COLLEGE OF
veterinary medicine
UNIVERSITY OF MISSOURI - COLUMBIA

2001-2002
College Catalog
The mission of the University of Missouri-Columbia College of Veterinary Medicine is to provide excellent veterinary medical education to undergraduate veterinary medical students and graduate students and veterinarians while concurrently providing primary care and referral diagnostic and therapeutic services for the animal owning public. Research excellence is an integral part of evaluating the current knowledge being taught and expanding the biomedical knowledge of the future. Each of the three basic missions (teaching, service, and research) provided by the MU College of Veterinary Medicine and the State Veterinary Medical Diagnostic Laboratory contribute to the protection and continued growth of the more than $3 billion per year livestock industry in Missouri, a livestock producing leader in the Midwest and the nation.
Greetings from the Dean

Thank you for your interest in the University of Missouri’s College of Veterinary Medicine. The College enters the 21st Century committed to building on its rich tradition of educating veterinarians, providing service to the animal-owning public, and advancing knowledge of animal disease. We hope this catalog will answer questions regarding our programs and provide insight into the exciting career opportunities in veterinary medicine.

The MU College of Veterinary Medicine has a three-fold mission in teaching, service, and research. It is the only Missouri institution that awards the Doctor of Veterinary Medicine degree, graduating about 64 new veterinarians each year. Prior to admission, students must complete a minimum of 60 semester hours of college-level courses. Those admitted to the professional program progress through a rigorous four-year curriculum. Courses in the first two years provide a solid foundation in basic science, followed by two years of largely hospital-based instruction. Our graduates are qualified to pursue a host of career options. Most enter private clinical practice, but others choose careers in government, industry, and academia. The College also offers postgraduate training to interns, residents in various specialties, and graduate students. These individuals are among the most dedicated and hard working people you will ever meet. They generally have trained elsewhere and bring a different perspective. The interaction among faculty and both veterinary and postgraduate students creates a special synergy, ideal for learning.

Have you noticed that people today want to provide their animals with the same quality health care they receive themselves? We have! These needs are met through the College’s Veterinary Medical Teaching Hospital and Veterinary Medical Diagnostic Laboratory. The teaching hospital has been housed since 1993 in Clydesdale Hall, a truly state-of-the-art facility with 140,000 square feet of floor space spread over three hospitals for small companion animals, horses, and farm animals. Our clinical faculty provide both primary care and a host of sophisticated diagnostic procedures and treatment options not available in most private practices. Examples include a linear accelerator to administer radiation therapy, hip replacement surgery, a treadmill for evaluation of lameness in horses, and herd-health consultation for farmers. Overall, each year, we care for approximately 15,000 hospitalized animals and thousands more on farms. Many of these animals are referred to the hospital by veterinarians in private practice. The Veterinary Medical Diagnostic Laboratory provides comprehensive services for companion and farm animals. In particular, the laboratory works conscientiously with veterinarians and farmers to protect Missouri’s 3 billion-dollar animal agriculture industry. The diagnosis of animal diseases has become increasingly complex, as new conditions emerge and we learn more about previously-recognized syndromes. Our faculty have taken the lead in developing advanced diagnostic techniques based on methods such as polymerase chain reaction (PCR) and immunohistochemistry. Almost 40,000 accessions were processed through the laboratory in 1999.

Through its research mission, the College fulfills a solemn obligation to advance our understanding of diseases affecting not just animals but also people. After all, we share the same environment and are exposed to the same infectious organisms and environmental pollutants. It should come as no surprise, therefore, that animals and their owners develop many of the same diseases. To pursue the causes of these conditions, faculty of the College of Veterinary Medicine now collaborate extensively with our colleagues in agriculture, human medicine, and other scientific disciplines. As an example, the College recently received notification that a $7 million dollar grant from the National Institutes of Health to study the protective effects of exercise on cardiovascular function has been funded for a second five year cycle. We are also working closely with other MU faculty to develop a comprehensive program to better understand and treat cancer. In addition, our faculty continue to critically study diseases affecting farm animals, with particular emphasis on infectious conditions and reproductive disorders. Faculty involved in research at MU are supported by the College’s Comparative Medicine program, a leader in training laboratory animal veterinarians and in providing diagnostic support to scientists around the world.

A special faculty is required to fulfill such a diverse set of responsibilities in teaching, service, and research. Fortunately, the College of Veterinary Medicine has always had a strong group of educators. And, the good news is that our faculty has been further bolstered in recent years through the generosity of individual and corporate friends. Seven endowed professorships have been established at the College since 1994. These include the Ruth M. Kraeuchi-Missouri Professorship in Veterinary Ophthalmology, the Gilbreath-McLorn-Missouri Professorship in Veterinary Cardiology, the Ralston Purina-Missouri Professorship in Small Animal Nutrition, the E. Paige Laurie-Missouri Professorship in Equine Lameness, the Tom and Betty Scott-Missouri Professorship in Veterinary Oncology, the Charles and Charlene McKee-Missouri Professorship in Microbial Pathogenesis, and the Thelma Zalk-Missouri Professorship in Tumor Angiogenesis. What a difference these positions have made, not just in fulfilling our responsibilities, but also in enhancing the College’s national reputation!

Through the collective efforts of our dedicated faculty, staff, and students, the University of Missouri College of Veterinary Medicine is increasingly viewed as a leader in the profession.

This catalog outlines the multiple dimensions of veterinary medicine and details the teaching, service, and research programs of the College. Information on admissions requirements, the DVM curriculum, and career opportunities are also included. We hope you share our enthusiasm for veterinary medicine and, in particular, MU’s College of Veterinary Medicine. If you have questions, please call.

Joe N. Kornegay, DVM, PhD
Dean
Columbia is blessed with abundant outdoor activities, sporting and cultural events, and is located between two major metropolitan areas.
Lake activities abound at the Lake of the Ozarks, south of Columbia.

Kansas City's famous Plaza lights.

MU is a nationally recognized for its undergraduate and graduate education.

The Locale and

Columbia and Boone County

In recent years, Columbia has been listed consistently among the top 20 U.S. cities in several national rankings. This assessment is based on the community’s low cost of living; its stable, service-oriented economy and low crime rate; and the availability of affordable housing and outstanding health care. Columbia’s excellent public schools, its weather, and its leisure and cultural activities also were highly rated in the assessment. Columbia is centrally located 120 miles from both Kansas City and St. Louis. The college community of more than 70,000 offers an unusual combination of rural and metropolitan experiences.

Within ten miles of Columbia, there are 3,000 acres of state park lands. The city itself has 1,500 acres of beautiful parks. Federal forests and wildlife refuges are nearby, as is the Katy Trail—a hiking and biking trail that stretches across Missouri and is accessible throughout Columbia.

Hunting and fishing opportunities abound in central Missouri and the Lake of the Ozarks area. Columbia is only a few hours’ drive from scenic lakes and streams that are ideal for float trips, camping, and backpacking. Kansas City and St. Louis both have major-league sports teams, and the University offers Big 12 Conference football, basketball, baseball, and other sports. Columbia has a 65,000-seat stadium, a 15,000-seat multipurpose auditorium, several 18-hole golf courses, an indoor recreation building, tennis courts, racquetball courts, squash courts, and indoor and outdoor swimming pools.

Living conditions in Columbia are good and housing is plentiful. Many students elect to live in the country, which is only a short distance from the MU College of Veterinary Medicine. The climate is mild with four distinctive seasons.

Companion animals and livestock are important to Missouri. Missouri is second in the nation in the number of beef cattle operations and calf production. It is fifth in hog operations and turkeys raised and sixth in horses and dairy operations. More than half of all households in Missouri own companion pets.
The University

The University of Missouri-Columbia

Campus

The University of Missouri was established in Columbia in 1839 as the first public university west of the Mississippi River. In 1870, the University was approved as a land-grant university under the Morrill Act of 1862.

The University of Missouri-Columbia today is a major research university that enrolls about 24,000 students and is accredited by the North Central Association of Colleges and Secondary Schools. Various schools, colleges, and departments also are accredited by their respective professional associations and accrediting agencies.

In 1989, MU celebrated its Sesquicentennial, marking 150 years of service to the citizens of Missouri. The University of Missouri-Columbia continues its historic mission throughout the state through extension courses.

The University, with its 17 schools and colleges on a 1,335-acre campus, has the breadth of programs associated with a nationally competitive institution. Within this comprehensiveness, MU is the premier public institution of graduate and professional training in selected areas. MU offers the only college of veterinary medicine in Missouri. In 1999, U.S. News & World Report magazine ranked MU as the best value of major institutions in terms of academic quality and educational cost.

In addition, it is one of only 29 public universities in the Association of American Universities that has a Research University 1 ranking from the Carnegie Foundation for the Advancement of Teaching.

There are 3,000 acres of park lands near Columbia.

The Gateway Arch in St. Louis.
The College’s missions: teaching, healing, research, and leadership.
Veterinary Medicine

The College and the Profession

Brief History

Veterinary medicine at the University of Missouri began in 1884. It progressed through five stages—a course in veterinary science, a department of veterinary science, a school of veterinary medicine in the division of agricultural sciences, a school of veterinary medicine as a separate division, and finally, a College of Veterinary Medicine.

In 1885, the first vaccine-virus laboratory in the United States was established at the veterinary science department. A veterinary laboratory was erected in 1887. In early years, staff veterinarians taught courses to medical and agricultural students, conducted research on tick fever, and investigated livestock disease throughout the state.

The College's first building, Connaway Hall, was built in 1910-11 to house veterinary science faculty who taught courses to agricultural students, investigated animal and poultry diseases, performed diagnostic and extension work, and produced animal vaccines.

The professional curriculum leading to the DVM degree was established in 1946 to offer educational opportunities to World War II veterans. In 1950, 26 new veterinarians graduated in the first class.

From 1946-65 there were 30 students, all Missouri residents, in each of the four classes studying for the DVM degree. In 1965, class size doubled and non-residents were admitted in response to federal funding incentives. These federal “capitation” funds offered to alleviate a national shortage of veterinarians and stimulated another class size increase (to 76 students) in 1976. In the early 80's, the national need for veterinarians stabilized, federal funding was withdrawn and the class size was lowered to 64 in the interest of quality education and efficient space planning. The College has graduated more than 2,600 veterinarians since 1946.

A teaching hospital was built in 1961, and a diagnostic laboratory and a teaching-research building were added in 1977. Clydesdale Hall, a 149,000-sq.-ft. medical teaching hospital, was completed and occupied in March 1993 (and was remodeled in 2000 to remain at the forefront of clinical education). A multi-million dollar renovation to the veterinary diagnostic laboratory and Connaway Hall were completed in 1997 and 1999, respectively.

An indoor equine arena allows for the exercise and evaluation of horses.
Statement of Accreditation

The MU College of Veterinary Medicine is fully accredited by the Council on Education of the American Veterinary Medical Association.

The Administrative Structure

The College, under the direction of a veterinarian dean, has three departments: biomedical sciences, pathobiology, and medicine and surgery. Also, there is a Veterinary Diagnostic Laboratory, a Medical Teaching Hospital, and a research farm.

Administrators

Dean: Joe N. Kornegay
Associate Dean for Academic Affairs: C.B. Chastain
Associate Dean for Research and Postdoctoral Studies: Gerald M. Buening
Director of Student and Alumni Affairs: Everett Aronson
Assistant to the Dean: Ben Riley
Chair of Veterinary Biomedical Sciences: M. Harold Laughlin
Interim Chair of Veterinary Pathobiology: Gerald M. Buening
Chair of Veterinary Medicine and Surgery: Cecil P. Moore
Director of Laboratory Animal Medicine: Ronald M. McLaughlin
Director of Veterinary Continuing Education and Extension: David K. Hardin
Director of the Veterinary Medical Diagnostic Laboratory: Harvey S. Gosser
Director of the Veterinary Medical Teaching Hospital: Cecil P. Moore
Director of Student Recruitment and Retention: Barbara A.B. Horrell
Director of Information Technology: Gary K. Allen

Programs and Distinctive Features

The MU College of Veterinary Medicine is the only institution in Missouri that awards the Doctor of Veterinary Medicine degree (DVM). The professional curriculum is integrated with College services including statewide animal disease diagnostic services, extension and continuing education programs for animal owners and veterinarians, patient care referral and consultation services for all species of animals, research programs in animal and human diseases, and advanced specialized training in veterinary and comparative medicine.

The curriculum is carefully monitored by the Council on Education of the American Veterinary Medical Association. To be accredited, the College must maintain high teaching standards, and students must develop knowledge, skills, and experience in diseases and health-related conditions of all species of domestic animals.

Animal facilities and management is fully accredited by the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC). There are only 600 facilities in the world with AAALAC accreditation.

Facilities of the College

The MU College of Veterinary Medicine has administrative and academic support offices, three academic departments, and a diagnostic laboratory. These units are in five buildings in the southeast corner of the MU campus.

The veterinary medical complex includes Connaway Hall, the Veterinary Medical Diagnostic Laboratory, the Veterinary Medicine Building, the Veterinary Medical Teaching Hospital (Clydesdale Hall), and the Veterinary Medical Science Building.

The Veterinary Medical Diagnostic Laboratory. The Veterinary Medical Diagnostic Laboratory houses mammalian and avian postmortem examination rooms.
Supporting laboratory spaces for toxicology, histopathology, serology, bacteriology, virology, and a large incinerator are provided. This facility provides the opportunity for veterinary medical students to receive instruction in diagnostic laboratory medicine. It is one of only 37 veterinary medical diagnostic laboratories in the nation accredited by the American Association of Veterinary Laboratory Diagnosticians.

The Veterinary Medicine Building. The Veterinary Medicine Building houses teaching facilities for the departments of Veterinary Biomedical Sciences and Veterinary Pathobiology. It houses teaching laboratories, classrooms, seminar rooms, computer laboratories, the comparative angiography and cardiovascular surgery unit, a large amphitheater and conference room, and the veterinary medical library.

The library, a branch of Ellis Library, has two learning centers designed for individual autotutorial carrels. Open daily, it is designed to serve veterinary medical and graduate students, and the teaching and research needs of the College. It supplements the libraries in the University’s system.

Teaching laboratories facilitate the use of visual aids and demonstration materials, and provide work and storage space for each student.

Administrative offices in the Veterinary Medicine Building include those of the dean, associate dean for academic affairs, associate dean for research and postdoctorate studies, the director of student and alumni affairs, the director of student recruitment and retention, and the assistant to the dean. Student, faculty and alumni records, and the College’s fiscal office are here.

The College’s research activities are supported by graduate student offices, research laboratories, and a facility for electron microscopy.

Connaway Hall. Veterinary Pathobiology and its associated teaching and research programs are in several locations in this building. In Connaway Hall, general teaching facilities include a large lecture room, a large laboratory equipped for teaching bacteriology and parasitology, and an individual learning center. Additional facilities for teaching and research in diagnostic microbiology are in the diagnostic laboratory. Laboratory animal housing facilities, which meet NIH standards, occupy space on the first floor. In 1999, Connaway Hall underwent a 17-month, $4 million remodeling project that reconfigured the three-story building to enhance cooperation among researchers. The project created nine new state-of-the-art research labs specializing in infectious disease research, genetic testing, and reproductive biology.

Veterinary Medical Science Building. This building provides teaching and research laboratories for the physiology-pharmacology section of the Department of Veterinary Biomedical Sciences. It houses research laboratories for faculty assigned to the diagnostic laboratory and carrels for graduate students.

Veterinary Medical Teaching Hospital (Clydesdale Hall). The Veterinary Medical Teaching Hospital (VMTH), housed in Clydesdale Hall, serves as a comprehensive medical center and as a setting for clinical instruction.

All levels of patient care, extending from routine preventative medicine to referral services in most clinical disciplines, are provided. Students pursuing the DVM degree and interns/residents engaged in postgraduate training actively participate with Department of Veterinary Medicine and Surgery faculty and staff in each phase of patient care.

The hospital is accredited by the American Animal Hospital Association and certified by the Missouri Veterinary Medical Board.

Clydesdale Hall actually includes three separate hospitals
Clydesdale Hall’s Food Animal Hospital and Equine Hospital.

The H. Richard Adams Conference Center.

The College Library.

The Equine Hospital occupies half of the first floor and includes about 35 stalls, a neonatal unit, two large surgery suites, a special diagnostics room, an arena, and a treadmill for evaluation of lame horses.

The Food Animal Hospital occupies the other half of the first floor and provides comprehensive health care for livestock. The design of the corrals, stalls, and chutes permit efficient, safe movement and restraint of cattle. About 35 stalls are available; some are designed to manage paralyzed cattle and recumbent calves. The Ambulatory Clinic provides individual and herd-health veterinary medical services for area livestock through the use of fully equipped radio-dispatched vehicles.

The Companion Animal Hospital has 16 examination rooms (one specialized for dermatology examinations, two for cardiology exams, and two for specialized ophthalmology cases) with more than 150 cages and runs. Local clients are seen through the Community Practice Service. Veterinarians throughout the state and region refer clients to the Companion Animal Hospital to take advantage of its many specialized services and equipment. This includes computerized tomography, a linear accelerator to administer radiation therapy, the Hill’s Endoscopy Center, and joint replacement surgery. The hospital’s intensive care unit (ICU), expanded in 2000, is staffed 24 hours a day. Doctors are always on site to ensure quality care.

The Companion Animal Clinic boasts one of the few veterinary medical cancer treatment programs in the country. Here are used many of the same cancer-fighting techniques and technology as in human hospitals. Cancer diagnosis is aided by use of a CT scanner and one of the few linear accelerators in the world dedicated to animal use. The College was a pioneer in using surgery and chemotherapy to fight cancer in animals.

Middlebush Farm. The 288-acre farm south of Columbia provides space and facilities for theriogenology instruction and veterinary medical research projects. A College-owned herd of cattle is maintained at this farm for teaching purposes.

H. Richard Adams Conference Room and Auditorium. A 250-seat conference center and auditorium is used for meetings, research, teaching, and other instructional purposes by the College. It features audiovisual and computer support equipment.
Multi-User Equipment

Among the equipment available to all departments are an electron microscope, a confocal microscope, a computerized tomography unit, a radioanalytic imaging system, an optic imaging platform and frame integrator for ethidium bromine gels, a research animal angiography laboratory, and still photograph and video digitizing equipment.

Related Facilities

MU is one of the few universities in which a College of Veterinary Medicine and a School of Medicine are on the same campus with a College of Agriculture, Food and Natural Resources (with a Department of Animal Science); a College of Arts and Science; and a College of Engineering.

