiology provides a basis for the study of many disciplinary areas of the curriculum, including pathology, medicine, surgery, pharmacology, and public health. Emphasis is on basic mechanisms and interactions between microbial pathogens and their animal hosts. Infectious agents I and II are the two courses taught by the faculty. Laboratory courses emphasize diagnostic procedures.

**Nutrition**—Professors Armstrong, Churchill, Olson, Otterby, Pettigrew, Waibel. Students learn how to assess an animal’s dietary requirements for water, energy, protein, vitamins, and minerals. The role of these nutrients in the overall metabolism of the animal is reviewed and related to the metabolic pathways covered in biochemistry. Factors affecting the relative amounts of nutrients required at different stages of growth and lactation and in an adult animal are discussed. The signs of deficiency and excess are described in relation to the metabolic role of each nutrient. Later the focus is on sources of nutrients in animal feeds, feed quality and anti-quality factors, and formulation of diets to meet the requirements for various species. Finally, a series of lectures is presented on applying these principles to feeding monogastrics (swine, poultry, cats, dogs), ruminants (dairy, beef, sheep), and horses. Faculty members who give the lectures have expertise with the particular species.

**Parasitology**—Professors Abrahamsen, Stromberg, and lecturer Averbeck. Deals with the protozoa, arthropods, and helminths that infest animals. Students learn about life cycles of parasites, effect of parasites on the health of animals, and parasite control. Both internal and external parasites are studied. Special attention is given to detecting and identifying parasites and to drugs and management procedures used to control them. Parasitology is taught in the infectious agents I and II courses.

**Pathology**—Professors Carlson, Collins, Frank, Hayden, O’Brien, O’Sullivan, Rossow, Walser, Wunschmann. Courses in this field explain how cells and tissues react to injury and relate morphologic changes to functional changes. Cell degeneration, cell death, inflammation, immunopathology, and neoplastic and non-neoplastic growth abnormalities are some of the topics. Students are expected to differentiate abnormal from normal cells or tissues at the gross and microscopic levels, identify abnormalities using appropriate terminology, and understand mechanisms (pathogenesis) involved in the development of the abnormalities. Pathology related to organ systems and diagnosis of species-specific diseases are discussed.

**Pharmacology**—Professors Brown, Kannan, Larson, Plumb. Provides students with a conceptual basis for rational drug therapy and detailed knowledge of specific drugs through the study of examples from major drug groups. The general pharmacological principles include mechanisms of drug disposition and action in the body, dose-response relationships, pharmacokinetics, adverse effects, and drug interactions. Specific drug classes that are discussed include drugs acting on the central and peripheral nervous systems and on specific organ systems, drugs reducing allergy and inflammation, and chemotherapeutic agents.

**Physiology**—Professors O’Grady, Osborn, Redig, Wheaton. This discipline, which is closely related to both anatomy and biochemistry, focuses on the basic mechanisms of all the major body organs and organ systems, such as the circulatory, digestive, renal, reproductive, and respiratory systems. Because clinical problems frequently involve digestion and reproduction, these areas are emphasized. The endocrine organs are studied relative to the principal effects, target organs, interrelationships, and regulation of hormones.

**Radiology**—Professors Feeney, Gelatt, Jessen, Walter. Concentrates on the properties and production of X-rays; their use in diagnosis and therapy; safety factors, including the major safety regulations; and film processing. Interpretation of radiographs and basic principles of radiation therapy, ultrasound, computed tomography, and nuclear medicine are also highlighted.

**Theriogenology**—Professors Fahning, Root Kustritz, Seguin, Troedsson. The discipline includes animal reproduction, infertility, obstetrics, and breeding technology. Students learn the effect of management, genetics, nutrition, environment, and disease on reproductive performance of most domestic animal species. Laboratories, hospital cases,
and extensive reproductive-herd health programs provide opportunities for students to develop skills for monitoring reproductive efficiency and managing infertility (see clinical rotations below).

