

TEACHING. HEALING. DISCOVERY. SERVICE.

COLLEGE OF VETERINARY MEDICINE



University of Missouri

The Mission

We are Missouri's only College of Veterinary Medicine. Our mission is to educate and train outstanding clinicians and scientists, generate new knowledge, and foster economic growth, all of which promote and protect the health and welfare of animals and people. We are guided by a One Health, One Medicine philosophy, strengthened by campuswide collaborations with human medicine, animal and life sciences, engineering, and the other health professions.

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 and welfare, the prevention and relief of animal suffering, the conservation of animal 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.

2011-2012 UNIVERSITY OF MISSOURI COLLEGE OF VETERINARY MEDICINE COLLEGE CATALOG

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.

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**information and
resources**

University of Missouri
College of Veterinary Medicine
cvm.missouri.edu

The QR codes throughout this publication will enable you to access videos and other information on your mobile device.



WELCOME



Greetings from the Dean

THANK YOU for your interest in the College of Veterinary Medicine at the University of Missouri. Since 1884, MU has been on the frontier of veterinary teaching, healing, discovery and service. Today, these values are central to our mission and to your future.

Those who have passed through our educational programs have embarked on some meaningful careers. We now have more than 3,000 alumni living throughout the world and working in a variety of disciplines. Their accomplishments range from pioneering an artificial insemination technique to save the endangered African elephant to founding the largest pet insurance company in the nation. We truly attract the best and brightest to our profession.

The College of Veterinary Medicine strives to ensure that all of our students are prepared to pursue the path that most appeals to their strengths and interests.

The structure of our DVM professional program is one example of this initiative. We have

designed a high-tech learning environment in which students in our DVM program spend two years in classroom and lab work, then nearly two years of full-time clinical training – providing an extraordinary amount of time to explore all aspects of clinical care.

Home base for this clinical training is our Veterinary Medical Teaching Hospital, which, in fact, houses three distinct clinics: small animal, equine and food animal. The breadth of capabilities within this facility allows students to see a large number of cases and gain valuable clinical experience in specialty care.

In addition to our educational programs, the College of Veterinary Medicine is renowned for its research, particularly interdisciplinary research into new treatments that benefit both human and animal health – the *One Health, One Medicine* concept.

These collaborative efforts have led to new pharmaceuticals and medical techniques: Veterinary medicine and human medicine oncologists developed Quadramet, a radio-pharmaceutical that relieves the pain of bone cancer. The Comparative Orthopaedic Labora-

tory perfected a technique to help people and dogs with knee injuries. The College of Veterinary Medicine is also an acknowledged partner in MU's Life Sciences research efforts, providing graduate students with significant research opportunities encompassing many disciplines.

We are proud to offer this type of research experience and advanced studies to graduate students, interns and residents. The interaction among these learners and faculty creates a special synergy and an ideal learning environment for all.

The MU College of Veterinary Medicine is indeed on an exciting journey of teaching, healing, discovery and service. I invite you to learn more about what we offer – and consider joining us.

Sincerely,
Neil C. Olson, Dean



Statement of Accreditation

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

Administrators

Dean: Neil C. Olson

Associate Dean for Academic Affairs: Robert Youngquist
Linda Berent (Interim)

Associate Dean for Research and Postdoctoral Studies: Ronald Terjung

Associate Dean for Student and Alumni Affairs: Ron K. Cott

Chair of Veterinary Medicine and Surgery: John R. Dodam

Chair of Biomedical Sciences: M. Harold Laughlin

Chair of Veterinary Pathobiology: George Stewart

Director of Student Recruitment and Retention: Douglas Tindall

Director of Development: Ron K. Cott

Manager of Business and Fiscal Operations: Vicki L. Miller

The Administrative Structure

The College has three departments: Biomedical Sciences, Pathobiology and Veterinary Medicine and Surgery. Additionally, the College comprises a veterinary medical diagnostic laboratory, a veterinary medical teaching hospital and a research farm.

Director of the Veterinary Medical Teaching Hospital: David A. Wilson

Director of the Veterinary Medical Diagnostic Laboratory: Alex J. Bermudez

Director of the Research Animal Diagnostic Laboratory: Alex J. Bermudez (Interim)

Director of Undergraduate Biomedical Sciences Education: C.B. Chastain

Director of the Office of Animal Resources: Lon W. Dixon

Director of Veterinary Continuing Education and Extension: Craig Payne

Director of Information Technology: Matthew Keeler

Veterinary Medical Teaching Hospital Administrator: Ron Haffey

Director of External Relations: Tracey Berry

LIFE IN COLUMBIA, MISSOURI



STUDENTS at MU's College of Veterinary Medicine pursue their education while enjoying an abundance of recreational experiences.