Interdisciplinary programs within the University permit the sharing of additional facilities by the MU College of Veterinary Medicine.

Low-Level Radiation Laboratory. This laboratory is owned by the College of Agriculture, Food and Natural Resources, and contains a low-level, whole-body radiation counter, which measures natural and induced radioactivity in animals and humans. Several research projects in the MU College of Veterinary Medicine use this facility.

Dalton Cardiovascular Research Center. This center provides 60,000 square feet of general laboratories, offices, and a specialized branch of Ellis Library. Interdisciplinary projects in cardiovascular physiology and related technology are coordinated by the center.

Nuclear Reactor Research Facility. The largest university-based research nuclear reactor in the nation is in MU Research Park. College of Veterinary Medicine faculty have access to this facility to conduct radiobiological experiments.

Ellis Library. One of the largest university libraries in the United States, Ellis houses more than 2.5 million volumes and 17,500 serials and journals in its main and branch libraries.

Missouri Agricultural Experiment Station. Certain research activities in the School of Natural Resources, and the Colleges of Human Environmental Sciences, Veterinary Medicine, and Agriculture Food and Natural Resources are coordinated through the experiment station.

Campus Computer Network. This network of computing facilities assists the educational and research programs of all divisions at MU.

Faculty Accomplishments

The faculty consists of more than 100 assistant, associate, or full professors. There are also 20 adjunct faculty members who assist in specialized areas. In addition, there are more than 50 graduate students, 16 residents, and seven interns.

The Laboratory Animal Medicine training program in veterinary pathobiology has been funded continuously by NIH for 28 years. During the past six years, this program has been awarded $5 million in extramural funds for research, research training, and clinical services.

Faculty service in the Veterinary Medical Teaching Hospital’s section of ophthalmology resulted in 1993 in the Ruth Kraeuchi-Missouri Professorship in Veterinary Ophthalmology, the first endowed professorship in the College. In 1994, the Gilbreath-McLorn-Missouri Professorship in Veterinary Cardiology was endowed. These were followed by the Ralston Purina-Missouri Professorship in Small Animal Nutrition, the E. Paige Laurie-Missouri Professorship in Equine Lameness, the Tom and Betty Scott-Missouri Professorship in Veterinary Oncology, the Charles and Charlene McKee-Missouri Professorship in Microbial Pathogenesis, and the Thelma Zalk-Missouri Professorship in Tumor Angiogenesis.

Incalculable savings in money and animal and human lives have been achieved by the constant surveillance by the Veterinary Medical Diagnostic Laboratory and the Veterinary Medical Teaching Hospital. For example, Veterinary Medical Diagnostic Laboratory faculty found heptachlor, an insecticide, had contaminated milk from 700 cows in southwestern Missouri. Prompt discovery prevented widespread hazardous insecticidal exposure to humans.

Faculty have received several honors on a competitive basis campuswide, across the nation, and on an international scale. Among the faculty are recent winners of the Bourgelat International Award of the British Small Animal Veterinary Medical Association, Fulbright Scholarships, William T. Kemper Fel-
They are among only five such centers in the Midwest.

Teaching Hospital. The design of teaching within blocks is the MU School of Medicine to conduct comparative veterinary diagnostic centers in the State of Missouri.

One is the unique clinical curriculum. The curriculum in veterinary pathobiology is the most successful in the nation. This center. More than 5,000 people tour the College and attend demonstrations each year by VM student volunteers. The goal is to educate the public on the scope and depth of veterinary medicine. More than 5,000 people tour the College and attend demonstrations during Open House.

The College graduates annually approximately 64 new veterinarians from the rigorous four-year curriculum. Students in the College are involved in many activities related to veterinary medicine. Several have held offices in the national Student American Veterinary Medical Association. Many are active in the local community, especially participating in programs of animal care involving the elementary grades.

Miss America 1990, Dr. Debye Turner, was a student in the MU College of Veterinary Medicine at the time of her reign. She was the first Miss America who became a veterinarian. Today she is an adjunct instructor in the College of Veterinary Medicine.

An Open House reception for the public is organized and conducted each year by VM student volunteers. The goal is to educate the public on the scope and depth of veterinary medicine. More than 5,000 people tour the College and attend demonstrations during Open House.

The College has several foci of strength. One is the unique clinical curriculum. The curriculum in veterinary pathobiology is the most successful in the nation. This program has been funded continuously by NIH for 28 years. During the past six years, this program has been awarded more than $5 million in extramural funds for research, research training, and clinical services. More than 130 scientists have received a MS, PhD, or training for clinical board certification.

The Laboratory Animal Medicine training program in veterinary pathobiology is the most successful in the nation. This program has been funded continuously by NIH for 28 years. During the past six years, this program has been awarded more than $5 million in extramural funds for research, research training, and clinical services. More than 130 scientists have received a MS, PhD, or training for clinical board certification.

A cluster of molecular biologists has been established in the College. Current areas of research involve cell growth, hematopoietic and infectious diseases, ocular diseases, breast cancer, prostate development, immunopathology, and cardiovascular diseases.

Veterinary Biomedical Sciences has a highly active comparative medicine group for the study of cardiovascular diseases. A $1 million angiography and cardiovascular surgery suite is located in this department and operated in conjunction with the MU School of Medicine to conduct comparative cardiovascular research.

In 2000, members of the Department of Veterinary Biomedical Sciences received a second five-year, $7 million grant from the National Institutes of Health to continue a study of the beneficial effects of exercise on cardiovascular disease using a pig as a model. The first part of this study, awarded in 1995, was the first NIH Program Project grant received by the University of Missouri.

The College has several foci of strength. One is the unique clinical curriculum. The curriculum in veterinary pathobiology is the most successful in the nation. This program has been funded continuously by NIH for 28 years. During the past six years, this program has been awarded more than $5 million in extramural funds for research, research training, and clinical services. More than 130 scientists have received a MS, PhD, or training for clinical board certification.

A cluster of molecular biologists has been established in the College. Current areas of research involve cell growth, hematopoietic and infectious diseases, ocular diseases, breast cancer, prostate development, immunopathology, and cardiovascular diseases.

Veterinary Biomedical Sciences has a highly active comparative medicine group for the study of cardiovascular diseases. A $1 million angiography and cardiovascular surgery suite is located in this department and operated in conjunction with the MU School of Medicine to conduct comparative cardiovascular research.

In 2000, members of the Department of Veterinary Biomedical Sciences received a second five-year, $7 million grant from the National Institutes of Health to continue a study of the beneficial effects of exercise on cardiovascular disease using a pig as a model. The first part of this study, awarded in 1995, was the first NIH Program Project grant received by the University of Missouri.

The area of reproductive biology at the College includes current studies on reproductive disorders, premature birth, embryo transfer, prostate development, endocrinology, and breast cancer mechanisms.

The College of Veterinary Medicine has some unique advantages compared to most other colleges of veterinary medicine. It is located in a major agricultural state with a large livestock industry. The opportunities for collaborative study in agriculture and comparative medicine are wide. For example, MU is one of only a few of veterinary medical colleges on the same campus as a medical college. The proximity and size of the MU Animal Science Research Center has resulted in many collaborative projects. The Dalton Cardiovascular Research Center and the MU Research Reactor are facilities that give MU investigators unique opportunities for many types of research. Washington University, St. Louis University, and Lincoln University have provided additional opportunities for collaborative research or instructional grants.

The Veterinary Medical Library is a regional resource of information for research and clinical investigations. Holdings are currently more than 20,000 books and 21,000 volumes.

The MU Veterinary Medical Teaching Hospital and the Veterinary Medical Diagnostic Laboratory are Midwestern regional referral centers for veterinary medicine. Seven endowed professorships have been established at the College of Veterinary Medicine since 1994. Joining the department's already established in veterinary ophthalmology and cardiology, Ralston Purina Pet Products endowed a professorship in small animal nutrition. This professor will be internationally recognized as a leader in nutrition and interact with the pet food industry and other animal nutritionists on the University of Missouri campus. Missouri is home to two of the largest pet food manufacturers in the world.

Tom and Betty Scott from Kansas City endowed a professorship that will allow the College to become a major Midwestern referral center for animals suffering from cancer. This gift strengthened the College's already impressive veterinary cancer treatment program—one of only a few such programs in the country. Cancer diagnosis is aided by the use of a CT scanner and one of the few linear accelerators in the world dedicated for use on animals.

The College's fifth endowed professorship, the E. Paige Laurie-Missouri Professor of Equine Lameness, will add an internationally recognized faculty member with research programs related to improving the diagnosis and treatment of lameness in horses. This endowment was made possible by a gift from Bill and Nancy Laurie, owners of Crown Center Farm in Columbia, Mo. and named in honor of their daughter, Paige. The sixth professorship was endowed by Charles and Charlene McKee in memory of their beloved veterinarians and is called the Missouri Professorship in Microbial Pathogenesis. The College's latest endowment is the Thelma Zalk-Missouri Professorship in Tumor Angiogenesis.

Alumni

New graduates of the MU College of Veterinary Medicine receive more job offers at graduation than the national aver-
age for new veterinary medical graduates. Approximately 55 percent seek employment in small animal practices while 25 percent enter mixed animal practices and ten percent become predominately large animal practitioners. Another ten percent go into advanced study programs.

The more than 2,600 alumni of the College have been very successful in their chosen areas of the profession. Many become involved in community affairs by becoming members of school boards, council members, and mayors of towns and cities. Some are elected members of state legislative bodies. Many are elected to offices of state and national veterinary medical associations. Some have been prominent in federal positions. Others have advanced to prominence in veterinary medical colleges in teaching and research roles. Alumni have been active as administrators in veterinary medical colleges, industry, and government work. In the last eight years, three of the presidents of the American Veterinary Medical Association, which represents 65,000 veterinarians, were graduates of the MU College of Veterinary Medicine.

The Missouri Veterinary Medical Alumni Association (MVMAA) is centered in the MU College of Veterinary Medicine Dean’s Office. Officers are elected by the alumni. The Director of Student and Alumni Affairs is a permanent member of the Board of the MVMAA. Each autumn, in conjunction with the MVMAA, the MU College of Veterinary Medicine hosts an alumni reunion day. The MU College of Veterinary Medicine currently has the highest percentage of graduates who become members of the MU Alumni Association.

**College Publications**

The official chronicle of College activities is _Veterinary Medical Review_, a five-color biannual magazine. It is sent to all MU veterinary medical alumni, former faculty, current students, parents of students, friends of the College, and all veterinarians practicing in Missouri.

There are two newsletters produced for distribution outside the MU College of Veterinary Medicine, _Arkeology_ and _The Vector_. _Arkeology_ is a biannual five-color newsletter that reports the impact of gifts on the College and recognizes students, staff, and faculty for their achievements. It is mailed to MU Veterinary Medical Teaching Hospital clients, donors, and other interested people. _The Vector_ is a monthly newsletter directed to companion animal practitioners. It contains scientific updates and items from the news, particularly involving Missouri animal owners or veterinarians.

Two in-College newsletters, the _Research Update_ and the _Veterinary Medical Update_, are published monthly and bimonthly, respectively.

The College’s main web site is www.cvm.missouri.edu. The Veterinary Medical Teaching Hospital’s web site is located at: www.vmth.missouri.edu. Department and program web sites are hyperlinked from these sites.

---

**Service Units**

_The Veterinary Medical Teaching Hospital_, Clydesdale Hall, is a new state-of-the-art teaching and medical service facility. The VMTH is an integral component of the College, and is essential to the teaching mission since it is the required teaching laboratory for training students for the DVM degree. Faculty and students in the Veterinary Medical Teaching Hospital diagnose and treat more than 15,000 patients annually. Students are involved in all cases examined and treated. The hospital is a clinical laboratory, providing specialty services to animal owners in Missouri and throughout the Midwest.

_The Veterinary Medical Diagnostic Laboratory_ at the College conducts 200,000 diagnostic tests annually, including 2,000 necropsies. It is fully accredited by the American Association of Veterinary Laboratory Diagnosticians and is the only accredited veterinary diagnostic laboratory in Missouri.

_The MU-CVM Information Technology Unit_ (CVM-IT) maintains a state-of-the-art information management system supporting the College’s teaching, service, and research missions. CVM-IT provides end-user support for the CVM’s computing technology infrastructure for biomedical research, veterinary care, and educational applications, specialized graphics arts production services, and College-wide administrative support. The unit assists faculty, staff, and students in the development of materials for educational and research presentations at local, regional, national, and international meetings.
Veterinary medicine is a proud profession, offering challenging and rewarding career opportunities in private practice, government, industry, education, and the military.
Careers in Veterinary Medicine

Practice Opportunities in Veterinary Medicine

Today, most veterinarians are self-employed or work for private practitioners in individual or group practices. Successful practitioners work long and irregular hours. They must be responsive to the emergency needs of their clientele, have well-developed interpersonal, managerial and communicative skills, and must be astute business people. The type of practice selected is usually based on the area or population center in which veterinarians choose to reside, their desired lifestyle, income expectations, and the type of animals with which they prefer working.

General or Mixed Practice. Veterinarians who treat all species of animals usually reside near rural areas. They are called general practitioners and work in mixed practices. There are more than 14,000 in the United States today. General practice is a rigorous, physically-demanding activity. It provides opportunity to become a dedicated public servant and earn a modest income. Formal training beyond the DVM degree is not required. It presents the challenge of keeping abreast of developments in medical or surgical approaches to all diseases of animals through constant reading and attendance at continuing education programs.

Large Animal Practice. More than 7,500 veterinarians in the U.S. work predominantly with livestock or horses. Work with these large animals is rigorous and sometimes dangerous. It requires special knowledge, skills, and experience in safe handling of animals. An understanding of the economic constraints and management conditions under which they are raised is also required.

Usually large animal practitioners travel to farms. They spend many hours on the road and sometimes must function under challenging field conditions, where restraint facilities and sanitary conditions are less than optimal. Economic realities and the value of the patient are prime factors in medical decisions in large animal practice and are major determinants of practitioners' income. Formal training beyond the DVM degree is not required, but to be successful, large animal practitioners must keep current on emerging knowledge and techniques in large animal medicine and must be familiar with advances in livestock technology and associated health problems.

Small Animal Practice. More than 26,000 small animal practitioners minister to the health needs of dogs, cats, and pet birds in the United States. The veterinarians usually reside in towns, cities, or the suburbs and operate in small animal clinics or pet hospitals that require considerable investment in buildings, furnishings, equipment, and upkeep. For the most part, the patients are brought to the clinic. Small animal veterinarians function in an environment conducive to practicing high-quality medicine and surgery with equipment and supplies comparable to a physician's office or a hospital. The DVM degree provides adequate background for small animal practice.

Limited Practices. Some veterinarians choose to develop expertise in the health problems of one species. For example, practitioners may specialize in horses, cattle, cats, or poultry. There are equine practitioners, bovine practitioners, feline practitioners, and poultry practitioners. Equine practices are the most numerous of these species-limited practices. Equine practitioners understand the special needs of horses, speak the language of horse owners, and fill their special needs. Some practice exclusively on racehorses.

Bovine practice emulates large animal practice and feline practice emulates small animal practice. However, equine practice is unique. The species specialists usually develop their expertise without formal training beyond the DVM degree, but some use a residency at a college or with another specialist to develop their skills.

Many DVMs come back to the College to pursue advanced degrees, research programs, and fellowships.
The Veterinary Medical Teaching Hospital boasts several areas of excellence that reflect the direction and focus of modern veterinary medicine. These areas include food animal medicine (upper left), ophthalmology (above), veterinary oncology (middle), and veterinary emergency medicine (far right).

Veterinary Medical Clinical Specialists. Some veterinarians become specialists in one of 20 American Veterinary Medical Association-approved specialties, such as radiology (X-ray diagnosis and therapy), dermatology, internal medicine, small animal or equine surgery, theriogenology (reproductive diseases), or ophthalmology. They may have general practices or limit their activities to certain types of diseases. Some travel to several practices; others are specialists within group practices. Some are solo practitioners handling special cases referred by other veterinarians. Clinical specialists develop their expertise through training in formal residency programs at universities offering a veterinary medicine curriculum or specialists in practice. Specialty diplomate status is granted by specialty boards or colleges diplomate-by-examination. Diplomates are board certified.

Veterinary Medical Consultants. Veterinarians with special knowledge, skills and extensive experience with certain aspects of the profession or with certain types of livestock enterprises, serve as consultants to large farms, ranches, feedlots, pharmaceutical manufacturers, government agencies, feed companies, or other organizations needing professional advice. Consulting veterinarians can be practitioners, former practitioners, or employees of corporations, government agencies, or universities. The opportunity to serve as a consultant is usually based on expertise or national prominence developed through years of activity and achievement in a narrow area. Consulting activities provide supplemental income, travel opportunities, and involvement in a variety of interesting animal-related activities.
Other Employment Opportunities in Veterinary Medicine

While most veterinarians are self-employed or in private practice, about 30 percent are salaried employees of government agencies, universities, or corporations. In these positions, they are involved in regulatory activities, diagnostic services, research, product development, sales, marketing, or teaching. Many assume administrative roles.

For the most part, new graduates work in private practice for a few years before employment in government and industry. Veterinarians seeking academic and research careers sometimes practice a few years first, but often immediately pursue advanced graduate studies leading to MS or PhD degrees or residency programs leading to board certification in clinical specialties.

Government Service. In municipal, state, and federal governments, veterinarians are employed mostly in health and agricultural agencies. The U.S. Department of Agriculture is the single largest employer of veterinarians. In the USDA, veterinarians are involved in research, food inspection programs, animal disease control and eradication programs, and in the quality supervision of vaccines and serum used in animals.

Other major governmental employers are the National Institutes of Health, which involve veterinarians in research and in laboratory animal medicine, the Food and Drug Administration, the U.S. Public Health Service, the U.S. military, and the Agency for International Development. These positions involve a variety of scientific, professional, and managerial activities, sometimes with international assignments.

Corporate Employment. Drug and pharmaceutical manufacturers, feed and pet food manufacturers, and corporate farms and feedlots use veterinarians in research and development, management consultation, herd-health programming, product complaint disposition, technical services, sales, and promotional activities and in management and executive capacities. In these organizations, the training and experience offered by veterinarians often provides specialized approaches and unique dimensions to the corporate structure.

Academic Employment. In the United States, more than 4,000 veterinarians are employed by colleges and universities. The majority are in veterinary medical colleges, medical schools, and colleges of agriculture, but some work throughout the academic world.