**Veterinary Public Health and Food Safety**—Professors Bender, Pullen, Wells. By studying epidemiology, public health, and public practice, veterinary students learn the principles of epidemiology, statistics, food hygiene, environmental health, and zoonoses. These principles are then applied to solve problems encountered in the practice of preventive medicine for all animal species, in herd health management for food animals, in production economics, in clinical epidemiology, in food protection and hygiene maintenance throughout food production, in transmission of diseases between animals and humans, and in management of environmental factors affecting the health of animals and humans. Problems relating to state, national, and international diseases are also presented.

**Large Animal Medicine and Production Medicine**—Professors Buelow, Farnsworth, Godden, Joo, Morrison, Olson, Pijoan, Sage, Valberg, Wilson, Wolf. This field includes work with food- and fiber-producing animals, horses, and zoo animals. Students learn how to approach a clinical case, do a thorough physical examination, reach a diagnosis, carry out a course of therapy, give a prognosis, and recommend methods to control and prevent a disease. Field investigations of disease problems are a valuable part of the learning experience. Students also participate in establishing and conducting herd health programs and in handling herd diseases. Precepteeships (see clinical rotations below) enable fourth-year students to work with animal health problems in veterinary medical practices throughout the country.

**Small Animal Medicine**—Professors Armstrong, Bistner, Hardy, Klausner, Lulich, Marschman, Osborne, Polzin, Torres, Wood. Current information about all aspects of diseases of companion animals is presented. Techniques and procedures used in the diagnosis, therapy, and management of such diseases are demonstrated and practiced. Courses in diagnostic and therapeutic techniques and physical diagnosis prepare students for active participation in small animal clinical care. In the teaching hospital, students integrate and use information obtained in both basic science and clinical courses to solve companion animal health problems.

**Large Animal Surgery**—Professors Malone, Trent, Turner. Theories and techniques of veterinary surgery are applied to large animals in this disciplinary area. Additional areas of study are the etiology and pathophysiology of diseases that require surgical intervention. Students learn to correlate information from both preclinical and clinical courses in making decisions about surgery and in managing the surgical patient. Coursework includes basic principles of veterinary surgery, surgical diagnosis, therapeutic techniques, and aftercare for specific diseases. Surgery laboratory courses afford firsthand experience in certain surgical procedures: casting, splinting, and bandaging techniques; patient care; and large animal anesthesia.

**Small Animal Surgery**—Professors Kramek, Lipowitz, Novo, Wallace. Provides students with a broad basic education in principles, theories, and techniques of veterinary surgery. Includes study of the etiology and pathophysiology of diseases that require surgical intervention. Knowledge of the other clinical sciences and of the basic sciences is brought to bear in developing sound programs for the management and therapy of surgical patients.

**Toxicology**—Professors Murphy, Singh. The formal sequence of courses in the professional curriculum deals initially with the active principles, toxic effects, and recognition of poisonous plants of the United States and Canada, particularly those of the Upper Midwest. The second phase of the sequence is directed toward the toxicology of heavy metals, rodenticides, molluscicides, herbicides, and the several classes of insecticides, including the xenobiotic halogenated compounds. When applicable, issues regarding environmental toxicology are clarified.

**Clinical Rotations**—The clinical teaching program includes assignments for students to gain experience with veterinary medical problems in the Veterinary Teaching Hospitals, livestock production units in the field, private veterinary practices, public health and animal disease regulatory agencies, and other veterinary medical institutions.

The curriculum consists of 45 two-week rotations. Students are required to complete 28 of these rotations and are allowed 2 two-week vacation rotations and 4 two-week precepteeship rotations. Students must select a specific track: small animal, food animal, equine, or combined. Each track has specific requirements to provide an opportunity for
students to specialize. The small animal track requires 32 weeks of small animal rotations and 16 weeks of elective clinical rotations; 8 weeks of precepteeship are permitted. The food animal track allows students to choose one of 6 options: bovine, general, dairy, beef, small ruminant, or swine. Each option requires anywhere from 6 to 14 weeks of food animal or large animal rotations plus up to 18 weeks of elective clinical rotations; 6-8 weeks of precepteeship are permitted. Students must also participate in large animal grand rounds. The equine track has 18 weeks of required rotations and 6 weeks of equine or large animal general rotations, 12 elective rotations, and large animal grand rounds; 8 weeks of precepteeship are permitted. Combination tracks are available for those wishing to specialize in more than one area. Number of required rotations vary with the chosen track.