The campus itself offers plentiful opportunities: Museums, galleries, botanical gardens, Mizzou Tigers sporting events, and a student recreation complex that is one of the 10 largest facilities in the country and features rock climbing walls, extensive cardio and strength training equipment and an incredible "beach getaway" pool area.

As for the city of Columbia, it is consistently ranked on national "best of" lists,

including best place to live, best place to raise a family and home to the best college hangout in the nation: Shakespeare's Pizza.

It's really no surprise that Columbia has garnered so much attention. In addition to the University of Missouri, Columbia encompasses Stephens College and Columbia College – making it a community teeming with intellect, creativity and energy.

Downtown Columbia (The District) is directly adjacent to the MU campus and is packed with eclectic shops, restaurants, museums and galleries. Throughout the year, there

are parades, art festivals, film festivals, music festivals and holiday festivals. There's never a dull moment in The District.

Other shopping, dining and entertainment areas lie just outside The District, but are still within the city limits. Many of these can be reached by the Columbia Transit System or by the city's scenic MKT Trail.

The MKT trail is a nine-mile hiking and biking trail with trailheads throughout Columbia, including one near the MU campus. In itself, the MKT trail offers recreation and transportation opportunities for MU students.

Added value: the MKT trail connects to the nation's longest rails-to-trails project, the gravel-paved **KATY Trail State Park**, which stretches more than 237 miles across the state.

As for road trips, there are more than 3,000 acres of state park lands within 10 miles of Columbia. (The city itself has 1,500 acres of parklands.) Drive just a few miles beyond the city and find farmland, forests, parks and vineyards. Some of the most visited nearby spots include **Rock Bridge Memorial State Park** (featuring Devil's Icebox cave, the perfect place to cool down on a hot summer day), **Finger Lakes State Park** (offering camping and lake swimming) and **Les Bourgeois Vineyards** in Rocheport overlooking the Missouri River (the best sunset-watching site!).

Those longing to see the big-city lights are in luck. Choose St. Louis to the east or Kansas City to the west. Columbia is about midway between the two. Both metro areas have major sports teams, intriguing cultural attractions, and excellent dining and lodging options.

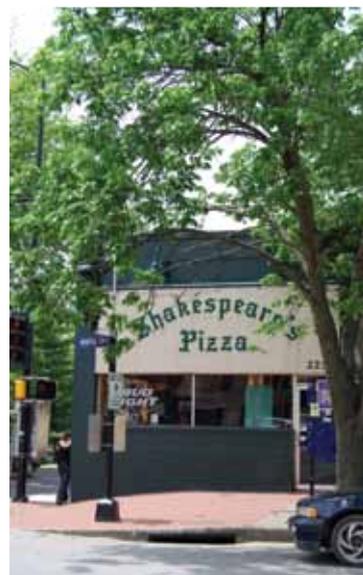
In **St. Louis**, visitors can take a tram ride to the top of the Gateway Arch, play at the over-the-top City Museum and taste delicious gooey butter cakes.

In **Kansas City**, stroll the European-influenced Country Club Plaza (gorgeous fountains, gondola rides, carriage rides and amazing shopping options), partake of the nightlife at the Power and Light District, and indulge in some finger-licking barbecue.

As for Missouri's rural getaways, the choices are plentiful. Just south of Columbia is the massive **Lake of the Ozarks** (more miles of shore than the coast of California). The southern part of the state is also where floating on the **Current River** and **Jacks Fork River** are enjoyed. In the Northeast, boat on Mark Twain Lake and visit Hannibal, Mark Twain's childhood home. Trout fishing? Try **Bennett Spring State Park**.

Then, of course, there is **Branson**. Yes, there are all the shows and attractions that have made this place such a sensation, but the surrounding landscape features magnificent rolling hills and sparkling lakes.

To learn more about all there is to see and do in Missouri, go to VisitMO.com.



WHY CVM AT MIZZOU?