Those pursuing academic careers usually seek advanced training and earn an MS or PhD degree in a basic biomedical or clinical science and seek residency training leading to board certification in a clinical specialty.
Students seeking admission to the College of Veterinary Medicine should prepare by taking undergraduate courses with a strong emphasis in mathematics, communication, and the physical and biological sciences.

Admission to the College
Admission to the College of Veterinary Medicine

Preparing for Admission

High-School Study

Although there are no fixed requirements, high-school preparation for the pre-professional course work should be concentrated in three areas:

Mathematics - A good understanding and working knowledge of math is usually essential for success in quantitative sciences such as chemistry and physics.

English and communication skills - The abilities to read, write, and communicate verbally are absolutely essential for a professional career.

Science, especially biology, chemistry, and physics - These subjects should be appealing and comprehensible.

Therefore, it is advisable that a student take four years of math, four years of English, two years of biology, and as much chemistry and physics as possible. A working knowledge of personal computers is also advised.

Pre-Professional Study

Students must satisfactorily complete at least 60 semester hours of college work by the end of the winter semester (spring quarter) of the year in which admission is sought. However, the average of those admitted is usually more than 100 semester hours. Students admitted with only two years of pre-professional work are usually those with exceptional scholastic records and aptitude scores.

Students interested in completing the pre-professional requirements at MU should write the Office of Admissions, 230 Jesse Hall, Columbia, Mo. 65211.

Since admission into the College is competitive, the ability of most students entering the professional program is high. Summary profiles of the four classes currently enrolled contain the following statistics:

Semester Credit Hours

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average total hours</td>
<td>160</td>
</tr>
<tr>
<td>enrollment:</td>
<td></td>
</tr>
<tr>
<td>Average cumulative</td>
<td>3.52</td>
</tr>
<tr>
<td>grade point:</td>
<td></td>
</tr>
<tr>
<td>Average physical</td>
<td>3.31</td>
</tr>
<tr>
<td>science GPA:</td>
<td></td>
</tr>
<tr>
<td>Average biological</td>
<td>3.48</td>
</tr>
<tr>
<td>science GPA:</td>
<td></td>
</tr>
<tr>
<td>Average last three</td>
<td>3.52</td>
</tr>
<tr>
<td>semesters undergraduate GPA:</td>
<td></td>
</tr>
</tbody>
</table>

The last four graduating classes easily secured jobs. The number of job offers per student was 2.44. Most graduates go into private practice. More than 30 percent plan to seek postgraduate specialty training.

The following courses and credit hours must be passed in residence at an accredited institution of higher learning to qualify for admission to the MU College of Veterinary Medicine. MU courses listed fulfill the requirements.

English or courses in communication skills: 6 hours
10 Composition, 50 Creative Writing, 20 Exposition, 20 GH Honors Exposition, 70 Creative Writing, 161 Technical Writing or more advanced courses, 75 Introduction to Speech Communication or more advanced courses.

Mathematics: 3 hours
10 College Algebra or more advanced courses.

Inorganic chemistry: 8 hours
31, 32, and 33 General Chemistry I, II, and III or more advanced courses.

Organic chemistry: 5 hours
(requires laboratory)
205 Introduction to organic chemistry (210 and 212 organic chemistry is highly recommended).

Biochemistry: 3 hours
(requires organic chemistry prerequisite)
193 or 270 Biochemistry.

Physics: 5 hours
21 and 22 Elementary College Physics or more advanced courses (comprehensive introductory course or courses must include electricity).

Biological science: 10 hours
12 General Botany or 10 General Biology or more advanced courses. Required biological science courses must be for science majors and taken in either the area of biology or zoology.

Social sciences or humanistic studies: 10 hours
Can include courses from history, economics, political science, geography, literature, mythology, psychology, and philosophy.

Electives: 10 hours

TOTAL: 60 hours

Students should incorporate the pre-professional curriculum into a degree program other than veterinary medicine, since only a limited number of applicants can be admitted into the MU College of Veterinary Medicine.

Equivalent courses at other accredited colleges or universities are accepted. If a student has credit by examination, a more advanced college-level course in the same discipline must be taken, except whenever the MU Registrar’s Office transfers the credits to a MU transcript. P/F or S/U grading system courses are not counted for admission to the College of Veterinary Medicine. If a grade below D is made in a required course, the course must be repeated. Correspondence, independent study, topics, research, and problems courses are not accepted for admission purposes.
Refund of Academic Fees

Students leaving the College may receive a refund of fees. Subject to certain exceptions and because of the nature of the curriculum, refunds will be calculated after the Cashier’s Office receives a written request from the student. Fee refunds are paid in accordance with the following schedule:

- 100 percent refund before first day of class less $10 for processing enrollment.
- 70 percent within 1/8 of fee period completed.
- 50 percent refund within 3/8 of fee period completed.
- 0 percent refund after 3/8 of fee period completed.

If you have questions, write or call the Cashier’s Office, 15 Jesse Hall, Columbia, Mo. 65211, (573) 882-7728.

Refund of Housing Fees

University room-and-board charges and the contract deposit are refunded in accordance with the terms of the contract.

Admissions Guidelines

Since the College is a state-supported institution and there are more applicants each year than can be admitted, it has been necessary to establish the following priorities concerning admission:

1. First preference is extended to residents of Missouri.
2. Secondary consideration is extended to applicants from other states.
3. Applicants must have a cumulative GPA of 2.5 on a 4.0 scale if a resident of Missouri or a minimum of 3.0 if a non-resident.
4. International students are not given consideration for the professional program, but they may enter graduate programs or the Evaluated Clinical Experience for Foreign Veterinary Graduates program, if qualified.
5. Transfers are only accepted from AVMA-accredited colleges.
6. A minimum cumulative percentile score of 20 must be attained on the national Veterinary College Admission Test (VCAT).
7. Applicants are required to spend a minimum of 40 hours observing one of more veterinarians actively engaged in their normal work environment (more competitive applicants have 300, or more, hours observing veterinarians in various aspects of practice).
8. Each applicant must complete at least one semester as a full-time student (minimum caseload of 12 semester hours) in an accredited college within the three years preceding February 1st of the year of desired admission. Within those three years, five credit hours in biology are required.

Application Procedure

All students interested in veterinary medicine should write or call the College’s Associate Dean for Academic Affairs or the Admission Advisor for advisement during the fall semester preceding the year of application.

Note: There are different application procedures for residents and non-residents of Missouri. Students must enter the College at the beginning of the fall semester.

Residents of Missouri are required to apply directly to the MU College of Veterinary Medicine. Application forms, for Missouri residents, must be requested and submitted no later than November 1st of the year before admission is sought. VMCAS applications will not be accepted from Missouri applicants.

Each non-Missouri resident is required, after July 1, to request an application from VMCAS, the Veterinary Medical Colleges Application Service of the Association of American Veterinary Medical Colleges (1101 Vermont Avenue NW, Suite 710 Washington, DC 20005, application request phone: 202/682-0750, fax: 202/842-0773, web address: www.vmcas@aavmc.org). Non-residents should then submit their applications to VMCAS by October 1.

Students seeking admission should follow this procedure:

1. Missouri residents should request admission forms from the Office of the Associate Dean for Academic Affairs, College of Veterinary Medicine, W-203 Veterinary Medicine Bldg., Columbia, Mo. 65211. (Non-Missouri residents must apply through VMCAS.) Application materials are available July 1 through October 15 for Missouri residents, and July 1 through September 15 for non-residents. Supplemental applications for non-residents must be requested directly from the MU College of Veterinary Medicine (or through its web site: www.cvm.missouri.edu), completed, and returned to the College with a postmark no later than November 1.
2. Missouri residents must return the completed forms to the same office by November 1. Non-residents must return the completed applications to VMCAS by October 1.
3. Applicants must take the Veterinary College Admission Test (VCAT). Information concerning this test and a list of dates and location for the test is sent with other admission forms.

The College’s Admissions and Scholarship Committee reviews all applications and determines an applicant’s eligibility. After initial screening, the remaining applicants are evaluated on the basis of their application, academic records, VCAT scores, personal interviews (when required), experience, and personal references.

The committee selects students of good academic record with as many of the following characteristics as possible: high scholastic ability, reasonable judgment and common sense, moderately wide range of interests, evidence of leadership ability, pleasing and alert personality, willingness to work for a worthwhile objective, and understanding of the scope of veterinary medicine.

Preveterinary Medical (PVM) Scholars Program

Definition This program guarantees acceptance into the MU College of Veterinary Medicine, upon satisfactory completion of the undergraduate requirements at the University of Missouri-Columbia.

Eligibility High school seniors and MU freshmen with an ACT composite score of at least 30 or equivalent SAT score are eligible to apply.

Veterinary Medical Mentors Students qualifying for the PVM Scholars Program will be assigned a faculty mentor in the MU
The first two years of the DVM program stresses classroom lecture and laboratory studies such as anatomy.

College of Veterinary Medicine. Whenever possible, PVM Scholars Program students will be invited to participate in veterinary medical research projects and other appropriate events in the MU College of Veterinary Medicine.

**How to Apply** Application forms will be available in the office of Academic Affairs in the MU College of Veterinary Medicine. Eligible applicants will be invited for an interview. The application deadline for current high school seniors is April 15, and for MU freshmen, September 15.

**Selection Process** Selection is based on meeting the academic eligibility requirements and attaining a satisfactory score from the interview. Eligibility is not limited to Missouri residents; however, the number of non-resident students who can be accepted may be limited. U.S. citizenship or permanent residency is required.

**Requirements:**
1. To remain eligible, a student must satisfactorily complete the following requirements on the MU campus:
   a. English or communications - 6 hours
   b. Mathematics - 3 hours
   c. Inorganic chemistry - 8 hours
   d. Organic chemistry - 5 hours
   e. Biochemistry - 3 hours
   f. Physics - 5 hours
   g. Biological sciences - 10 hours
   h. Social sciences or humanities - 10 hours
   i. Honors College - 10 hours
2. In addition, the student must:
   a. Achieve a grade of B- or higher in all required courses.
   b. Achieve a cumulative GPA of 3.3 or higher.
   c. Acquire a minimum of 200 hours observational experience with a veterinarian.
   d. Maintain an average course load of 15 hours per semester.
3. Students who are eligible for formal acceptance must take the Veterinary College Admission Test and achieve a percentile score of more than 60.
4. Program may be completed in two years and must be completed in four years.
5. At the time of admission, the student must complete all routine application requirements, including application forms, and pay an application fee.
6. Meet with his/her mentor each month during fall and winter semesters.
7. Become and remain an active member of the Pre-Veterinary Club or pre-approved substitute.

**Academic Review During The Program** At the end of the fall and winter semesters, each PVM Scholar’s cumulative academic performance will be reviewed by the Admissions and Scholarship Committee. A student may be placed on academic probation by the committee if:
1. The student’s cumulative GPA falls below 3.3, or
2. The student earns less than a B- grade in any one of the required lecture or laboratory courses.

The University of Missouri-Columbia complies with the guidelines set forth in the Americans with Disabilities Act of 1990. If you have special needs as addressed by the ADA and need assistance with any portion of the admissions process, notify us at (573) 884-6435, as soon as possible. Reasonable efforts will be made to accommodate your special needs.
MU has numerous scholarship and loan funds. Information on these funds is available from the Director of Financial Aid, or the Office of Academic Affairs, College of Veterinary Medicine.
Scholarships, Awards, Aid Programs and Student Employment Opportunities

Fees and Expenses*

The following schedule lists fees and estimated expenses of an unmarried student living off campus for the year 2000-2001.

**VM-1, First Year (August-July)**

- **Fees**
  - includes MU educational fee, veterinary medicine supplemental fee, and student activity fee.
  - $10,570

- **Supplies, books, instruments**
  - $1,260

- **Living expenses**
  - includes off-campus rent, utilities, food, transportation, clothing and personal items, insurance, and recreation.
  - $12,610

**Total estimated fees and expenses**
- $24,440

**Non-resident tuition (additional)**
- $9,980

**VM-2, Second Year (August-July)**

- **Fees**
  - $10,570

- **Supplies, books, instruments**
  - $1,870

- **Living expenses**
  - $15,140

**Total estimated fees and expenses**
- $27,580

**Non-resident tuition (additional)**
- $9,980

**VM-3, Third Year (July-July)**

- **Fees**
  - $10,570

- **Supplies, books, instruments**
  - $2,540

- **Living expenses**
  - $16,380

**Total estimated fees and expenses**
- $29,490

**Non-resident tuition (additional)**
- $9,980

**VM-4, Fourth Year (July-May)**

- **Fees**
  - $10,570

- **Supplies, books, instruments**
  - $3,190

- **Living expenses**
  - $16,150

**Total estimated fees and expenses**
- $29,910

**Non-resident tuition (additional)**
- $9,980

Detailed information on fees and expenses, including supplemental fees, is furnished in the Schedule of Courses. Upon request, the Admissions Office, 230 Jesse Hall, Columbia, Mo. 65211 will furnish the pamphlet, Residency and Educational Fee Rules.

The MU College of Veterinary Medicine provides students with high quality binocular microscopes that meet College requirements and receive periodic maintenance. IBM and Apple or compatible computers are available for student use in two computer laboratories.

*Fees are subject to change

Scholarships, Awards, and Aid Programs

MU has numerous scholarship and loan funds. Information on these funds is available from the Director of Financial Aid, 11 Jesse Hall, Columbia, Mo. 65211, or the Office of Academic Affairs, College of Veterinary Medicine, W203 Veterinary Medicine Building, Columbia, Mo. 65211.

**Loans**

Students should establish themselves as professional students before applying for money from the funds available to veterinary medicine. To apply for the Health Professional Loan, Perkins Loan, or the Ford Federal Direct Loan Program (subsidized or unsubsidized student loans), students must complete the Free Application for Federal Student Aid (FAFSA).

**Health Professions Student Loan Program (HPL)** - HPL loans are federal loans and are borrowed directly from the University of Missouri-Columbia. Eligibility is determined by information the student and his or her parents provide on the FAFSA. The yearly maximum is set by the Student Financial Aid Office, not to exceed financial need. HPL loans have a five percent interest rate and a twelve-month grace period. You must include parental financial information on your FAFSA regardless of age, marital status, or dependency status. Parents’ signatures are required.

**Perkins Loan** - This is a federal loan borrowed directly from the University of Missouri-Columbia. Eligibility is determined by the information provided on the FAFSA by the student. The yearly maximum is set by the Student Financial Aid Office, not to exceed the $6,000 federal allowed maximum. This loan has a five percent interest rate and a nine-month grace period.

**Ford Federal Direct Loan Program-Subsidized Loan (FFDL-S)** - FFDL-S’s are loans borrowed from the federal government and are based on eligibility determined by the FAFSA. The yearly maximum is $8,500, and for new borrowers, the interest rate is variable with an 8.25 percent ceiling. The federal government makes the in-school and grace period interest payments. There is a six-month grace period after graduating or dropping below half-time enrollment.

**Ford Federal Direct Loan Program-Unsubsidized Loan (FFDL-U)** - FFDL-U loans are federal loans borrowed directly from the federal government. Eligibility is based on the cost of education. A FAFSA is required. The yearly maximum is $30,000, plus any amount you did not borrow on the SS~, or a total maximum of $38,500 for the two programs. The inter-
est rate for new borrowers is variable with an 8.25 percent ceiling. Students are responsible for the in-school and grace period interest payments, but they can be deferred. There is a 60-day grace period after graduating or dropping below half-time enrollment.

The Missouri Chapter of the AVMA Memorial Loan Fund - Established in 1954, this fund was formerly called the Boyer-Matthews Memorial Fund in memory of two students who died in their final year in school. Additional contributions to the fund have been made in the memory of Marilyn Rhoades, deceased wife of a student in the College, and by the family and friends of David L. Rosner, deceased son of Dr. and Mrs. L. A. Rosner. Dr. Rosner served as Missouri State Veterinarian for 12 years.

B.B. Roseboom Memorial Student Loan Fund - This fund was established in 1957 by the student chapter of the AVMA.

Stanley N. Smith Memorial Fund - Family, friends, and associates of Dr. Smith established this fund to commemorate his 58 years of service to the profession, ten on the faculty of the College.

The College of Veterinary Medical Alumni Association Loan Fund - This fund is maintained by the alumni of the College for third and fourth year students.

Student Loan Fund of the AVMA Auxiliary - Fourth year professional students are given preference, but third year and graduate students also may be considered.

Women's Auxiliary to the Missouri Veterinary Medical Association Loan Fund - Loans made from this fund are usually short term, six months to a year.

Central Missouri Veterinary Medical Association Loan Fund - This short-term emergency fund is available to third and fourth year veterinary medical students.

German Shepherd Dog Club of St. Louis Veterinary Student Loan Fund - This loan fund was established by the club for the benefit of students in the College.

Tri-State Kennel Club Veterinary Medical Student Aid Fund - This fund provides loans to worthy students who are majoring in small animal medicine and are in need of financial assistance.

Awards for Proficiency, Scholarship, and Activity During the First Two Years of Study

Curators Scholars in Veterinary Medicine - These awards, based on scholarship, cover the incidental and special fees for Missouri residents during the first year. Recipients are chosen by the Admissions and Scholarships Committee.

Physiology Award - The veterinary physiology faculty recognizes an outstanding student for performance in physiology during the first year. This award is sponsored by the Greater St. Louis Veterinary Medical Association.

Anatomy Award - This award is sponsored by the Greater Kansas City Veterinary Medical Association. It is presented to the student who has demonstrated outstanding proficiency, interest and ability in anatomy during the first year. The recipient is selected by the veterinary anatomy faculty.

Microscopic Anatomy Award - This award is sponsored by the student bookstore and presented to the outstanding student in microscopic anatomy. The recipient is selected by the microscopic anatomy faculty.

Microbiology Award - This award, sponsored by the student bookstore, is presented to a student for outstanding scholarship, proficiency and interest in veterinary microbiology during the second year.

Cecil Elder Award - This award, given in honor of the late Dr. Cecil Elder, is presented to a student who has demonstrated exceptional interest and academic capability in veterinary pathology during the second year.

Parasitology Award - This award, sponsored by Novartis Animal Health US, Inc., is presented to a student for outstanding scholarship, proficiency and interest in veterinary parasitology during the second year.

UMC Preveterninary Medicine Club Scholarship - Two awards will be presented to provide financial assistance for leadership contributions during membership in the Preveterninary Medicine Club.

West Central VMA Leadership Award - This award is presented to a student entering the second year of study who is active in the promotion of organized veterinary medicine. The recipient is selected by classmates.