Two-week clinical rotations include the following:

**Small animal:** emergency medicine, internal medicine, dermatology, surgery, community practice, critical care medicine, small animal theriogenology, clinical oncology, elective surgery, small animal ultrasound, and behavior

**Food animal:** poultry health, large animal medicine, large animal surgery, large animal ultrasound, large animal applied nutrition, biosecurity, cow-calf herd health, advanced feedlot herd health, advanced building design, dairy theriogenology palpation, dairy theriogenology management, bovine surgery, dairy diseases youngstock, dairy—mastitis, dairy—ruminant nutrition, dairy—applied nutrition, dairy records analysis, small ruminants, swine disease diagnoses, swine production systems, swine nutrition, swine advanced immunology and viral diseases, epidemiology and biostatistics, swine economics, financial management, marketing, swine records

**Equine:** lameness, podiatry, sports—preventive medicine, equine theriogenology, stud farm practice, surgery, dentistry

**Comparative services:** anesthesiology, hematology/cytology/microbiology, necropsy, public health, radiology, zoo, raptor, cardiology, veterinary toxicology, neurology, regulatory medicine, ophthalmology

**Other rotations:** precepteeship, rotations at other institutions, directed studies, vacation

Students electing off-campus precepteeships are supervised for periods of up to eight weeks by practicing veterinarians who are selected by, but not associated with, CVM. Location and type of practice covers a broad range. For example, students serve precepteeships in equine practice in Kentucky, beef feedlot practice in Texas, small animal practice in California, and specialty practice all over the United States and the world.
Professional Curriculum

CVM’s four-year curriculum is based on standards established by the Council on Education of the American Veterinary Medical Association. Course requirements for the first three years are similar for all members of a class. In fall 1997, the college introduced a new curriculum for the first three years of the program. The curriculum offers flexibility in scheduling, a highly integrated approach to course topics, clinical coursework early in the program, and opportunities for students to develop professional practice skills before the fourth-year clinical rotations. In 1993, the fourth-year clinical rotations were substantially revised; they offer students flexibility in selecting topics to be included in the final phase of their D.V.M. program.

All required coursework is completed by the beginning of the fourth year, which lasts three semesters and is devoted chiefly to clinical training. A breakdown of the program by year and term follows.

First Year

Fall Semester
CVM 6000 Orientation to Veterinary Medicine .............................................. 3
CVM 6011 Integrative Course I ................................................................. 2
CVM 6021 Overview of Animal Populations .............................................. 1
CVM 6100 Veterinary Anatomy and Imaging ........................................... 6
CVM 6111 Cells and Tissues ....................................................................... 8
CVM 6301 Clinical Skills I ........................................................................ 1
CVM 6025 Clerk Duty ............................................................................... 2
Total ........................................................................................................ 23

Spring Semester
CVM 6012 Integrative Course II ............................................................... 2
CVM 6022 Overview of Animal Populations II ......................................... 1
CVM 6112 Organology ............................................................................. 3
CVM 6120 Veterinary Neurobiology ....................................................... 2
CVM 6130 Veterinary Physiology ............................................................ 4
CVM 6141 Veterinary Pharmacology ....................................................... 3
CVM 6201 Infectious Agents I .................................................................. 3
CVM 6302 Clinical Skills II ..................................................................... 1
CVM 6441 Behavior Core ....................................................................... 1.5
Total .................................................................................................... 20.5

May Session
CVM 6134 Principles of Nutrition ............................................................. 1
Plus selected electives

Second Year

Fall Semester
CVM 6013 Integrative Course III ............................................................. 2
CVM 6026 Clerk Duty II ........................................................................... 2
CVM 6202 Infectious Agents II ................................................................. 7
CVM 6220 Clinical Epidemiology .............................................................. 2
CVM 6300 Veterinary Pathology ............................................................... 7
CVM 6303 Clinical Skills III .................................................................... 1
Total .................................................................................................... 21