DISTINCTIVE FEATURES



► A unique clinical curriculum

THE DVM PROFESSIONAL PROGRAM at the College of Veterinary Medicine boasts a unique curricular structure, which provides nearly two years of hands-on training in the College's general and specialty clinics.

Years one and two focus on instruction in high-tech, computer-based classrooms and labs.

Years three and four provide clinical instruction, including six weeks in each specialty: ophthalmology, cardiology, orthopaedics, oncology, dentistry and community medicine.

The location between two metro areas – St. Louis and Kansas City – and adjacent rural areas offers a strong caseload in companion, equine and food animal species – and opportunities for collaborative research, instruction and pursuing preceptorships.

Preceptorships during the third and fourth years are supported by a new database system and a preceptor coordinator that ensure each student is guided toward the opportunities that best match their individual interests.

▶ The only full-service diagnostic and treatment center in Missouri and one of only five in the Midwest

▶ One of the nation's most vibrant comparative medicine research programs

Veterinarians throughout the Midwest refer animal clients to the Veterinary Medical Teaching Hospital for specialized diagnoses and treatment in specialties, such as emergency medicine and critical care, soft tissue surgery, dentistry, ophthalmology, neurology, oncology, dermatology, cardiovascular medicine and surgery, and orthopaedic surgery. Our community medicine practice also offers preventive medicine, dentistry and routine small animal outpatient services.

MU is a national leader in comparative medicine, in which researchers collaborate by sharing discoveries, innovations, and treatments for animals and humans. For more than three decades, the National Institutes of Health has continuously funded comparative medicine research at the University of Missouri. The College of Veterinary Medicine has been and continues to be an essential partner in this research. Today, the MU comparative medicine program – One Health, One Medicine – is one of the select Mizzou Advantage initiatives, opening opportunities to expand on pioneering work in comparative medicine by connecting with research and instruction in health care delivery, policy, business models, medical ethics, and the culture of healthy living.



1884
Veterinary Medicine education begins at MU

1885
First vaccine-virus laboratory in the United States

1887
Veterinary laboratory established



1910-11
Connaway Hall built



1946
Professional curriculum developed

1950
First DVM degrees awarded at MU

1961
Teaching hospital built

► Nationally accredited diagnostic laboratory serving veterinarians, conservationists, scientists and researchers

The Veterinary Medical Diagnostic Laboratory handles more than 40,000 diagnostic cases a year and serves all of Missouri's 114 counties and surrounding states by performing more than 200,000 diagnostic tests annually. The facility supports toxicology, histopathology, serology, bacteriology, molecular biology and virology diagnostic laboratories. It also provides the opportunity for veterinary medical students to receive instruction in diagnostic laboratory medicine.