MVMA Auxiliary Scholarship - This award is sponsored by the Missouri Veterinary Medical Auxiliary and is presented to one or more students who is completing their second year. The scholarship will be presented to provide financial assistance for leadership and academic achievement.

Miss America Scholarship in Veterinary Medicine - The Miss America Pageant has endowed this scholarship in honor of Debye Turner, Miss America 1990, who is a graduate of the College of Veterinary Medicine. The scholarship is given to a female student entering the third year of study who demonstrates leadership in college organizations and activities and promotes the veterinary profession through community service and academic achievement. The recipient is chosen by classmates.

Veterinary Medicine Memorial Scholarship - The College's Development Fund provides a scholarship for the student with the highest scholastic average after the first year of study.

Phi Zeta Award - This award is presented to the students who have attained the highest scholastic record for the first eight instructional periods of the professional curriculum.

Orthopedic Foundation for Animals Award - These awards are granted to provide financial assistance to two students entering their third year of study who rank in the upper 15 percent of their class.

Kenneth H. Niemeyer Award in Veterinary Medicine - This award is endowed by the College of Veterinary Medicine
Alumni Association in honor of Kenneth H. Niemeyer, Class of 1955, long-time faculty member, administrator, and student advocate. This award is presented to a student entering the third or fourth year of study who possesses high integrity, inspires confidence, relates well to people, demonstrates leadership in College organizations and activities, and promotes the profession of veterinary medicine. The recipient is selected by classmates.

Virginia L. Busch Scholarship - This award is endowed by the College of Veterinary Medicine and the Busch family in honor of Virginia L. Busch. It is given to a student entering the third year of study for outstanding leadership, character, and integrity. The recipient is chosen by faculty and classmates.

Awards for Proficiency, Scholarship, and Activity During The Last Two Years of Study

Rolf Memorial Award - This award is presented to a graduating senior, who exemplifies ethical and professional integrity, has superior ability to relate to clients and excels in animal care. The recipient is nominated by classmates and selected by the clinical faculty.

AVMA Auxiliary Award - This award is given to a graduating senior who has contributed the most to advance the prestige of the College of Veterinary Medicine on the Columbia campus. The recipient is selected by classmates.

Columbia (MO) Kennel Club Award - Two awards are presented to students entering the fourth year of study or graduating seniors who have exceptional understanding and compassion for small animals. These awards are sponsored by the Columbia Kennel Club.

Proficiency in Business Management Award - This award, established by Mr. Ben Riley, recognizes a student entering the fourth year of study or graduating senior for proficiency and potential in business management and client relations.

Loren D. Kintner Veterinary Diagnostic Laboratory Award - This award is presented to a student entering the fourth year of study or graduating senior in recognition of proficiency, interest, contributions and performance in veterinary diagnostic laboratory medicine.

Lloyd Selby Award - This award, established in honor of the late Dr. Lloyd Selby, is given to a student entering the fourth year of study or graduating senior who has outstanding interest and proficiency in public health and epidemiology.

Adrian J. Durant Award - This award is given in recognition of outstanding ability and proficiency in the knowledge of poultry diseases.

Emmett McCune Avian Medicine Award - This award shall be given to a student entering the fourth year of study, a graduate student, or a graduating senior in the College of Veterinary Medicine who has shown outstanding interest and understanding of poultry production, medicine, and disease prevention.

Gary Weddle Wildlife and Exotic Animal Award - This award recognizes a student entering the fourth year of study or graduating senior who has demonstrated outstanding proficiency and interest in wildlife or exotic animal medicine.

American Association of Feline Practitioners Award - This award is presented to a graduating senior who has demonstrated special interest and accomplishment in feline medicine and surgery. The recipient is selected by the small animal medicine and surgery faculty.

The Nancy L. Roth Equine Award - This award is presented to a student entering the fourth year of study or graduating senior who has demonstrated proficiency, interest and superior performance, as well as potential for future service, in equine medicine and surgery.

Harlan E. Jensen Ophthalmology Award - This award, given in honor of Dr. and Mrs. H.E. Jensen, is presented to a graduating senior who has demonstrated outstanding proficiency and interest in ophthalmology during the clinical years.

The American College of Veterinary Radiology Award - This award will be presented to a graduating senior who excels in clinical radiology.

American College of Veterinary Surgeons Student Award - The ACVS provides to a graduating senior a small animal and large animal surgery award for academic and clinical proficiency.

Lucy B. Davis Scholarships in Small Animal Medicine and Surgery - Two awards, one for small animal medicine and one for small animal surgery, are presented to students entering the fourth year of study or graduating seniors for demonstrating interest, scholarship, proficiency and outstanding client relations.

Pharmacia and Upjohn Awards - The Pharmacia and Upjohn Company recognizes two graduating seniors for their proficiency in small and large animal medicine and surgery.

Dr. Edgar Ebert Memorial Awards - The Ebert Fund, established by Mrs. Edgar Ebert with contributions from faculty, alumni and friends in honor of her husband, provides awards for two graduating seniors who have demonstrated academic excellence, good citizenship and leadership: one in large animal medicine and surgery, and one in small animal medicine and surgery.

English Practitioner Award - Dr. and Mrs. James E. English established an award to honor a graduating senior most likely to succeed in a general practice because of overall proficiency in large and small animal medicine and surgery. This award is sponsored by MVES and the recipient is selected by classmates.

Randolph Practitioner Award - This award is given to a graduating senior, who in the opinion of the clinical faculty, is most likely to succeed in the general practice of veterinary medicine.

Mary T. Wernert, DVM '86 Memorial Scholarship - This award was established in memory of Dr. Mary T. Wernert who was an active member of the Greater St. Louis Veterinary Medical Association. This award is for a graduating student.
who best exemplifies the high standard of patient care that was characteristic of Dr. Wernert's veterinary medical career. The recipient is selected by classmates.

**Swine Proficiency Award** - This award, sponsored by the student bookstore, recognizes an outstanding graduating senior for proficiency in swine medicine.

**Theriogenology Award** - This award, sponsored by the student bookstore, is presented to the outstanding student in theriogenology.

**Food Animal Proficiency Award** - This award is presented by the food animal faculty to recognize the achievement of the senior veterinary student most proficient in food animal medicine, surgery, reproduction and production medicine.

**Anesthesiology Award** - This award, sponsored by the student bookstore, is presented to the outstanding student in anesthesiology.

**Radiology Award** - This award is presented to the outstanding student in radiology.

**Cardiology Award** - This award, sponsored by the student bookstore, is presented to the outstanding student in cardiology.

**Allan Hart Clinical Proficiency Scholarship** - This scholarship will be awarded to a senior veterinary student who displays exceptional proficiency in diagnostic clinical pathology and its practical application to clinical cases. The scholarship will be awarded in memory of Dr. Allan Hart by IDEXX Laboratories, Inc.

**Philip J. Shanker, D.V.M., Scholarship in Feline Medicine** - This scholarship is given to a graduating senior student who exhibits a superior aptitude and interest in feline medicine and surgery.

**Dr. David and Patricia Ives Scholarship** - This award is in memory of “Cardiff,” a black and tan Welsh Terrier that lived to be 18 years of age, thanks to the compassionate care of Dr. John Williams of the Horton Animal Hospital. This award is given to an entering third year student going into companion animal practice with an aptitude and compassion for the human/animal bond.

**AAHA Small Animal Medicine and Surgery Award** - This award sponsored by the American Animal Hospital Association is presented to a graduating senior for proficiency in small animal medicine and surgery.

**Equine Medicine and Surgery Award** - This award, sponsored by the student bookstore, is presented to the outstanding student in equine medicine and surgery.

**American Royal Veterinary Scholarship** - Students in either the third or fourth year of study are chosen to attend the American Royal Livestock Show in Kansas City. They observe and assist the show veterinarian, Dr. Robert Hertzog, and his associates in meeting the unique medical needs of cattle and horses entered in the livestock show.

**Dr. Jeffrey Shikles, Class of 1988, Memorial Scholarship** - To be voted on by the faculty and presented to a graduating senior or entering fourth-year student who demonstrates a commitment to veterinary medicine, has a strong interest in both equine and small animal medicine, relates well to animals and their owners, and exemplifies compassion toward all living things.

**Gerald Johnson Scholarship** - Family and friends of Gerald L. Johnson, Class of 1956, have established an endowed fund in his memory. He was President of the AVMA in 1991-1992, and was President of the MU Alumni Association in 1994. The award is given to a student entering the fourth year of study who exhibits leadership and support of organized veterinary medicine, and possesses the qualities of trustworthiness, concern for others, dependability, and high integrity. The recipient is chosen by classmates.

**IAMS/VECCS Award for Excellence in Veterinary Emergency and Critical Care Medicine Award** - This award is given to a graduating senior who has demonstrated interest and proficiency in veterinary emergency and critical care. Selection is made by the faculty of the small animal area from a list of nominees provided by the Student Chapter of the Veterinary Emergency and Critical Care Society.

**Skeeter Stephens Scholarship Award** - This scholarship, given by Veterinary Pet Insurance, Inc. and named for the company's chair of pet relations, is given to provide financial assistance to students who exemplify the human-animal bond and the essential role veterinarians must play within it.

**H. Richard Adams Scholarship in Veterinary Medicine** - One or more awards are made to graduating veterinary medical students who have demonstrated an exceptional interest and understanding of the “human-animal bond.” Criteria for selection of recipients may include, but not be limited to, applied recognition that animals have positive effects on the health and wellness of people resulting in prescription of animals in therapy for coronary care, the elderly; or that the presence and touch of humans has positive health benefits for animals.

**The World Animal Care Foundation, Inc.** - This award is presented to a graduating senior who has demonstrated an understanding and appreciation for human-animal relationship through their involvement in human-animal bond activities.

**VetSmart Human-Pet Bond Award** - This award is to be presented to the student who has given of himself/herself to best illustrate and promote the importance of the human-pet bond.

**Iams Food For Thought Scholarships** - One scholarship to be awarded to a first or second year student and one scholarship to a third or fourth year student. This scholarship recognizes students who have a vital interest in promoting the human-animal bond and show consistent motivation and active service in activities that visibly demonstrate this interest.

**Bil Jac Award** - This award is presented to a second or third year student in the upper 1/3 of his or her class, and shows an interest in nutrition.
Who’s Who in American Colleges and Universities - Graduating senior students in the University are selected by classmates for Who’s Who in American Colleges and Universities. The criteria are based on leadership, extracurricular activities and scholarship.

SCAVMA President Award - This award of recognition is presented to the immediate past president of SCAVMA.

SCAVMA Auxiliary Award - This scholarship is awarded to a student enrolled in the College of Veterinary Medicine. The recipient is selected by the SCAVMA Auxiliary.

Lilly Grossman Award - This award goes to a senior SCAVMA Auxiliary member who has demonstrated outstanding service to the veterinary school and the Auxiliary.

Mable McCune Auxiliary Award - This award is given in honor of Mable McCune, a former faculty spouse, to a SCAVMA Auxiliary member who demonstrates devotion to the organization.

Scholastic Awards

Dr. and Mrs. Leslie C. Murphy Scholarship - This award is presented to the graduating senior with the highest scholastic average for the entire professional curriculum.

Frank E. and Ena Hickerson Rhoads Scholarships - These awards are presented to students entering their third or fourth year of study and are in the upper 10% of their class and have demonstrated competent professionalism.

Robert J. and E. Marlese Gourley Scholarship - This award is given to provide financial assistance to students in the College of Veterinary Medicine who have demonstrated superior academic and non-academic achievement.

Ruth Elizabeth Johnston Memorial Veterinary Medicine Scholarship - This award is given to provide financial assistance to an entering fourth year student who has demonstrated proficiency in the clinical sciences.

A. H. Groth Student Research Award - This award is presented to a student entering the fourth year of study or graduating senior who has demonstrated superior competency and outstanding potential in veterinary medical research.

Pfizer Award - Pfizer Animal Health sponsors a scholarship for a veterinary student entering the fourth year of study to provide financial assistance based on scholarship and leadership.

St. Charles (MO) Kennel Club, Inc. Scholarship - This scholarship is awarded to provide financial assistance to a student entering the fourth year of study or graduating senior who demonstrates scholastic ability and resides in the Greater St. Charles/St. Louis area.

PLIT Student Scholarship - This scholarship is awarded to a student who has good communication skills and is a SAVMA member in good standing.

Ralston Purina Scholarship - Ralston Purina Company sponsors a scholarship for a veterinary student entering the third year of study to provide financial assistance based on exemplary academic achievements, collegiality, and a strong interest in nutrition and physiology.

Frank Wells Scholarships - A fund, established by the estate of Nellie F. Wells in memory of her brother, provides scholarships for veterinary students entering their fourth year of study based on scholastic achievement, participation in extracurricular activities and leadership abilities. The recipient is selected by the Committee on Scholarships and Awards.

J.E. Salsbury Scholarships - The Salsbury Foundation sponsors scholarships to provide financial assistance to students entering their fourth year of study and who have demonstrated superior scholarship, initiative, perseverance and potential for leadership.

Hill’s “Buddy” Award - Named in honor of Dr. Mark Morris, Sr. and his famous patient, Buddy, this award recognizes a graduating senior veterinary student who has demonstrated superior ability to apply principles of small animal clinical nutrition in the practice of medicine and surgery.

The Hazel C. and Edgar F. Ebert Memorial Scholarship Fund in Veterinary Medicine - These awards are presented to provide financial assistance to four students, two women and two men, entering their third and fourth years of study who demonstrate scholastic ability.

Merck Awards - Merck and Company presents Merck Veterinary Manuals to graduating seniors who have demonstrated outstanding academic proficiency.
Joseph Worthington Crane Memorial Scholarship - This scholarship is given to provide financial assistance to a second, third, or fourth year veterinary student who has graduated from high school in Boone County, Missouri, and is in good academic standing and has high moral character.

Gilbreath-McLorn Scholarships - These scholarships are given to provide financial assistance to veterinary students entering either their second, third, or fourth year of study who demonstrate professional potential and scholastic ability. Recipients are selected by the Committee on Scholarships and Awards.

The Lelia Heuer Scholarship Fund - This award is presented to a second or third year student in good academic standing who has graduated from high school in the State of Missouri, and preferably from the general area of Lebanon and southwest Missouri, if possible.

Faculty Awards

L. N. Atkinson, D.V.M., Memorial Fund - One or more annual awards shall be made to an intern who has demonstrated interest and proficiency in canine medicine and surgery.

Redhage Award - An award is presented to a resident who has demonstrated interest and proficiency in canine medicine and surgery and who has great concern for client relations.

Intern Teaching Award - This award, voted on by the senior class, is given to the intern who has had the greatest impact on their clinical experience in terms of teaching and spending extra time to help students learn.

Resident Teaching Award - This award, voted on by the senior class, is given to the resident who has had the greatest impact on their clinical experience in terms of teaching and spending extra time to help students learn.

Technician Award - This award, sponsored by the student bookstore and selected by the senior class, is given to honor an outstanding VMTH technician who the senior class feels has had an impact on their clinical experience.

Pfizer Animal Health Award for Research Excellence - This award is presented to a faculty member or graduate student whose research is related to veterinary medicine and has promise of national recognition.

SCAVMA Teaching Award for Clinical Sciences - This award is selected by SCAVMA.

SCAVMA Teaching Award for Basic Sciences - This award is selected by SCAVMA.

Golden Aesculapius Teaching Awards - Each of the four classes selects their outstanding teacher from the past year. The awards will be presented by class presidents.

Carl J. Norden Distinguished Teacher Award - This award, supported by Pfizer Animal Health, recognizes an outstanding teacher who, through ability, dedication, character and leadership, contributes significantly to the advancement of the profession. The recipient is chosen by the graduating class.

Dean's Impact Award - Several individuals may be selected annually based on major contributions that have had significant positive impact on College programs. Qualifications focus on a sustained and substantial body of contributions having long-lasting beneficial impact.

Student Employment

Many students work part time while attending school. Because of the higher number of classroom and laboratory hours required of veterinary medical students, it is recommended that outside work be kept at a minimum, especially during the first year. Some students are employed on research projects in laboratories and in clinics. Other students find employment for board, or room and board. The Office of Financial Aid, 11 Jesse Hall, provides information and assistance to students seeking part-time work. If you have questions regarding student employment call (573) 882-7506.
Student Government

Code of Ethics (Honor Code)

Honesty is an essential part of professionalism. The Code of Ethics places the responsibility for honor and honesty on the student.

Examinations are not closely proctored by faculty members. Drugs and equipment used in clinics and laboratories are made available for instruction with the understanding that the DVM degree candidate will use these materials only for their intended purposes without being policed by faculty members.

The code applies to all students in the MU College of Veterinary Medicine and helps to promote ethical standards of personal and professional conduct among students. Reports of violations of this code are carefully investigated by the Student Honor Committee, and every precaution is taken to arrive at a just decision. A student found guilty of violating the code may be dismissed from the College. Anyone unwilling to accept the responsibility for maintaining the code should not apply for admission to the MU College of Veterinary Medicine.

Student Honor Committee

As set forth in the preamble to the MU College of Veterinary Medicine Honor Code, the students of the College have established a code deserving of the high trust and irreproachable conduct demanded by their chosen profession. The honor committee is composed of two regular and two alternate members from each class. The president of SCAVMA, with approval of the membership, appoints the Student Honor Committee. The committee is led by a fourth year member.

Student Chapter of the American Veterinary Medical Association (SCAVMA)

All veterinary medical students are eligible for membership in the Missouri Student Chapter of AVMA. Activities include a picnic given by the second year class to welcome the incoming class, a fall meeting at which new students and faculty members are welcomed by the other three classes, and an annual junior-senior banquet in the spring.

The student chapter is a divisional arm of Missouri Students Association and functions as the Veterinary Medical Student Council. The chapter sends delegates to the national convention, offers support for members to attend national educational symposiums, and provides numerous benefits for new graduates.

Members of the student chapter of the AVMA elect a president, vice president, secretary, and treasurer who, along with several members of each class, make up the executive council. Committees for the student chapter of the AVMA are appointed by the president.

Membership requirements are annual dues and the commitment to work at the SCAVMA booth at least one football game while being a VM-1 and VM-2.

Meetings are held the first Monday of the month, September through June. Officers are elected in December.

Benefits of membership include:
- Reduced subscription rate for the Journal of the AVMA.
- Free registration to national AVMA meetings.
- Surgery instrument rental program.
- Beeper use during clinical rotations.
- Free AVMA dues first year after graduation.
- Eligibility for emergency loans through the auxiliary.
- Financial support to attend symposiums and meetings.