Spring Semester
CVM 6014 Integrative Course IV .............................................................. 2
CVM 6132 Reproductive Biology ............................................................... 3
CVM 6142 Neuropharmacology ................................................................. 1
CVM 6304 Clinical Skills IV .................................................................... 1
CVM 6310 Applied Diagnostic Techniques ............................................ 3
CVM 6321 Principles of Surgery, Anesthesiology, and Critical Care I .......... 4
CVM 6400 Diseases of the Skin and Adnexa .......................................... 3
CVM 6430 Cardiopulmonary System Diseases ...................................... 4
CVM 6410 Digestive System ................................................................. 5
CVM 6444 Ophthalmalogy ................................................................. 2
CVM 6460 Urinary System Disorders ..................................................... 2
CVM 6480 Obstetrics and Reproductive Diseases ................................ 1
Total .................................................................................................... 31

May Session
CVM 6680 Swine Core ........................................................................... 2
CVM 6680 Avian Core ........................................................................... 2.4
Plus selected electives

Third Year

Fall Semester
CVM 6027 Clerk Duty III ........................................................................ 2
CVM 6195 Veterinary Toxicology ............................................................. 3
CVM 6305 Clinical Skills V ..................................................................... 1
CVM 6410 Digestive Systems ................................................................. 5
CVM 6420 Musculoskeletal System Diseases ......................................... 2
CVM 6440 Nervous System Disorders ................................................. 2
CVM 6451 Metabolic Disorders I ............................................................ 3
CVM 6470 Multisystemic Disorders ....................................................... 3
Total .................................................................................................... 21

Spring Semester
CVM 6030 Public Health and Community Practice .................................. 2
CVM 6031 International Diseases ............................................................ 1
CVM 6042 Practice Management/Law and Ethics ...................................... 2
CVM 6495 Non-traditional Pets ............................................................... 1
Total .................................................................................................... 6

Students must take at least 16 credits in elective courses by the end of year three of the D.V.M. curriculum.

Fourth Year, Including Summer Sessions

Students must successfully complete 28 rotations during their final year of the program, including up to 4 two-week precepteeships off campus.

Core clinical rotation courses required of all students:
CVM 6502 Necropsy ............................................................................. 2.4
CVM 6500 Public Health ................................................................. 2

Students select 26 additional two-week rotations (see list above) during summer, fall, and spring semesters. Some rotations are required based on the track selected (small animal, large animal, combined animal, or equine practice).
Academic Policies

Academic Calendar—The University changed from a quarter-based calendar to a semester-based calendar in 1999-2000. Courses last 15 weeks each term. The new University calendar includes a three-week “May Session” following the spring term. CVM offers required and elective courses during May Session at the end of the first and second years of the D.V.M. program.

Registration—Students admitted to the first-year class receive complete registration information from the Office for Student Affairs and Admissions.

Equipment—Each student is required to have a computer that meets minimum specifications announced at the time of admission. In addition to a computer and textbooks, students must purchase certain special items of clothing and some instruments.

Animal Use—Animals are used in the D.V.M. curriculum to illustrate medical principles and to provide students with firsthand experience in the art and practice of veterinary medicine and surgery. The animals are treated with genuine concern for their welfare; however, in some cases animals must eventually be euthanized in accordance with the Animal Welfare Act. Efforts have been made and are ongoing to reduce the number of animals required in nonclinical teaching.

Given the need to use animals for instructional purposes, prospective students must recognize that successful completion of the D.V.M. curriculum requires that both live and dead animals be incorporated into students’ learning experience. In all instances, animals will be treated with dignity and handled in accordance with the Animal Welfare Act. In some cases, procedures will result in termination of an animal’s life.

The University’s animal care committee reviews all courses offered in the college and determine the appropriateness of using animals in each course.

Degree Requirements—The bachelor of science (B.S.) degree with a major in veterinary science is granted to students upon satisfactory completion of the first two years of the program of studies with a grade point average of 2.00 or above, providing they have not already earned a bachelor’s degree from another college or university. Students earning the B.S. must also satisfy the University’s liberal education requirements (see page 8).