1965
DVM class size doubles – non-residents admitted

1977
Diagnostic laboratory and teaching-research building added

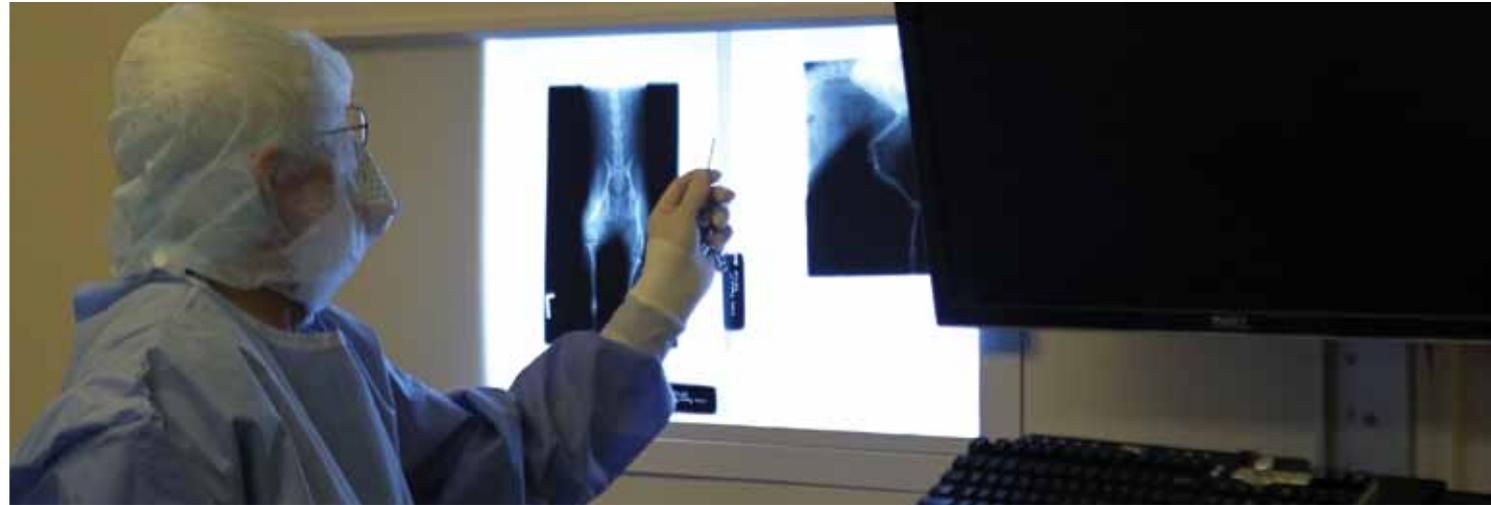


1993
Clydesdale Hall completed

1997 and 2002
Teaching hospital renovated



2011
Mizzou Animal Cancer Care opens in Wentzville



dynamic and diverse programs

- ORTHOPAEDICS
- ONCOLOGY
- FOOD ANIMAL
- EQUINE
- SMALL ANIMAL MEDICINE AND SURGERY
- PHYSIOLOGY
- PHARMACOLOGY
- CELL AND MOLECULAR BIOLOGY
- IMAGING
- NEUROLOGY
- NUCLEAR MEDICINE
- OPHTHALMOLOGY
- TISSUE ENGINEERING

MU is one of only 34 public U.S. institutions in the prestigious *Association of American Universities*, whose members are top-tier schools noted for outstanding teaching and research endeavors.

Teaching



DEPARTMENT OF BIOMEDICAL SCIENCES faculty play a large role in the early didactic training of veterinary students. During the first year, students study the gross and microscopic anatomy of food-producing animals, companion animals and selected laboratory animals. They learn 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.

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, students study disease conditions resulting from poisonous materials including plants, agricultural and industrial chemicals, feed additives and drugs.

Courses offered in microbiology provide instruction on special properties of pathogenic microorganisms, the host response to invading microorganisms, and techniques for isolating and identifying microorganisms.

Special emphasis is placed on the transmission, prevention and control of infectious and parasitic diseases, veterinary community health, epidemiology and immunology.

FOOD ANIMAL MEDICINE



Lectures, laboratory exercises, demonstrations, special projects and computer-assisted as well as problem-based programs are offered.

The primary function of the veterinary pathology section is to teach morphologic and biochemical alterations, which form the basis for changes in tissues and fluids of diseased animals. The teaching is conducted through both didactic and applied courses.

Second-year veterinary medical students also study general, systemic and special pathology, veterinary clinical pathology, and laboratory animal medicine.

The extensive and varied caseloads in clinical pathology and Veterinary Medical Diagnostic Laboratory programs are used as teaching resources during the third and fourth years of the curriculum.

Faculty from the Department of Veterinary Medicine and Surgery provide training in all four years of the professional curriculum. During the first year of basic science instruction, clinicians help to show the relevance and application of basic science principles to clinical medicine and surgery. They also provide the didactic

instruction for clinical subjects in the second and third years of the curriculum. Students enter their clinical training early in their third year of professional education. This stage of training allows them to apply principles of medicine and surgery to diagnose, prevent and treat disease in animals. They also practice effective communication with clients and with health care team members as animals are treated at the Veterinary Medical Teaching Hospital.

Clinical rotations involve in-hospital and out-of-hospital training. Through the patient-care method of study, professional students are given considerable responsibility for the total health needs of animals assigned to their care.

Discussion periods, formal lectures, rounds and laboratory training guide the student's progress in clinical medicine and surgery. 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.



Licensing

The licensing examination for veterinarians is the North American Veterinary Licensing Examination Council on Education. A minimum pass rate of 80 percent is required to maintain full accreditation. Since 2009, the pass rate of University of Missouri College of Veterinary Medicine graduates has been 100 percent!

MU is home to the largest United States' producer of radioisotopes for diagnosing and treating cancer.

Healing

EACH YEAR, the Veterinary Medical Teaching Hospital cares for about 16,000 hospitalized animals and thousands more on farms. Many of these animals come from the Columbia area for primary care and emergency care, while others are referred by veterinarians throughout the Midwest for our specialized services.