SCAVMA Auxiliary

The SCAVMA Auxiliary is an organization of spouses (and significant others) of veterinary medical students. Goals are to educate the community about the MU College of Veterinary Medicine, provide moral and social support to student spouses, recognize the importance of the role of the veterinary medical student spouse, promote involvement of spouses with the College, and present a donation in the name of the auxiliary to the students at the annual awards banquet.

Class Officers

Annually, each class elects a president, vice president, secretary-treasurer, and a class representative. Each class president and the AVMA student chapter president serve on the student advisory council, which meets regularly with the dean and associate dean for academic affairs, and the associate dean for student and alumni affairs to discuss College concerns.
The Professional Curriculum

The first two years of the professional curriculum are designed to provide the student with a solid foundation in basic medical science. Courses of study include gross and microscopic anatomy, molecular biology, physiology, microbiology, pathology, pharmacology, parasitology, toxicology, public health, clinical pathology, radiology, clinical medicine and surgery, and anesthesiology.

These courses are taught in the laboratory and lecture format familiar to science students. In some areas, the autotutorial teaching approach is used. Other areas use problem-based teaching methods.

After successfully completing the second year of the professional program, the student enters a segmented curriculum for the years of clinical training. In this concept of veterinary medical training, the final two years are divided into 12 six-week rotations. Students must successfully complete seven required rotations for graduation. Each six-week rotation is a complete instructional unit. Students are given the opportunity to concentrate their studies in an area of special interest while gaining exposure to all aspects of veterinary medicine. The required rotations are food animal medicine and surgery, equine medicine and surgery, small animal medicine, small animal surgery, medical services (radiology and anesthesia), diagnostic pathology and special species medicine, and focused specialties (ophthalmology, theriogenology, and cardiology).

In addition to the seven required rotations, 2 six-week rotations are required in elective courses. Clinical year students are also scheduled 3 six-week periods of free time for preceptorships in private practice, industry, additional course work, or vacation.

As stated in the Veterinarian’s Oath, among the missions of the MU College of Veterinary Medicine are the protection of animal health, relief of animal suffering, promotion of public health, and the advancement of medical knowledge. To pursue these missions with success often requires the use of live animals as teaching models. The University of Missouri, College of Veterinary Medicine should be aware that the professional degree curriculum includes the use of live animals and cadavers in required courses such as laboratories in anatomy, physical diagnosis, and surgery. Some of these use terminal procedures on the animals. In all cases, animals are legally acquired, properly housed, fed, cleaned, and cared for to ensure reasonable comfort and well being. U.S. Department of Agriculture and National Institutes of Health guidelines on animal care and use constitute the minimum basis for the care provided MU animals.

All live animals used in teaching are obtained from sources approved by the U.S. Department of Agriculture, the governing authority for the humane use of animals in research and teaching in the United States. Procedures performed on these animals must be approved in advance by the MU Animal Care and Use Committee, which comprises faculty from multiple disciplines and includes an at-large member not affiliated with the University. Each procedure is evaluated for evidence of its instructional value, the availability of alternative means of teaching, and the adequacy of pain control. All procedures performed on patients of the Veterinary Medical Teaching Hospital are done with the consent of the animal's owner and in compliance with the standard practice of veterinary medicine.
## Pre-Veterinary Medical Courses

VMS 140/AS 140 Companion Animals W (3 credit hours)

### First Year: Normality

#### VM-1 Students

**Periods 1-4**

<table>
<thead>
<tr>
<th>Period</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period 1</td>
<td>VBMS 500 Veterinary Anatomy - Part 1 (2.5 credit hours)</td>
</tr>
<tr>
<td></td>
<td>VBMS 502 Veterinary Microscopic Anatomy - Part 1 (1.5)</td>
</tr>
<tr>
<td></td>
<td>VBMS 504 Veterinary Physiology - Part 1 (3)</td>
</tr>
<tr>
<td></td>
<td>VBMS 506 Veterinary Cellular and Molecular Biology - Part 1 (2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period 2</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VBMS 500 Veterinary Anatomy - Part 2 (2.5)</td>
</tr>
<tr>
<td></td>
<td>VBMS 502 Veterinary Microscopic Anatomy - Part 2 (1.5)</td>
</tr>
<tr>
<td></td>
<td>VBMS 504 Veterinary Physiology - Part 2 (3)</td>
</tr>
<tr>
<td></td>
<td>VBMS 506 Veterinary Cellular and Molecular Biology - Part 2 (2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period 3</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VBMS 501A Veterinary Anatomy - Part 1 (4)</td>
</tr>
<tr>
<td></td>
<td>VBMS 503 Veterinary Microscopic Anatomy (2)</td>
</tr>
<tr>
<td></td>
<td>VBMS 505A Gastrointestinal Physiology &amp; Nutrition (3.5)</td>
</tr>
</tbody>
</table>

### Second Year: Abnormality

#### VM-2 Students

**Instructional Periods 5-9**

<table>
<thead>
<tr>
<th>Period 5</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VM 551B Veterinary Immunology - Part 2 (1.5)</td>
</tr>
<tr>
<td></td>
<td>VM 552 Veterinary Bacteriology (2.5)</td>
</tr>
<tr>
<td></td>
<td>VM 556 Veterinary Parasitology (2.5)</td>
</tr>
<tr>
<td></td>
<td>VP 575 General Veterinary Pathology (3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period 6</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VM 553 Veterinary Bacteriology (3)</td>
</tr>
<tr>
<td></td>
<td>VM 554A Veterinary Virology - Part 1 (1.5)</td>
</tr>
<tr>
<td></td>
<td>VM 557 Veterinary Parasitology (3)</td>
</tr>
<tr>
<td></td>
<td>VP 576 Veterinary Systemic and Special Pathology (3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period 7</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VM 557 Veterinary Pharmacology (3)</td>
</tr>
<tr>
<td></td>
<td>VM 558 Veterinary Preventive Medicine, Zoonoses &amp; Meat Hygiene (2)</td>
</tr>
<tr>
<td></td>
<td>VP 577 Veterinary Systemic &amp; Special Pathology (3)</td>
</tr>
<tr>
<td></td>
<td>VMS 684 Fundamentals of Veterinary Business Management (1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period 8</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VM 508 Veterinary Pharmacology (2)</td>
</tr>
<tr>
<td></td>
<td>VP 578 Veterinary Clinical Pathology (3)</td>
</tr>
<tr>
<td></td>
<td>VMS 601 Laboratory Animal Medicine (1.5)</td>
</tr>
<tr>
<td></td>
<td>VMS 602 Veterinary Radiology (2)</td>
</tr>
</tbody>
</table>

---

### An Overview of the Instructional Periods and Clinical Blocks

#### Jan-Feb - Nov-Dec

<table>
<thead>
<tr>
<th>Period 1</th>
<th>VM-1 year begins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period 2</td>
<td>VM-2 year begins</td>
</tr>
<tr>
<td>Period 3</td>
<td>VM-3 year begins</td>
</tr>
<tr>
<td>Period 4</td>
<td>VM-3's in required classes</td>
</tr>
<tr>
<td>Period 5</td>
<td>VM-2 Summer Vacation</td>
</tr>
<tr>
<td>Period 6</td>
<td>VM-3 Summer Vacation</td>
</tr>
<tr>
<td>Period 7</td>
<td>VM-3's in required classes</td>
</tr>
</tbody>
</table>

---

### Jan-Feb - Nov-Dec

<table>
<thead>
<tr>
<th>Clinical Rotation</th>
<th>Clinical Rotation</th>
<th>Clinical Rotation</th>
<th>Clinical Rotation</th>
<th>Clinical Rotation</th>
<th>Clinical Rotation</th>
<th>Clinical Rotation</th>
<th>Clinical Rotation</th>
<th>Clinical Rotation</th>
<th>Clinical Rotation</th>
<th>Clinical Rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### Graduation

1946-1996

50 Years of Veterinary Medical Education
Period 9
VBMS 509 Veterinary Toxicology (3)
VMS 603 Veterinary Anesthesiology (2)
VMS 604 Companion Animal Medicine (4)
VMS 606 Small Animal Surgery (2)

Third and Fourth Years: Clinical Experience
VM-3 and VM-4 Students

Instructional Period 10
VMS 605 Small Animal Medicine (2.5)
VMS 607 Small Animal Surgery (2.5)
VMS 608 Food Animal Medicine and Surgery (4)
VMS 609 Small Animal Critical Care (1)

Instructional Period 11
VMS 610 Equine Medicine and Surgery (3)
VMS 611 Theriogenology (3)
VMS 612 Veterinary Ophthalmology (1)
VMS 699 Various Didactic Electives (1 each):
   699A Zoological Medicine
   699B Advanced Equine Lameness
   699C Small Animal Endoscopy
   699D Advanced Veterinary Anesthesia
   699F Advanced Techniques in Small Animal Surgery
   699J Food Animal Diagnostic Exercises
   699K Small Animal Behavioral Medicine
   VP 599A Introduction to Avian Medicine

Required Clinical Blocks
VMS 640 Food Animal Medicine and Surgery I (6)
VMS 641 Small Animal Medicine I (6)
VMS 642 Equine Medicine and Surgery I (6)
VMS 643 Small Animal Surgery I (6)
VMS 644A Clinical Radiology I (3)
VMS 644B Clinical Anesthesiology I (3)
VMS 645 Theriogenology I (2)
VMS 646 Clinical Ophthalmology I (2)
VP 647 Diagnostic Pathology and Special Species Medicine I (8)
VMS 648 Cardiology I (2)

Clinical Rotation (2-6)
Electives (require special consent)
VMS 670 Food Animal Medicine and Surgery II
VMS 671 Small Animal Medicine II
VMS 672 Equine Medicine and Surgery II
VMS 673 Small Animal Surgery II
VMS 674A Clinical Radiology II
VMS 674B Clinical Anesthesiology II
VMS 675 Theriogenology II
VMS 676 Laboratory Animal Medicine & Management II
VMS 677 Herd-Health Management and Nutrition II
VMS 678 Epidemiology and Community Health
VP 679 Diagnostic Pathology & Special Species Medicine
VMS 680 Clinical Ophthalmology II
VMS 681 Cardiology II
VMS 682 Small Animal Emergency and Critical Care
VMS 683 Food Animal Production Medicine (once yearly)

Preceptorships
Missouri students may use free blocks as preceptorships to meet the three-month internship/preceptorship requirement of Missouri's Veterinary Medical Practice Act. Preceptorships require the signing of a log book indicating intent to spend free block time involved in actual work experience in the practice of veterinary medicine under the direct supervision of a licensed veterinarian in any state. The work experience should include, at a minimum, 360 hours of diagnosis, treatment, surgery, and practice management.

Evaluation forms are required by the Missouri Veterinary Medical Board and must be completed by the student and the supervising veterinarian at the completion of the preceptorship. The Board, not the MU College of Veterinary Medicine, has the sole discretion as to whether or not the preceptorship qualifies in lieu of a post-graduate internship. The MU College of Veterinary Medicine does not have the authority to approve the use of student free block time or the veterinarians with whom they gain experience.

Academic Regulations

Dismissal from the College on Academic Grounds
A student who receives a grade of F in any required course of the professional curriculum will be dismissed. Any student failing to remove probation in the prescribed time will be dismissed. Students on academic probation will not be permitted to graduate.

Academic Probation
Any student who receives a grade of D in any required course of the professional curriculum and whose GPA is less than 2.0 will be placed on academic probation. Probation must be removed by the end of the next two successive grading periods.

Any student whose term GPA is less than 2.0 will be placed on academic probation. Probation must be removed by the end of the next successive grading period.

Schedule and Completion of Required Courses
In the first two years, courses must be completed in sequence because they are offered only once a year.
In the final two years of the professional program, the student must successfully complete the seven required clinical blocks in the curriculum for the fulfillment of graduation requirements.

It is the prerogative of the veterinary medical faculty to determine the curriculum and to require that such lectures, demonstrations, exercises, and experiences using live animals, cadavers, or clinical patients are important, required, or necessary. To receive the DVM degree, students must pass all required courses. In addition to passing examinations, attendance and participation in all lectures, laboratories, and clinical exercises is necessary.

The doctor of veterinary medicine degree is awarded after successful completion of the professional program.

Graduate Degree and Other Advanced Study Programs

Graduate education and research are integral parts of veterinary medical training. All departments of the College offer advanced training leading to the master of science degree. The department of Veterinary Biomedical Sciences administers an Area of Physiology doctor of philosophy degree (PhD) program. The department of Veterinary Pathobiology administers an Area of Pathobiology.

Research programs in the MU College of Veterinary Medicine contribute to the advancement of science and significantly enhance the quality of professional education. Participation by students provides a clearer understanding of disease processes, methods of prevention, and treatment of diseases of animals and humans.

Members of the veterinary medical profession, because of their versatility of training, can work in a variety of research areas such as: infectious and noninfectious diseases of livestock, poultry and companion animals, zoonoses (diseases transferred from animal to human), reproductive biology, comparative anatomy, physiology, pharmacology, pathology, neoplasia, laboratory animal medicine, veterinary public health, environmental health, radiation biology, clinical research and drug evaluation, and nutritional studies.

College research projects are supported by federal grants, state funds, foundation awards and grants, contracts from industries, livestock producer association funds, and money from other groups.

Internships

Internships are available in small animal medicine and surgery and equine medicine and surgery.

Residency Programs

Residencies are available in small animal internal medicine, small animal surgery, equine medicine, equine surgery, oncology, ophthalmology, radiology, toxicology, pathology, cardiology, clinical pathology, theriogenology, neurology, and laboratory animal medicine.

Graduate Study for Veterinary Medical Students

Veterinary medical students can arrange to actively participate in research programs. In some cases, it is possible for professional DVM students to have dual enrollment for the DVM degree and the master of science degree. The general requirements for advanced degrees are published in the Graduate Catalog.

Departments establish specific requirements and will somewhat vary for individual students. Students are urged to consult with appropriate faculty about prerequisites and a special degree program. Those contemplating this program should recognize that it may require a one-year interruption of the professional curriculum or one additional year to complete the master of science degree.

Student Clubs and Special Interest Organizations

Student Chapter of the American Animal Hospital Association

The American Animal Hospital Association is a national organization designed to enhance the ability of veterinarians to provide quality medicine to companion animals, successfully conduct their practices, maintain their facilities with high standards of excellence, and meet the public's needs as they relate to animals. The student chapter sponsors monthly workshops and seminars to give students an opportunity to expand and enhance their clinical knowledge and abilities. The chapter usually meets monthly for a lunchtime seminar and an evening seminar/workshop. Meeting subjects include details on practice management, financial success in a veterinary medical practice, and how to successfully apply for an internship or residency.

Student Chapter of the American Association of Bovine Practitioners

The Bovine Club is for students who have an interest in learning about, or working with, cattle. Monthly meetings are held with various speakers talking about reproduction, nutrition, lameness, gastrointestinal problems, and other related subjects.

Bovine medicine-related field trips and hands-on wet labs are also offered throughout the year. Social gatherings and barbecues top the highlights of the Bovine Club.

Student Chapter of the American Association of Equine Practitioners

The Equine Club is a student organization with an interest in horses. This club is not just for students who plan to practice equine medicine, but for all who enjoy riding, showing, or learning more about horses. Activities include trail riding, barbecues, tours of Missouri's horse farms, and a display booth at the annual College Open House. Seminars and monthly lectures by local veterinarians and clinicians provide the student with the clinical information needed when working in the field of equine medicine.

Colic Team

The Colic Team responds to after-hours colic surgeries at the Veterinary Medical Teaching Hospital Equine Clinic. Members help care for neonatal foals that require intensive care. Each student who joins is assigned to a team; there are eight teams. Each team is on call once every eight days. An organizational meeting is held early in each academic year for those who wish to join. This is an excellent opportunity to see and learn about equine surgery.

Student Chapter of the American Association of Feline Practitioners

The Feline Club is part of a national organization that promotes awareness of the special problems and needs of cats. The club provides information on feline idiosyncrasies through monthly lectures, special projects, and public presentations. Monthly meetings are usually held on the second Tuesday of each month, but this is flexible depending on exam schedules. Officer elections are held twice a year, usually in April to elect the president and secretary-treasurer from the VM-2 class for the following year and then the following September to elect a vice president from the VM-1 class. The Feline Club is for people who want to be more effective veterinarians when dealing with America's most popular pet.
Mule Club

Jill and Shirley, the MU College of Veterinary Medicine mascot mules, have traveled far and wide representing the College. The Mule Club maintains the mules and the relationships they have established with the citizens of Missouri. No membership fee or qualifications are required to join the Mule Club. Members who wish to drive the wagon or buggy in parades must drive the practice sled five times with a VM-2 driving instructor. The club meets periodically throughout the year to exercise the mules. Meetings are held on either the first or second Tuesday of each month. Officers are elected in April or May of each year.

Raptor Rehabilitation Project

The Raptor Rehabilitation Project was founded by students to educate themselves about birds of prey, educate veterinary medical students about the husbandry and medicine of wild birds of prey, educate the public about birds of prey, and, most importantly, to treat injured raptors and return them to the wild.

Small Animal Emergency and Critical Care Team

The team is made up of second year students interested in gaining experience in the small animal intensive care unit. Students on emergency duty, once or twice a month, are asked to help out in intensive care in the afternoons (as classes permit). Rounds are usually held once a week to discuss any cases currently in ICU or emergency cases seen by the students. Seminars are held for the team on CPR, surgical gowning and scrubbing, and other interests of the team.

Student Chapter of the American Association of Zoo Veterinarians

The Zoo Club is an organization concerned with zoo medicine. The club also covers wildlife medicine, conservation, pet bird medicine, reptile and amphibian medicine, aquatic mammals, and fish medicine. There are guest speakers whose research or occupation involves these aspects of veterinary medicine. Wet laboratories are offered involving dissection, physical exam, and other hands-on projects that are not part of the required College curriculum.

PALS (Pet-Assisted Love and Support)

PALS provides training sessions to volunteers and their pets to prepare them for assisting with visitations to children's hospitals, retirement homes, and other sites where pet-assisted therapy can be advantageous to the mental, physical, and emotional well-being of people without companion animals.

Student Chapter of the American Holistic Veterinary Medical Association

The Holistic Medicine Club provides veterinary students with education opportunities in holistic veterinary medicine—alternatives to traditional methods of healing. This club sponsors lectures on a variety of topics including acupuncture, chiropractics, herbs, and homeopathy. (Note: the American Veterinary Medical Association categorizes holistic medicine as an alternative and unconventional form of medical practice).