The doctor of veterinary medicine (D.V.M.) degree is awarded following the satisfactory completion of the four-year professional curriculum with a grade point average of 2.00 or above.

Honor System—CVM students, rather than the faculty, monitor examinations. An honor system operates on the assumption that students are honest. Students are trusted not to give or receive aid during examinations and are responsible for their own honesty.

The Honor Case Commission, composed of students elected from the four classes, confidentially considers reports of suspected acts of dishonesty during examinations. The commission may request that a hearing be held to determine if scholastic dishonesty has occurred. In this case, four faculty representatives are selected by the dean and the Faculty Council to form a Student-Faculty Honor Case Commission that will participate in the hearing. If they determine that the student involved is guilty, an appropriate penalty will be determined and referred to the dean for implementation.

The honor system is a preventive rather than a punitive system. New students receive a brochure on the honor system. The system is also explained to them by a member of the Honor Case Commission during the Orientation to Veterinary Medicine course.

Attendance and Examinations—Students are expected to attend all scheduled classes and instructional sessions unless those classes and sessions are specifically identified as optional. Should an absence be necessary, students are responsible for all material presented in the course whether or not the material is included in notes or other printed materials. Students have a responsibility to inform the instructor if they must miss a scheduled examination, quiz, or deadline for any course assignment that will count toward their grade. Requests for individual rescheduling of examinations or assignment deadlines must be approved by the instructor. For more information about the CVM’s policy on attendance and examinations, contact the Office of the Associate Dean for Academic and Student Affairs.
Grading and Transcript Policy

1. This policy is effective fall quarter 1997 for the Crookston, Morris, and Twin Cities campuses, replacing all previous grading policies. It may not be applied retroactively to any grades or symbols awarded before that time.

2. The University has two grading systems, A-B-C-D-F (with pluses and minuses) and S-N. Students may receive grades only from the grading system under which they have registered for a course.

In addition, there are registration symbols that do not carry grade points or credit.

3. Instructors must clearly define for a class, at one of its earliest meetings, the performance necessary to earn each grade or symbol.

4. No student may receive a bachelor’s degree unless at least 75 percent of the degree-qualifying residence credits carry grades of A, B, C, or D (with or without pluses or minuses). Each campus, college, and department may choose not to accept academic work receiving a D (with or without a plus or minus).

Each campus, college, and department determines to what extent and under what conditions each grading system is used, may specify what courses or proportion of courses must be on one system or the other, and may limit a course to either system.

5. When both grading systems are available, students must choose one when registering for a course. The choice may not be changed after the end of the second week of classes (the first week in summer terms).

6. The University’s official transcript, the chronological record of the student’s enrollment and academic performance, is released by the University only at the student’s request or in accord with state or federal statutes; mailed copies have the University’s official seal printed on them. Students may obtain an unofficial transcript, except when they have a transcript hold on their record.

7. The University calculates for each student, both at the end of each grading period and cumulatively, a grade point average (GPA), the ratio of grade points earned divided by the number of credits earned with grades of A-F (including pluses and minuses). Both the periodic and cumulative GPA appear on each student’s record.

8. When a student repeats a course, all grades for the course appear on the transcript, the course credits may not be counted more than once toward degree and program requirements, and only the last enrollment for the course counts in the student’s GPA.

9. Students may petition the college scholastic committee or other appropriate body about this policy.

10. The following grades (with grade points as indicated) and symbols are used on transcripts.

A ...... 4.00 ...... Represents achievement that is outstanding relative to the level necessary to meet course requirements.

A- ..... 3.67

B+ .... 3.33

B ...... 3.00 ...... Represents achievement that is significantly above the level necessary to meet course requirements.

B- ..... 2.67

C+ .... 2.33

C ...... 2.00 ...... Represents achievement that meets the course requirements in every respect.

C- ..... 1.67

D+ .... 1.33

D ...... 1.00 ...... Represents achievement that is worthy of credit even though it fails fully to meet the course requirements.

S ....................... Represents achievement that is satisfactory (equivalent to a C- or higher and meets or exceeds course requirements in every respect). The S does not carry grade points and is not included in GPA calculations, but the credits count toward the student’s degree program if allowed by the department.