Pre-Veterinary Medicine Club

Students engaged in pre-veterinary medical study qualify to join this club. A faculty member acts as adviser. At regular meetings, guest speakers discuss various aspects of the profession. One objective of the club is to bring about a closer fellowship among students who have a common interest in seeking admission to the MU College of Veterinary Medicine.

Honor Societies

Phi Zeta - This is a scholastic honorary society to which third and fourth year veterinary medical students may be elected.

Gamma Sigma Delta - This national organization recognizes students of the Colleges of Agriculture, Food and Natural Resources; Veterinary Medicine; Human Environmental Sciences; and the School of Natural Resources, who have shown exceptional ability during undergraduate or graduate work. It also recognizes alumni and faculty members who have rendered significant service to the cause of agricultural development.

Graduate Honor Societies - The Rollins Society is the graduate-level organization that recognizes leadership, service, and scholastic achievement.

Other Campus Activities

All students are members of the Missouri Students Association and have a voice in campus affairs. They are offered opportunities to fulfill their responsibilities to the student community through participation in a system of student self-government, with emphasis at the divisional level. There are social fraternities and sororities on campus with national affiliation.
Sections and Divisions of the College

Veterinary Biomedical Sciences

Professional Program

During the first year, students in veterinary medicine study the gross and microscopic anatomy of food-producing animals, companion animals, and selected laboratory animals. They study normal cell function, tissues, organs and body systems in physiology, and cellular and molecular biology. These studies provide the basis for understanding disease processes and the recognition and treatment of animal diseases.

First-year veterinary medical students study anatomy in laboratory exercises in gross anatomic dissection, microscopic examination of cells and tissues, and study of embryologic and neuroanatomy specimens. Laboratories in physiology provide opportunities for the student to observe and measure activity of animal organs and tissues.

During the second year, students study pharmacology, which includes actions of drugs and factors influencing the responses of animals to drugs. In the study of toxicology, the student studies disease conditions resulting from poisonous materials including plants, agricultural and industrial chemicals, feed additives, and drugs.

During the third and fourth years of the professional curriculum, the departmental faculty participate in instruction concerning nutrient requirements of domestic animals, breeding, and genetics. Applied anatomy is part of the clinical training in physical examination, clinical diagnosis, and surgery.

Graduate Program

The graduate program in Biomedical Sciences offers graduate training leading to the Doctor of Philosophy or the Master of Science degree. The program in Biomedical sciences provides in-depth, multidisciplinary training to prepare scientists in comprehensive research at the integrative, organ, cellular, and molecular levels. Individuals who successfully complete this program will have diverse backgrounds in state-of-the-art research methodologies and approaches that will make them well-rounded, competitive scientists. Departmental faculty represent a diversity of medical and related basic science disciplines. They provide a rich environment for graduate study and a unique opportunity for training scientists in comprehensive interdisciplinary research.

Department of Biomedical Sciences faculty are committed to the training of research scientists. The research activities of the department address biomedical issues that have a critical impact on health problems of people and animals. Well-developed research programs evaluate cellular, molecular, and organismal aspects of biomedical problems. Current faculty interests include cardiovascular science, membrane transport, neurohumoral regulation, and reproductive endocrinology.

Departmental faculty maintain research laboratories in the College of Veterinary Medicine and the Dalton Cardiovascular Research Center. State-of-the-art techniques and equipment are used for analysis of biomedical questions at the whole animal, organ, cellular, and molecular levels.

The course curriculum centers on the strategy of developing, in the student, a multidisciplinary understanding of biomedical research. Core courses include physiology, cell biology, and multidisciplinary approaches to biomedical research. Students also take a minimum of one additional course in each of the areas of molecular biology, cellular biology, and integrative biology.

Veterinary Pathobiology

Professional Program

Courses offered in the microbiology section provide instruction on special properties of pathogenic microorganisms, the host response to invading microorganisms, and techniques for isolation and identification of microorganisms. Special emphasis is placed on the transmission, prevention and control of infectious and parasitic diseases, veterinary community health, epidemiology, and immunology. Lectures, laboratory periods, special demonstrations, special projects, computer-assisted programs, and problem-based programs are offered.

The primary function of the veterinary pathology section is to teach professional courses in morphologic and biochemical alterations which form the basis for changes that occur in tissues and fluids of diseased animals. The teaching is conducted in formal and applied courses. Second year veterinary medical students study general, systemic and special pathology, veterinary clinical pathology, laboratory animal medicine in lecture, and courses in computer-assisted and problem-based programs. The extensive and varied case loads in clinical pathology and Veterinary Medical Diagnostic Laboratory programs are used as teaching resources during the third and fourth years of the professional curriculum.

Graduate Program

The department offers a graduate program leading to the master of science degree in biomedical sciences with a specialization in veterinary pathobiology and laboratory animal medicine. For admission, the candidate should have completed the DVM or an acceptable baccalaureate degree. Parts I, II, and III of the GRE must be taken before entering Graduate School. Students should rank in the upper third of their class. Further details for requirements of the degree are listed in the Graduate Catalog available through the Graduate School, 205 Jesse Hall, Columbia, Mo. 65211.

The PhD program in the area of pathobiology is presented by faculty in the departments of Pathology in the School of Medicine and Veterinary Pathobiology in the MU College of Veterinary Medicine. PhD candidates may choose their research areas to take advantage of the interests and specialties of advisers in the departments. Research is conducted in areas such as morphologic alterations in response to disease, ultra-
structural and histochemical changes, clinical chemistry, molecular biology, and pathology, all of which are related to host-agent interrelationships in the pathogenesis of disease. Included in these studies are food animals, companion animals, laboratory animals, and some exotic or wild animals.

Veterinary Medical Diagnostic Laboratory

The Veterinary Medical Diagnostic Laboratory is interdisciplinary, with responsibility for diagnostic service, teaching, continuing education, extension, and research. Two blocks of instruction titled Diagnostic Pathology and Special Species Medicine I and II are offered.

Students conduct necropsy examinations under the supervision of faculty and learn interpretation of laboratory tests such as bacteriologic culturing, serological tests, viral isolation, and parasitological, histopathological, and toxicologic examinations. Students also are assigned to the clinical pathology laboratory in the Veterinary Medical Teaching Hospital to learn to conduct and interpret clinical pathology tests. Graduate students in pathology and related disciplines receive part of their graduate experience in the diagnostic laboratory.

The laboratory is a valuable training resource through its daily access to disease conditions in more than 60 different animal species. Approximately 40,000 accessions are received by the laboratory annually, including 1,500 specimens for necropsy, and a variety of disease specimens for examination by virologists, bacteriologists, serologists, toxicologists, chemists, and clinical pathologists.

Laboratory faculty members have appointments in the academic department of their specialty and have advanced training in the disciplines of pathology, clinical pathology, bacteriology, mycology, virology, parasitology, serology, and toxicology. The faculty of the diagnostic laboratory also consult with other faculty members of the College and MU scientists on a variety of disease problems encountered.

Various services are performed in the laboratory for clinicians of the Veterinary Medical Teaching Hospital, veterinary medical practitioners throughout Missouri, livestock and poultry interests, companion animal interests, wildlife conservationists, scientists utilizing animals in their research throughout the University, and state and federal animal disease regulatory officials. The laboratory is accredited by the American Association of Veterinary Laboratory Diagnosticians as a full-service veterinary medical diagnostic laboratory.

Veterinary Medicine and Surgery

Professional Program

During the third and fourth clinical years of the professional curriculum, students learn to combine the art and science of clinical veterinary medicine and surgery. Two didactic blocks in the VM-3 year provide instruction in clinical subjects not addressed earlier. Practical application of basic principles of medicine and surgery to diagnosis, prevention, and treatment of disease in all animals presents a challenge to the student's mental and physical resources.

Proficiency in clinical medicine is gained by working closely with experienced clinicians in the small animal, food animal, equine, and ambulatory areas of the Veterinary Medical Teaching Hospital. Through the patient-care method of study, professional students are given considerable responsibility for the total health requirements of animals assigned to their care. Discussion periods, formal lectures, rounds, and laboratory training guide the clinical student's progress in systematic medicine and surgery. Broad exposure to clinical practice is gained through curriculum design.

In addition to the required clinical rotations involving care for a spectrum of domestic species, a number of elective experiences are also part of the clinical curriculum.

Graduate Program

Programs exist in the specialty areas of comparative cardiology, embryo transfer, neurology, oncology, ophthalmology, radiology, small and large animal medicine, small and large animal surgery, and theriogenology. Completion of the DVM degree (or its approved equivalent) is a prerequisite for admission to the master of science degree program. A minimum of 30 credit hours from graduate courses must be completed for the master's degree. An acceptable thesis, based upon original research, is required for all degree candidates. Completion of degree requirements must be approved by the student's advisor, director of graduate studies and department chair.

Laboratory Animal Medicine Area Program

The post-doctoral (post-DVM) program meets the training requirements for eligibility for the American College of Laboratory Animal Medicine (ACLAM) certification examination and prepares graduates for research and service careers in the specialty of laboratory animal medicine.

Acceptance for advisement requires a DVM or equivalent from an accredited college of veterinary medicine or successful completion of the foreign equivalency examination and approval by the Laboratory Animal Medicine Area Program (LAMAP) faculty. In addition, applicants must meet standards for admission to the Graduate School.
Degree Requirements: The LAMAP emphasizes comparative medicine research training and includes graduate course work and residency rotations. In the first year of training, each post-doctoral fellow spends six months in each of the following rotations: diagnostic laboratory animal pathology and microbiology in the Research Animal Diagnostic and Investigative Laboratory (RADIL) and clinical medicine and animal resource management in the Office of Laboratory Animal Medicine (OLAM). The remaining two or three years of the training time are spent with roughly 80 percent devoted to research training under an established investigator and 20 percent in residency in RADIL or OLAM. Throughout the program, fellows participate in laboratory animal teaching and instructional programs offered to veterinary medical students and research personnel.

The MS degree requires the completion of a significant manuscript suitable for publication in a refereed journal, or an approved equivalent scholarly effort. Requirements for elective course work, residency, and teaching experience are determined with the student's advisory committee.

The program offers considerable exposure to administration and operation of laboratory animal resource units under the direction of ACLAM diplomates. This, besides a solid didactic program and research experience, prepares graduates for a variety of laboratory positions in academia and industry. Trainees desiring to change to a PhD program have opportunities to do so in a variety of programs including pathobiology and physiology.

Required graduate courses include pathology of laboratory animals, methodology of animal experimentation, biology of laboratory animals, laboratory animal resource management, statistics and seminars. Elective courses frequently taken by trainees include immunology, biochemistry, mechanisms of disease, molecular biology, and virology. Research typically deals with the application of an animal model in the investigation of human diseases or the study of naturally occurring diseases of laboratory animals.

**Veterinary Medical Extension and Continuing Education**

MU Outreach and Extension serves the people and institutions of the state. Veterinary medical extension faculty and staff interact with College faculty and the university community to plan and deliver educational programs.

Veterinary Medical Extension provides opportunities for continuing education for practicing veterinarians and the general public. The objective is to increase the professional competence of veterinarians and improve the quality of veterinary medicine.

Continuing professional education activities include articles in newsletters, guides, seminars, and short courses. A mid-career program is conducted to give in-depth individualized training in special areas to practicing veterinarians or those veterinarians changing their focus.

Veterinary Medical Extension works in conjunction with their Extension colleagues throughout the state to acquaint owners of food producing and companion animals to current medical services and principles of preventive medicine. Information regarding disease problems is presented to animal owners and allied interest groups in several ways, including phone consultation, field investigative visits, seminars, and newsletters. Group meetings on general subjects are requested by, or scheduled through, area and state extension specialists. Participants are encouraged to ask questions and to relate their experiences and problems. Local practicing veterinarians also are invited to attend and participate in these programs. Veterinary Medical Extension strives to provide the practicing veterinarian and general public with the latest information available.
Veterinary Biomedical Sciences

Veterinary Pathobiology

Veterinary Medicine and Surgery

Department Courses and Faculty
 Veterin ary Biomedical Sciences

200  Problems (cr. arr). Assignment of problems for training in research.

219  Elements of Veterinary Anatomy (3). For agricultural and other students desiring basic knowledge of anatomical terminology and the comparative functional anatomy (developmental, microscopic, and gross) of domestic animals. Prerequisite: five hours of biological sciences (zoology) or equivalent.

222  Fundamentals of Animal Physiology (3). For students not enrolled in the professional veterinary medicine curriculum. Relationship of structure and function in common domestic animals. Study of intercellular material, cells, tissues, organs, and systems.

300  Problems (cr. arr). Assignment of special problems or topics for training in research.

302  Cytology, Histology, and Organology of Domestic Animals I (3). Detailed study of the structure and function of the cell, basic tissues (epithelium, connective tissue, muscle, nervous tissue), and several organ systems (cardiovascular, lymphatic, integument, digestive, visual, auditory) of domestic mammals and birds. Prerequisites: graduate standing, background in biological sciences, and instructor's consent.

303  Cytology, Histology, and Organology of Domestic Animals II (2). Detailed study of the liver, gallbladder, pancreas, urinary system, respiratory system, endocrine glands, female reproductive system, placenta, male reproductive system, and integument (hoof and claw) of domestic animals and birds. Prerequisites: 302 and instructor's consent.

307  Embryology and Development of Domestic Animals (2). Developmental anatomy of domestic animals. Special written report or review required. Prerequisites: background in biological sciences and departmental consent.

311  Canine Dissection (6). Study of gross anatomy of the dog by lecture, dissection, and discussion. Special written report or review required. Prerequisites: background in biological sciences and departmental consent.

312  Anatomy of Common Domestic Animals (5). Gross anatomy of horse, ox, sheep, pig, cat, chicken; comparative anatomy with particular attention to areas of veterinary medical importance. Special written report or review required.

326  Veterinary Pharmacology (3). General principles of pharmacodynamics in domesticated animals.

327  Principles of Physiologic Adaptation (3). Physiologic mechanisms in individual mammals in coping with acute and chronic alterations in the physical environment. Pressure, temperature, gravity, and radiation considered. Prerequisites: four hours of vertebrate physiology or physiological zoology and five hours of chemistry, or instructor's consent.

328  Principles of Toxicology (3) (same as Pharmacology 328).

333  Veterinary Cell Biology (4) (same as VBS 506 Veterinary Cell Biology). Course material stresses cell biology as related to animal health and medical issues.

400  Problems (cr. arr). Selected problems and topics for advanced study in special areas to meet needs of individual students.

405  Membrane Structure and Function (3). The structure and function of biological membranes is examined from a biochemical perspective. Topics include membrane proteins, transport, membrane biogenesis, and analytical techniques. Prerequisites: 303 or equivalent, graduate standing, and instructor's consent.

409  Advanced Microscopic Anatomy (cr. arr). Advanced microscopic study of selected topics in vertebrate microscopic anatomy. Special report required. Prerequisite: departmental consent.

410  Seminar (1). Presentation and discussion of investigations and topics in veterinary anatomy, physiology, or related fields, by qualified students, instructors, and guests. Prerequisite: departmental consent.

418  Correlative Neuroanatomy (4). Comprehensive study of neuroanatomy of common domestic and laboratory animals. Prerequisite: graduate standing or instructor's consent.

420  Veterinary Physiology (5). Systematic physiology for graduate students with primary interest in animals other than man. Function of nerve, muscle, circulatory, renal, and respiratory systems. Prerequisites: Biochemistry 270 and 272.

421  Veterinary Physiology (5). Continuation of 420. Digestion, excretion, endocrinology, and reproduction.

425  Microvascular Circulatory Function (3). An in-depth study of microcirculatory structure and function in various tissues, with emphasis on recent developments in the understanding of the mechanisms involved in nutrient supply, edema formation, lymphatic function, and fluid balance. Prerequisites: Veterinary Physiology 420 and 421 or Mammalian Physiology 305 or equivalent.

427  Fate of Drugs in the Animal Body (2) (same as Pharmacology 427). Principles concerned with absorption, distribution, excretion, and biotransformation of drugs. Prerequisites: ten hours of physiology, five hours of pharmacology, and five hours of biochemistry.

434  Advanced Clinical Pathology (2) (same as Animal Sciences 434, Gonadal Function). Survey of current and in-depth mechanisms involved in ovarian, testicular, and epididymal function. Emphasis will be given to comparative differences in gonadal functions among domestic animals. Prerequisites: AnSc304 (Physiology of Reproduction) or equivalent, a course in endocrinology, and biochemistry or cell biology.

450  Research (cr. arr). Open to graduate students with requisite preparation. Research expected to be presented as a thesis.

490  Research (cr. arr). Open to graduate students with requisite preparation. Research expected to be presented as a thesis.

Veterinary Pathobiology

100  Pathobiology of Disease (3). Disease causes and mechanisms. Prerequisite(s): Biology 1 & 2, Chemistry 15.

200  Problems (cr. arr). Assignment of special topics for research training in veterinary pathobiology. Prerequisite(s): instructor's consent.

210  Parasitology (4). Parasitism is considered a fundamental type of interspecies interaction. Principles of parasitism that apply to animals are presented with emphasis on parasitic morphology, biology, and host-parasite relationships. Prerequisite(s): 8 hrs. of biology.
**Animal Sanitation and Disease Prevention** (3). Preventative measures for diseases and parasites of farm animals. Prerequisite(s): Veterinary Biomedical Sciences 219 or 222.

**Problems (cr. arr.)**. Prerequisite(s): DVM and departmental consent.

**Techniques in Pathology** (cr. arr.). Methods and techniques in fixing, preparing, and staining pathological specimens.

**Veterinary and Human Parasitology** (4). Protozoa and helminths of veterinary and human importance; three one-hour lectures, one two-hour lab each week. Advanced undergraduate or graduate standing in biological, veterinary or medical sciences. Prerequisite(s): Biological Sciences 210 or equivalent and instructor’s consent.

**Clinical Epidemiology and Environmental Health** (1-10). Ecologic basis of health and disease and cause-effect relationships. Evaluation of control programs. Includes epidemiology of important acute and chronic animal diseases. Prerequisite(s): enrollment in a professional medical, dental or public health curriculum.

**Topics (cr. arr.)**. Courses with lectures in various topics in veterinary pathobiology will be given on a trial basis, depending on faculty expertise and student demand. Credit hours are usually one or three. Specialized topics will be covered. Prerequisite(s): instructor’s consent.

**Seminar (1)**. Discussion of current research methods in veterinary pathology and AFIP case studies.

**Seminar in Histopathobiology** (1). Discussion of current research and/or case studies in pathology of diseases of domestic animals, laboratory animals and avian species. Team taught.

**Advanced Epidemiology** (3).

**Comparative Pathology** (3). Biochemical and morphologic lesions related to the mechanisms of disease expression in plants and animals.

**Advanced Veterinary Pathology** (1-5). Specific assignments on diagnostic methods including surgical pathology, necropsies, toxicology. Prerequisite(s): departmental consent.

**Advanced Histopathology** (5). Advanced microscopic studies of pathological tissues. Prerequisite(s): departmental consent.

**Veterinary Oncology** (2). History and molecular biology of neoplasia; laboratory for discussion of practical aspects of diagnosis. Prerequisite(s): graduate standing and instructor’s consent.

**Advanced Clinical Pathology** (4). Lecture/tutorial teaching: pathogenesis of clinical abnormalities with emphasis on abnormal clinical laboratory test results. Lab: recognition and pathogenesis of abnormalities found via microscopic or other clinical laboratory analysis. Prerequisite(s): departmental consent.

**Pathogenic Mechanisms in Veterinary Pathobiology** (3). This course will include disease mechanisms, described at the cellular and molecular level, which result in tissue morphologic (gross and microscopic) and clinical abnormalities. Examples of discussion topics include soluble mediators of inflammatory processes, host-agent interactions, and host defense mechanisms. Prerequisite(s): DVM degree and instructor’s consent.

**Pathology of Laboratory Animals** (4). Gross and microscopic study of spontaneous and naturally occurring diseases in laboratory animals. Prerequisite(s): departmental consent.

**Primatology** (3). Diseases and pathology of primates. Prerequisite: departmental consent.

**Topics in Veterinary Pathobiology** (1-3). Subjects appropriate to veterinary pathobiology or epidemiology, taught on a one-time basis or infrequently. May include highly specialized topics. Specific course must be approved by departmental faculty. Prerequisite(s): graduate standing and instructor’s consent.

**Advanced Veterinary Pathogenic Bacteriology** (3). Study of pathogenic bacteria causing animal disease. Pathogenic mechanisms and host-parasite relationships are emphasized. Laboratory procedures for isolation and identification of pathogens are included. Prerequisite(s): graduate standing and instructor’s consent.

**Viral Infection and Immunity** (3). Study of virus infection at the level of the intact animal. Includes immunology of domestic animal species. Prerequisite(s): graduate standing and instructor’s consent.

**Advanced Veterinary Parasitology** (3). Parasitic diseases of domestic and exotic animals and those of public health significance. Prerequisite(s): one course in general parasitology and graduate standing.

**Advanced Immunology and Immunopathology** (3). Study of the immune system at the level of the intact animal. Includes a discussion of immunity-infectious diseases. Prerequisite(s): Microbiology 304 (Immunology), graduate standing and instructor’s consent.

**Oncogenic Animal Viruses** (3). Biology of RNA and DNA containing animal tumor viruses and their in vitro and in vivo interactions with host cells. Prerequisite(s): 343 or Microbiology 405, or equivalent, general biochemistry or instructor’s consent.

**Molecular Methods in Nucleic Acids** (3). The course focuses on the most recent developments in technology related to eukaryotic and prokaryotic molecular biology such as analysis and manipulation of nucleic acids and their application to define structure, function, and biosynthesis of macromolecules. Prerequisite(s): instructor’s consent.

**Non-Thesis Research (cr.arr.)**. Research not expected to terminate in dissertation.

**Electron Microscopy** (4). Lecture class that describes the use of electron microscopy (transmission and scanning) in biomedical research. Students receive hands-on experience by completing a laboratory project.

**Laboratory Animal Biology** (4). Taxonomy, anatomy, physiology, nutrition and behavior of laboratory animals including non-human primate and less common species are covered. Genetics, gnotobiology, housing and production are also presented. Prerequisite(s): instructor’s consent.

**Thesis Research (cr.arr.)**. Open to graduate students with requisite preparation. Research on specific animal diseases, prevention and treatment. Graded on a S/U basis only.

**Professional and Public Relations** (1). Instructional period 5.

**Veterinary Immunology** (3). Instructional periods 4 and 5.

**Veterinary Bacteriology I (2.5)**. Instructional period 5.

**Veterinary Bacteriology II (3)**. Continuation of 552. Instructional period 6.

**Veterinary Virology** (3). Instructional periods 6 and 7.

**Introduction to Epidemiology and Biostatistics** (2). Instructional period 4.

**Veterinary Parasitology I (2.5)**. Instructional period 5.

**Veterinary Parasitology II (3)**. Continuation of 556. Instructional period 6.
Veterinary Medicine and Surgery

300 Problems (cr. arr.).

301 Advanced Topics in Emergency and Critical Care (cr. arr.).

302 Topics (cr. arr.).

303 Advanced Topics in Veterinary Anesthesia (1).

304 Advanced Equine Surgery (2).


328 Introductory Radiation Biology (3). Same as Nuclear Engineering 328, Radiology 328, Biological Sciences 328. Prerequisite: junior standing sciences/engineering; one course in biological sciences and physics/chemistry; or instructor's consent.

351 Advanced Surgical Techniques (cr. arr.). Prerequisite: DVM

355 Advanced Techniques in Radiology (cr. arr.). Prerequisite: DVM

400 Problems in Veterinary Clinical Sciences (1-3).

401 Topics in Clinical Veterinary Sciences (1-3).

402 Seminars in Veterinary Clinical Sciences (1).


402B Internal Medicine Clinicopathologic Conference (1).

402C Internal Medicine Journal Review (1).

402D Medicine-Surgery-Pathology Conference (1).


402H Cardiovascular Medicine Journal Review (1).

402I Emergency and Critical Care Journal Review (1).


405 Comparative Respiratory Pathophysiology (1).

410 Veterinary Medicine and Surgery Research Seminar (1).

411 Clinical Veterinary Endocrinology (2). Graduate standing required.

413 Equine Internal Medicine (2). Graduate standing required.

415 Advanced Veterinary Internal Medicine-Neurology (2). Graduate standing required.

416 Advanced Veterinary Internal Medicine-Cardiovascular Medicine (3). Graduate standing required.

417 Advanced Veterinary Internal Medicine-Oncology (2).

418 Advanced Veterinary Internal Medicine: Food Animal Medicine (2).

421 Advanced Veterinary Surgery: Small Animal Surgery (2-4).

425 Advanced Veterinary Surgery: Equine Surgery (2-4).

426 Advanced Veterinary Surgery-Ophthalmic Surgery (2-4).

430 Medical Informatics (3). Same as HSM 430 Computer Applications in Health Services.

431 Research Methods and Data Analysis (2-4).

435 Veterinary Clinical Sciences: Clinical Immunology (2).

436 Veterinary Clinical Sciences: Clinical Pharmacology (1).

437 Advanced Topics in Veterinary Medicine (Nuclear Medicine) (1). Graduate standing required.

439 Advanced Veterinary Ultrasonography (2-3).

440 Advanced Veterinary Clinical Sciences-Advanced Clinical Ophthalmology (1-3).

445 Veterinary Critical Care and Emergency Medicine (2-3).

450 Research (cr. arr.).

487 Nuclear Medicine (3). Prerequisite: one year college physics, DVM degree, and departmental consent.

488 Radiation Therapy (3). Prerequisite: one year college physics, DVM degree, and departmental consent.

490 Research (cr. arr.).

600 Problems (cr. arr.).

602 Radiology (2). Instructional period 8.

603 Veterinary Anesthesiology (2). Instructional period 9.


605 Small Animal Medicine (2.5). Instructional period 10.


607 Small Animal Surgery (2.5). Instructional period 10.


609 Small Animal Critical Care (1). Instructional period 10.

610 Equine Medicine and Surgery (3). Instructional period 11.

611 Theriogenology (3). Instructional period 11.

612 Veterinary Ophthalmology (1). Instructional period 11.


641 Small Animal Medicine I (6). Six times per year.

642 Equine Medicine and Surgery I (6). Six times per year.

643 Small Animal Surgery I (6). Six times per year.

644A Clinical Radiology I (3). Twelve times per year.

644B Clinical Anesthesiology I (3). Twelve times per year.

645 Theriogenology I (2). Eighteen times per year.

646 Clinical Ophthalmology I (2). Eighteen times per year.

648 Cardiology I (2). Eighteen times per year.


671 Small Animal Medicine II (2-6). Prerequisite: 641.

672 Equine Medicine and Surgery II (2-6). Continuation of 642.

673 Small Animal Surgery II (2-6). Prerequisite: 643 or equivalent.

674A Clinical Radiology II (2-6). Continuation of 644A.

674B Clinical Anesthesiology II (2-6). Continuation of 644B.

675 Theriogenology II (2-6). Continuation of the prerequisite 645.

676 Laboratory Animal Medicine and Management II (2-6).

677 Herd Health Management and Nutrition II (2-6). Prerequisite: 640 and VM-4 status.

680 Clinical Ophthalmology II (2-6).

681 Cardiology II (2-6).

682 Small Animal Emergency and Critical Care (2-6).

683 Food Animal Production Medicine (2-6).

699 Electives in Medicine or Surgery (cr. arr.). Instructional period 11.

Note: Graduate standing required for all 400 level courses.
### August-October

<table>
<thead>
<tr>
<th>VM-1 Period 1</th>
<th>VM-2 Period 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>VBMS 500 Veterinary Anatomy (Part 1)</td>
<td>2.5 VM 553 Veterinary Bacteriology</td>
</tr>
<tr>
<td>VBMS 502 Veterinary Microscopic Anatomy (Part 1)</td>
<td>1.5 VM 554 Veterinary Virology (Part 1)</td>
</tr>
<tr>
<td>VBMS 504 Veterinary Physiology (Part 1)</td>
<td>3.0 VM 557 Veterinary Parasitology</td>
</tr>
<tr>
<td>VBMS 506 Vet. Cellular &amp; Molecular Biology (Part 1)</td>
<td>2.0 VP 576 Veterinary Systemic &amp; Special Pathology</td>
</tr>
</tbody>
</table>

#### VM-3 Period 11
- VMS 610 Equine Medicine and Surgery 3.0
- VMS 611 Theriogenology 3.0
- VMS 612 Veterinary Ophthalmology 1.0
- Electives 1-2

### October-December

<table>
<thead>
<tr>
<th>VM-1 Period 2</th>
<th>VM-2 Period 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>VBMS 500 Veterinary Anatomy (Part 2)</td>
<td>2.5 VBMS 507 Veterinary Pharmacology</td>
</tr>
<tr>
<td>VBMS 502 Veterinary Microscopic Anatomy (Part 2)</td>
<td>1.5 VM 554 Veterinary Virology (Part 2)</td>
</tr>
<tr>
<td>VBMS 504 Veterinary Physiology (Part 2)</td>
<td>3.0 VM 558 Veterinary Preventive Med, Zoonoses, Meat Hyg.</td>
</tr>
<tr>
<td>VBMS 506 Vet. Cellular &amp; Molecular Biology (Part 2)</td>
<td>2.0 VP 577 Veterinary Systemic &amp; Special Pathology</td>
</tr>
</tbody>
</table>

#### VM-3 Period 12
- VMS 684 Fundamentals of Veterinary Business Management 3.0

### January-February

<table>
<thead>
<tr>
<th>VM-1 Period 3</th>
<th>VM-2 Period 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>VBMS 501 Veterinary Anatomy (Part 1)</td>
<td>4.0 VBMS 508 Veterinary Pharmacology</td>
</tr>
<tr>
<td>VBMS 503 Veterinary Microscopic Anatomy</td>
<td>2.0 VP 578 Veterinary Clinical Pathology</td>
</tr>
<tr>
<td>VBMS 505A Gastrointestinal Physiol. &amp; Nutrition</td>
<td>3.5 VMS 601 Laboratory Animal Medicine</td>
</tr>
<tr>
<td>VM 557 Veterinary Immunology (Part 1)</td>
<td>1.5 VMS 602 Veterinary Radiology</td>
</tr>
<tr>
<td>VM 555 Introduction to Epidemiol. &amp; Biostatistics</td>
<td>2.0 VMS 606 Small Animal Surgery</td>
</tr>
</tbody>
</table>

### March-April

<table>
<thead>
<tr>
<th>VM-1 Period 4</th>
<th>VM-2 Period 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>VBMS 501 Veterinary Anatomy (Part 2)</td>
<td>4.0 VBMS 509 Veterinary Toxicology</td>
</tr>
<tr>
<td>VBMS 505B Veterinary Endocrinol. &amp; Reprod. Biology</td>
<td>2.0 VMS 603 Veterinary Anesthesiology</td>
</tr>
<tr>
<td>VM 551 Veterinary Immunology</td>
<td>1.5 VMS 604 Companion Animal Medicine</td>
</tr>
<tr>
<td>VM 555 Introduction to Epidemiol. &amp; Biostatistics</td>
<td>2.0 VMS 606 Small Animal Surgery</td>
</tr>
</tbody>
</table>

### May-June

<table>
<thead>
<tr>
<th>VM-2 Period 5</th>
<th>VM-3 Period 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>VM 551 Veterinary Immunology (Part 2)</td>
<td>1.5 VMS 605 Small Animal Medicine</td>
</tr>
<tr>
<td>VM 552 Veterinary Bacteriology</td>
<td>2.5 VMS 607 Small Animal Surgery</td>
</tr>
<tr>
<td>VM 556 Veterinary Parasitology</td>
<td>2.5 VMS 608 Food Animal Medicine &amp; Surgery</td>
</tr>
<tr>
<td>VP 575 General Veterinary Pathology</td>
<td>3.0 VMS 609 Small Animal Critical Care</td>
</tr>
</tbody>
</table>

### July-August: VM-2 and VM-3 Vacation

The remainder of the VM-3 and all of the VM-4 years consist of 7 required 6-week clinical rotations:
1. Food Animal Medicine/Surgery
2. Equine Medicine/Surgery
3. Small Animal Surgery
4. Small Animal Medicine
5. Pathology
6. Medical Services: Anesthesiology, Radiology
7. Specialty mini-rotations: Cardiology, Theriogenology, Ophthalmology

In addition to the required rotations, each student must take 2 rotations in 6 week electives.

Each student is also scheduled 3 free rotations of 6 weeks duration which are usually used as preceptorship time.

The sequence of rotations is different for each student. Sequences are chosen by students in the VM-2 year after a lottery to determine who has priority in their choice of rotation sequence.
Faculty

**Veterinary Biomedical Sciences**

M. Harold Laughlin, PhD, professor and chair; professor, department of physiology, School of Medicine; research investigator, Dalton Cardiovascular Research Center (DCRC)
Ronald L. Terjung, PhD, professor and associate chair; professor, department of physiology, Medicine; research investigator, DCRC
Frank Booth, PhD, professor; research investigator, DCRC; professor, department of physiology, School of Medicine
Douglas K. Bowles, PhD, assistant professor; research investigator, DCRC
Lane L. Clarke, DVM, PhD, associate professor; research investigator, DCRC
Gheorghe M. Constantinescu, DVM, PhD, Dr.h.c., professor
Ileana A. Constantinescu, DVM, MS, clinical instructor
John R. Dodam, DVM, PhD, assistant professor; assistant professor, department of veterinary medicine and surgery
Brian L. Frappier, DVM, PhD, clinical associate professor
Venkataashu K. Ganjam, B.S., DVM, PhD, professor; research investigator, DCRC
Calvin C. Hale, PhD, associate professor; research investigator, DCRC
Marc T. Hamilton, PhD, assistant professor
Eileen M. Hasser, PhD, associate professor and director of graduate studies; research investigator, DCRC
Meredith Hay, PhD, associate professor; research investigator, DCRC
Cheryl M. Heesch, PhD, associate professor; research investigator, DCRC
Lynelle R. Johnson, DVM, Research assistant professor
Elmer M. Price, PhD, associate professor; research investigator, DCRC
Chada S. Reddy, BVSc., PhD, associate professor
Leona J. Rubin, PhD, associate professor; research investigator, DCRC
James C. Schadt, PhD, associate professor; research investigator, DCRC
Simon H. Slight, PhD, research assistant professor
Richard W. Tsika, PhD, associate professor; research investigator, DCRC; associate professor, department of biochemistry
Wade V. Welshons, PhD, associate professor
Steve HT Yang, PhD, research associate professor

**Adjunct Faculty**

C. Trenton Boyd, BS, MA, librarian; adjunct assistant professor
Virginia H. Huxley, PhD, adjunct professor; professor, department of physiology, School of Medicine
Gary S. Johnson, DVM, MS PhD, adjunct associate professor; associate professor, department of veterinary pathobiology
George E. Rottinghaus, PhD, adjunct associate professor; associate professor, Veterinary Medical Diagnostic Laboratory
Colette Wagner-Mann, DVM, MS PhD, adjunct assistant professor; assistant professor, cardiothoracic surgery, School of Medicine

**Emeriti Faculty**

Esther M. Brown, PhD, professor emeritus
Roger E. Brown, PhD, professor emeritus
Homer E. Dale, DVM, PhD, professor emeritus