F or N ............... Represents failure or no credit and indicates that coursework was completed but at an achievement level unworthy of credit, or was not completed and there was no agreement between the instructor and student that the student would be awarded an I. Academic dishonesty is grounds for an F or N for the course. The F
carries 0.00 grade points and is included in GPA calculations; the N does not carry grade points and is not included in GPA calculations.

I ...................... Incomplete, a temporary grade that indicates coursework has not been completed. The instructor assigns an I when, due to extraordinary circumstances, the student was prevented from completing coursework on time. An I requires a written agreement between the instructor and student specifying the time and manner in which the student will complete the course requirements during the student’s next term of enrollment. For undergraduates and adult special students, work to make up an I must be submitted within one year of the last final examination of the student’s next term of enrollment; if not submitted by that time, the I will automatically change to an F (if A-F registration) or N (if S-N registration). The instructor is expected to turn in the new grade within four weeks of the date work is submitted. When an I is changed to another symbol, the I is removed from the record. Once an I has become an F or N, it may be converted to any other grade by petition of the instructor (or department if the instructor is unavailable).

K ............... Indicates the course is still in progress and a grade cannot be assigned at the present time.

T ....................... Transfer, a prefix to the original grade that indicates credits transferred from another institution or from one University college or campus to another.

V ...................... Visitor, indicates registration as an auditor or visitor; does not carry credit or grade points.

W ..................... Withdrawal, indicates a student has officially withdrawn from a course. If a student withdraws from a course during the first two weeks of classes, that course registration is not recorded on the student’s transcript. The W is recorded if the student withdraws from the course during the third through sixth week of class (second or third weeks of summer terms). Withdrawal in the seventh or later week of classes (fourth or later in summer terms) requires college approval. Each student may, once during his or her undergraduate enrollment, withdraw from a course without college approval, and receive a W, at any time up to and including the last day of class for that course.

X ...................... Indicates a student may continue in a sequence course in which a grade cannot be determined until the full sequence of courses is completed. The instructor submits a grade for each X when the student completes the sequence.

Scholastic Requirements—Each student must maintain a grade point average (GPA) of at least 1.50 for any single semester and must earn a passing grade in each course. Students failing to achieve a GPA of at least 1.50 or receiving a grade of F or N (no credit) in any single semester in a required course or clinic rotation will be dropped from the professional curriculum. Those having a semester GPA lower than 2.00 are placed on probation. A student will be allowed to proceed from one semester to the next on academic probation for no more than three semesters. The fourth time a student achieves a semester GPA of less than 2.00 during any block of five consecutive semesters, he or she will be dropped from the professional curriculum. A GPA of 2.00 must be maintained at the end of each academic year to continue in the professional curriculum and to earn the D.V.M. degree.

Any student having completed a course or courses similar or identical to required courses in the D.V.M. curriculum may petition the Admissions and Scholastic Standing Committee to substitute for that requirement. Forms for this
Readmission—If students are dropped from the program, they may not be reinstated without the permission of the Admissions and Scholastic Standing Committee. Credits earned at other institutions during the period of suspension will not apply toward graduation from the University unless permission was given in advance by the Admissions and Scholastic Standing Committee. Students dismissed for the second time, or second-, third-, or fourth-year students who have attained semester GPAs of less than 2.00 in more than 40 percent of the semesters enrolled, or students who have incomplete (I) grades in required courses will not be considered for readmission.

The Admissions and Scholastic Standing Committee, upon granting readmission, will stipulate the courses to be repeated and the level of performance that must be achieved. Failure to achieve these requirements will result in permanent dismissal from the professional curriculum. If permitted to return, students will be placed on probation and may be dropped again any time their work is unsatisfactory.

Grievance Procedures—Persons who wish to file grievances or appeals within CVM may do so through procedures that conform to the principles of fairness and accessibility defined in the University Senate Statement on Academic Freedom and Responsibility. The Student Conduct Code is published annually in The Minnesota Daily. Grievances must be presented in accordance with the regulations of the University Senate and the procedures established by CVM.