**Veterinary Pathobiology**

Gerald M. Buening, DVM, PhD, interim chairman, professor and associate dean for research and postdoctoral studies
Gary K. Allen, DVM, PhD, assistant professor
Brenda T. Beernsten, PhD, assistance professor
John N. Berg, DVM, PhD, professor
Alex J. Bermudez, DVM, MS, associate professor
Cynthia L. Besch-Williford, DVM PhD associate professor
Charles R. Brown, PhD, assistant professor
C. Andrew Carson, VMD, MS, PhD, professor; director WHO Collaborating Center for Enteric Zoonoses
Stan W. Casteel, DVM, PhD, associate professor
D. Mark Estes, PhD, associate professor
William H. Fales, PhD, professor
Craig L. Franklin, DVM, PhD, associate professor
Harvey S. Gosser, DVM, PhD, professor and director of Veterinary Medical Diagnostic Laboratory
Theodore J. Green, PhD, associate professor
Gary S. Johnson, DVM, PhD, associate professor and director of graduate studies
Gayle C. Johnson, DVM, PhD, associate professor
Mary Kennett, DVM, PhD, clinical assistant professor
Steve Kleiboeker, DVM, PhD, assistant professor
John M. Kreeger, DVM, PhD, associate professor
Robert Livingston, DVM, PhD, clinical assistant professor
J. Zachary March, BS, MEd, instructor
Antoinette Marsh, PhD, research assistant professor
Ronald McLaughlin, DVM, MS, professor and director of MU Office of Laboratory Animal Medicine
Margaret A. Miller, DVM, PhD, associate professor
William J. Mitchell, DVM, PhD, assistant professor
Lanny W. Pace, DVM, PhD, associate professor
Jose Ramos-Vara, DVM, PhD, clinical assistant professor
Alpana Ray, PhD, research assistant professor
Bimal K. Ray, PhD, associate professor
Lela K. Riley, PhD, professor and director of RADIL
Audrey Rottinghaus, MS, instructor
Heide Schatten, PhD, associate professor
Michael Scott, DVM, PhD, assistant professor
Earl K. Steffen, PhD, research assistant professor
Steven L. Stockham, DVM, MS, associate professor
Larry P. Thornburg, DVM, PhD, associate professor
James G. Thorne, DVM, PhD, MPVM, associate professor
James R. Turk, DVM, PhD, associate professor
Susan E. Turnquist, DVM, PhD, clinical assistant professor
Joseph E. Wagner, DVM, PhD, MPH, curators’ professor
Guang-Quan Zhao, MD, PhD, assistant professor

**Adjunct Faculty**

William J. Boever, DVM, adjunct assistant professor
Mary Clare Duncan, adjunct research assistant professor
P. E. Phillips, DVM, adjunct assistant professor
R. Michael Roberts, PhD, adjunct professor
E. Thomas Satalowich, DVM, adjunct professor
Barry Stuart, DVM, PhD, adjunct professor

**Emeriti Faculty**

Hans K. Adldinger, DVM, PhD, professor emeritus
John N. Berg, DVM, PhD, professor emeritus
Harry H. Berrier, DVM, MS, associate professor emeritus
Donald C. Blended, DVM, MS, professor emeritus
Robert M. Corwin, DVM, PhD, professor emeritus
Willard H. Eyestone, DVM, PhD, professor emeritus
Theodore Green, PhD, associate professor emeritus
Reuel R. Hook, PhD, professor emeritus
Robert Kahrs, DVM, PhD, professor and dean emeritus
Loren D. Kintner, DVM, MS, professor emeritus
Ronald McLaughlin, DVM, MS, professor emeritus
Lawrence G. M Orchouse, DVM, PhD, professor emeritus
Bonnard M oseley, DVM, MS, associate professor emeritus
Stuart Nelson, DVM, PhD, professor emeritus
LeRoy D. Olson, DVM, PhD, professor emeritus
Donald Rodabaugh, DVM, MS, professor emeritus
Bruce D. Rosenquist, DVM, PhD, professor emeritus
Donald A. Schmidt, DVM, PhD, profes sor emeritus
Robert F. Solorzano, MS, PhD, professor emeritus
James G. Thorne, DVM, PhD, MPVM, professor emeritus
Joseph E. Wagner, DVM, PhD, MPH, professor emeritus

Residents, Postdoctoral Fellows, and Research Associates

Antonio Alvarez, DVM, MS
Beth Bauer, DVM, MS
Catherine Beckwith, DVM
Roy Berghaus, DVM
Magalie Boucher, DVM
D. Bart Carter, DVM
Anindita Chakraborty, MS
Yaxiong (Michael) Chen, MS
Jennifer Criley, DVM, MS
Tim Evans, DVM, MS
Amirah Fard, BS
Lillian Folk, BSBA
Qing-Tao Guo, BA
Nicole Holloway, BS
Aric Krogstad, DVM
Christie M. Loiacono, DVM
Qi zhi Luo, BMed
Matt Myles, DVM
Sasha Naugler, DVM
Melissa Nevis, BS
Michelle O’Gara, DVM
Lisa Pompos, DVM
Joc Simmons, DVM
Ruth Smith, PhD
Qing Yuan Sun, PhD
Naomi Taus, PhD
Pierre Trottier, DVM
Yii-Dih Tsai, MA
Cho-Hua Wan, DVM
Shuzong Wang, BS
Yuhua Xiao, BMed
Ying Ying, PhD
Guang-Yao Yu, PhD

Veterinary Medical Diagnostic Laboratory

Harvey S. Gosser, DVM, PhD, professor of veterinary pathobiology; director, Veterinary Medical Diagnostic Laboratory
Alex J. Bermudez, DVM, MS, associate professor of veterinary pathobiology, diplomate, ACVP
Stan W. Casteel, DVM, PhD, associate professor of veterinary pathobiology; diplomate ABVT
Jennifer J. Donald, DVM, PhD, temporary instructor in veterinary pathobiology

William H. Fales, PhD, professor of veterinary pathobiology, diplomate ASM
Gayle C. Johnson, DVM, PhD, associate professor of veterinary pathobiology; diplomate, ACVP
Steven B. Kleiboeker, DVM, PhD, assistant professor pathobiology
John M. Kreeger, DVM, PhD, associate professor of veterinary pathobiology; diplomate, ACVP
Margaret A. Miller, DVM, PhD, associate professor of veterinary pathobiology; diplomate, ACVP
Lanny W. Pace, DVM, PhD, associate professor of veterinary pathobiology; diplomate ACVP
Jose A. Ramos-Vara, DVM, PhD, assistant professor of veterinary pathobiology
Audrey A. Rottinghaus, MS, instructor in veterinary pathobiology (virology)
George E. Rottinghaus, PhD, associate professor of veterinary biomedical sciences (analytical chemistry)
Michael A. Scott, DVM, PhD, assistant professor of veterinary pathobiology, diplomate ACVP
Steven L. Stockham, DVM, MS, associate professor of veterinary pathobiology; diplomate, ACVP
James R. Turk, DVM, PhD, associate professor of veterinary pathobiology; diplomate, ACVP
Sue E. Turnquist, DVM, PhD, assistant professor of veterinary pathobiology, diplomate, ACVP

Residents

Magalie Boucher, DVM
Tim Evans, DVM, MS
Christie Loiacono, DVM
Alice Roudabush, DVM

Veterinary Medicine and Surgery

Joe N. Kornegay, DVM, PhD, diplomate ACVIM, professor and dean; investigator, DRC
C. B. Chastain, DVM, MS, diplomate ACVIM, professor, associate dean for academic affairs
Everett Aronson, DVM, diplomate ACVR, associate professor, director of student and alumni affairs
Cecil P. Moore, DVM, MS, diplomate ACVO, professor, veterinary medicine and surgery chair and hospital director
David A. Wilson, DVM, MS, diplomate ACVS, associate professor, associate chair for clinical affairs
Robert S. Youngquist, DVM, diplomate ACT, professor, associate chair for academic affairs
John F. Amann, DVM, PhD, associate professor; adjunct associate professor, department of anthropology; associate professor, veterinary biomedical sciences
John D. Bonagura, DVM, MS, diplomate ACVIM, Gilbreath-McLorn Endowed Professor in Cardiology, director of graduate studies
Keith R. Branson, DVM, MS, diplomate ACVA, clinical assistant professor
Erin S. Champage, DVM, diplomate ACVO, clinical assistant professor
Leah A. Cohn, DVM, PhD, diplomate ACVIM, assistant professor
Cristi R. Cook, DVM, MS, clinical instructor
James L. Cook, DVM, PhD, diplomate ACVR, assistant professor
Ross, P. Cowart, DVM, MS, diplomate ABVP, associate professor
John R. Dodam, DVM, PhD, diplomate AVCA, assistant professor
Victoria L. Douglas, DVM, PhD, clinical instructor
Thomas J. Fangman, DVM, MS, clinical assistant professor, commercial agriculture veterinary swine extension specialist
V. K. Ganjam, DVM, PhD, professor
Marjorie E. Gross, DVM, MS, diplomate ACVA, clinical associate professor
David K. Hardin, DVM, diplomate ACT, clinical associate professor; director, veterinary medical extension and continuing education
Carolyn J. Henry, DVM, MS, diplomate ACVIM, assistant professor
Lora Hitchcock, DVM, clinical instructor
Douglas E. Hostetler, DVM, clinical assistant professor
Joli Jarboe, DVM, clinical instructor
Philip J. Johnson, BVSc, MRCVS, MS, diplomate ACVIM, associate professor
Kevin Keegan, DVM, MS, diplomate ACVS, associate professor
Marie E. Kcr, DVM, diplomate ACVIM, clinical assistant professor
Joanne Kramer, DVM, clinical instructor
Jeffrey Lakritz, DVM, PhD, diplomate ACVIM, assistant professor
Robert Larson, DVM, PhD, diplomate ACT, clinical assistant professor of veterinary medical extension, commercial agriculture veterinary beef extension specialist
Jimmy C. Lattimer, DVM, MS, diplomate ACVR, associate professor
Michael R. Lewis, PhD, assistant professor (tumor biology)
Virginia Luis Fuente, VetMB, assistant professor
David Maggs, DVM, diplomate ACVO, clinical instructor
Fred Anthony Mann, DVM, MS, diplomate ACVS, ACVECC, associate professor
Dudley L. McCaw, DVM, diplomate ACVIM, associate professor
Richard L. Meadows, DVM, diplomate ABVP, clinical assistant professor
Nat T. Messer, DVM, diplomate ABVP, associate professor
Robert B. Miller, DVM, PhD, diplomate ABVP, associate professor; associate professor, veterinary pathology
Dennis O’Brien, DVM, PhD, diplomate ACVIM, associate professor
Eric Pope, DVM, MS, diplomate ACVS, associate professor
Diane E. Preziosi, DVM, clinical instructor
Richard Randle, DVM, MS, clinical assistant professor, ruminant health veterinary extension specialist
M. Dawn Shore, DVM, MS, diplomate ACT, clinical assistant professor
James L. Tomlinson, DVM, MVetSci, diplomate ACVS, associate professor
Jeffrey Tyler, DVM, MPVM, PhD, diplomate ACVIM, associate professor

Adjunct Faculty
Guy Bouchard, DVM, MS, diplomate ACT, adjunct assistant professor; staff veterinarian, Sinclair Research Farm
Ronald K. Cott, DVM, adjunct assistant professor, associate director of development
Debra F. Horwitz, DVM, diplomate ACVB, adjunct assistant professor
John W. Hunt, Jr., DVM, adjunct professor, state veterinarian
Rebecca A. Johnson, PhD, RN, adjunct associate professor; associate professor, Sinclair School of Nursing
Brent D. Jones, DVM, adjunct associate professor

Randall E. Junge, DVM, MS, adjunct assistant professor; associate veterinarian, St. Louis Zoological Park
G. George Keller, DVM, MS, adjunct instructor; associate project director, OFA
Wayne E. Loch, PhD, adjunct associate professor; associate professor, Animal Science-UMC
Charles A. Martin, DVM, MS, adjunct assistant professor; staff veterinarian and swine specialist, MFA, inc.
Robert E. Miller, DVM, adjunct assistant professor; director, animal health and research, St. Louis Zoological Park
Janet Rettewmeyer, DVM, MS, adjunct assistant professor
Kirk Suedmeyer, DVM, adjunct assistant professor; senior staff veterinarian, Kansas City Zoological Gardens
Debrah L. Turner, DVM, adjunct instructor
Laurie L.M. Wallace, DVM, MVSc, Diplomate ABVP, ACVIM; adjunct associate professor

Emeriti Faculty
Clarence J. Bierschwal, DVM, MS, diplomate ACT, professor emeritus
E. Allen Corley, DVM, PhD, diplomate ACVR, professor emeritus
Louis A. Corwin, Jr., DVM, PhD, diplomate ACVR, professor emeritus
James E. Creed, DVM, MS, diplomate ACVS, professor emeritus
Harold E. Garner, DVM, PhD, professor emeritus
Allen Hahn, DVM, PhD, diplomate ACVIM, professor emeritus
Harlan E. Jensen, DVM, PhD, professor emeritus
Joseph T. McGinity, DVM, MS, professor emeritus
Kenneth H. Niemeyer, DVM, MS, professor emeritus
Louis G. Trischler, DVM, MS, professor emeritus
A. David Weaver, DrMedVet, PhD, RCVS member, professor emeritus

Interns
Mary L. Brown, DVM
Mirta L. Caro, DVM
Christine Graham, DVM
Timothy L. Holt, DVM
Nathan W. Klocke, DVM

Graduate Students
Keiichi Kuroki, DVM
Kelly S. Rosenkranz, DVM
Balazs Szladovits, DVM
Dusty Weaver, DVM, MS

Residents
Brian Cellio, DVM
Jeffrey Chakwenya, DVM
Mai E. Dawes, DVM
Elizabeth Dunphy, DVM
Christopher Dutton, DVM, MS
Laura D. Dvorak, DVM
Stephanie Essman, DVM
Derek Fox, DVM
Laurence Galle, DVM
Elena Garcia-Seco, DVM
Elizabeth Giuliano, DVM
Mary L. Higginbotham, DVM
Elizabeth Giovanni, DVM
Mary L. Hilgenbotham, DVM
Chad Johannes, DVM
Paula Johnson, DVM
Laura Kellam, DVM
Paige Langdon, DVM
Nelson Priddy, DVM
Francisco Rodriguez, DVM
Cynthia Sloan, DVM
Melissa Stoll, DVM
Alison Templer, DVM
Ron Tessman, DVM

Adjunct Faculty
Guy Bouchard, DVM, MS, diplomate ACT, adjunct assistant professor; staff veterinarian, Sinclair Research Farm
Ronald K. Cott, DVM, adjunct assistant professor, associate director of development
Debra F. Horwitz, DVM, diplomate ACVB, adjunct assistant professor
John W. Hunt, Jr., DVM, adjunct professor, state veterinarian
Rebecca A. Johnson, PhD, RN, adjunct associate professor; associate professor, Sinclair School of Nursing
Brent D. Jones, DVM, adjunct associate professor

Randall E. Junge, DVM, MS, adjunct assistant professor; associate veterinarian, St. Louis Zoological Park
G. George Keller, DVM, MS, adjunct instructor; associate project director, OFA
Wayne E. Loch, PhD, adjunct associate professor; associate professor, Animal Science-UMC
Charles A. Martin, DVM, MS, adjunct assistant professor; staff veterinarian and swine specialist, MFA, inc.
Robert E. Miller, DVM, adjunct assistant professor; director, animal health and research, St. Louis Zoological Park
Janet Rettewmeyer, DVM, MS, adjunct assistant professor
Kirk Suedmeyer, DVM, adjunct assistant professor; senior staff veterinarian, Kansas City Zoological Gardens
Debrah L. Turner, DVM, adjunct instructor
Laurie L.M. Wallace, DVM, MVSc, Diplomate ABVP, ACVIM; adjunct associate professor

Emeriti Faculty
Clarence J. Bierschwal, DVM, MS, diplomate ACT, professor emeritus
E. Allen Corley, DVM, PhD, diplomate ACVR, professor emeritus
Louis A. Corwin, Jr., DVM, PhD, diplomate ACVR, professor emeritus
James E. Creed, DVM, MS, diplomate ACVS, professor emeritus
Harold E. Garner, DVM, PhD, professor emeritus
Allen Hahn, DVM, PhD, diplomate ACVIM, professor emeritus
Harlan E. Jensen, DVM, PhD, professor emeritus
Joseph T. McGinity, DVM, MS, professor emeritus
Kenneth H. Niemeyer, DVM, MS, professor emeritus
Louis G. Trischler, DVM, MS, professor emeritus
A. David Weaver, DrMedVet, PhD, RCVS member, professor emeritus

Interns
Mary L. Brown, DVM
Mirta L. Caro, DVM
Christine Graham, DVM
Timothy L. Holt, DVM
Nathan W. Klocke, DVM

Graduate Students
Keiichi Kuroki, DVM
Kelly S. Rosenkranz, DVM
Balazs Szladovits, DVM
Dusty Weaver, DVM, MS

Residents
Brian Cellio, DVM
Jeffrey Chakwenya, DVM
Mai E. Dawes, DVM
Elizabeth Dunphy, DVM
Christopher Dutton, DVM, MS
Laura D. Dvorak, DVM
Stephanie Essman, DVM
Derek Fox, DVM
Laurence Galle, DVM
Elena Garcia-Seco, DVM
Elizabeth Giuliano, DVM
Mary L. Higginbotham, DVM
Elizabeth Giovanni, DVM
Mary L. Hilgenbotham, DVM
Chad Johannes, DVM
Paula Johnson, DVM
Laura Kellam, DVM
Paige Langdon, DVM
Nelson Priddy, DVM
Francisco Rodriguez, DVM
Cynthia Sloan, DVM
Melissa Stoll, DVM
Alison Templer, DVM
Ron Tessman, DVM
MU College of Veterinary Medicine Campus

Aerial view from Southwest.
The Veterinarian’s Oath

Being admitted to the profession of veterinary medicine, I solemnly swear to use my scientific knowledge and skills for the benefit of society through the protection of animal health, the relief of animal suffering, the conservation of livestock resources, the promotion of public health, and the advancement of medical knowledge.

I will practice my profession conscientiously, with dignity, and in keeping with the principles of veterinary medical ethics.

I accept as a lifelong obligation the continual improvement of my professional knowledge and competence.

Adopted by the AVMA House of Delegates
July, 1969
August 2000

Published once every two years by the College of Veterinary Medicine, University of Missouri-Columbia. All statements in this publication concerning requirements, prerequisites, conditions, or other matters are for informational purposes only, and are subject to change without notice. They are not to be regarded as offers to contract. Although the outcome of this professional curriculum is the DVM, the actual design, organization, and presentation of courses comprising the curriculum are subject to change at any time.
<table>
<thead>
<tr>
<th>DUE</th>
<th>RETURNED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

BOOKS MAY BE RECALLED BEFORE THEIR DUE DATES
University Libraries
University of Missouri

Digitization Information Page

Local identifier          CVMCatalog2001

Source information

Format       Book
Content type  Text / Text with images
Source ID     030 - 102122784
Notes         N/A

Capture information

Date captured    July 27, 2023/August 3, 2023
Scanner manufacturer    Plustek OpticBook
Scanner model      A300 Plus
Scanning system software    Book Pavilion
Optical resolution  600 dpi
Color settings      24 bit color / 8 bit grayscale
File types         tiff
Notes

Derivatives - Access copy

Compression       Tiff: LZW compression
Editing software   Adobe Photoshop 2023
Resolution        600 dpi
Color             color / grayscale
File types        tiff/pdf
Notes             Images cropped, straightened, brightened...