Working alongside faculty and staff, students pursuing the DVM degree and interns and residents engaged in postgraduate training actively participate in each phase of clinical care. MU's location between two major cities and adjacent rural areas allows for a strong caseload in small animal, equine and food animal species.

Featuring 152,000 square feet and advanced equipment, **Clydesdale Hall** is the central location for our clinical care, and houses three specialized clinics.

The **Equine Clinic** occupies approximately one-third of the first floor and includes about 32 stalls, a neonatal unit, two large surgery suites, a special diagnostics room, an arena and a treadmill for evaluation of equine lameness. An equine field-service program complements in-hospital services.

The **Food Animal Clinic** also occupies approximately one-third of the first floor and provides comprehensive health care for livestock. The design of the corrals, stalls, and chutes permits efficient safe movement, and restraint of cattle. About 35 stalls are available; some are designed to manage paralyzed cattle and recumbent calves. The Food Animal Ambulatory Service provides individual and herd-health services for area livestock through fully equipped vehicles.

The **Small Animal Clinic** has 16 examination rooms (one specialized for oncology examinations, two for cardiology exams, and two for specialized ophthalmology cases), and more than 150 cages and runs. Each exam room contains a computer for quick access to the hospital information system (UVIS) so students can enter and retrieve client/patient data while examining the patient. Veterinarians throughout the region refer clients to the Small Animal Clinic to take advantage of its specialized veterinarians and state-of-the-art equipment.

The teaching hospital has an emergency and critical care unit staffed 24 hours a day, a magnetic resonance imaging (MRI) unit, a treadmill for evaluation of lameness in horses, an underwater treadmill for dogs recovering from orthopaedic and neurological conditions, computerized tomography, a linear accelerator

ONCOLOGY



to administer radiation therapy, the Hill's Endoscopy Center, a cardiac catheterization laboratory, and specialized orthopaedic and ophthalmology surgical suites.

The Veterinary Medical Teaching Hospital provides preventive medicine, dentistry and routine small animal outpatient through the Community Practice Service.

Mizzou Animal Cancer Care is a satellite facility for the MU Veterinary Medical Teaching Hospital, making referral cancer treatment for pets more convenient for St. Louis-area animal owners, who, in the past, have made the four-hour round-trip drive to the Columbia hospital.

Located just outside of St. Louis in Wentzville, this center offers radiation therapy to cats and dogs referred there for treatment by their regular veterinarians. New cancer drug therapies will also be tested with some animal patients qualifying to participate in those trials.



Barkley House

The sickest of animals often need treatments that can take days or weeks to fully administer. Barkley House rooms at Stoney Creek Inn and Conference Center provide temporary lodging for out-of-town families whose pets are receiving treatment at the University of Missouri Veterinary Medical Teaching Hospital. Located just a few miles from the hospital, Barkley House allows pets to stay with their owners in a pet-friendly setting.

Discovery

THE UNIVERSITY OF MISSOURI Comparative Orthopaedic Laboratory is a global leader in the convergence of human and animal medicine, which turns research discoveries into breakthrough treatments for patients who have **injuries or arthritis**.

The Research Center for Human-Animal Interaction (ReCHAI) focuses on educating and conducting programs and studies about the benefits of **human-animal interaction**.

Dr. Dennis O'Brien, professor of veterinary medicine and surgery and director of the Comparative Neurology Program in the MU College of Veterinary Medicine, was named as the Chancellor's Chair for Excellence in Comparative Neurology. The appointment comes with funding from an endowment that will enhance the research and clinical service conducted by O'Brien and the **comparative neurology** team.

Tom and Betty Scott of Kansas City endowed a program that will allow the College to become a major Midwest referral center for animals with **cancer**. Cancer diagnosis is aided by the use of magnetic resonance imaging, computed tomography and a linear accelerator.

The E. Paige Laurie-Missouri Program in Equine Lameness facilitates research related to improving the diagnosis and treatment of **lameness in horses**. A gift from Bill and Nancy Laurie, owners of Crown Center Farm in Columbia, Mo., funded the endowment.

The Charles and Charlene McKee Professorship in Microbial Pathogenesis endowed the recruitment of **infectious disease** research.

The Ruth M. Kraeuchi Endowed Professorship funds the investigation of structural and functional aspects of **retinal** cell biology,

comparative aspects of clinical retinal disease, and intraocular microsurgery.

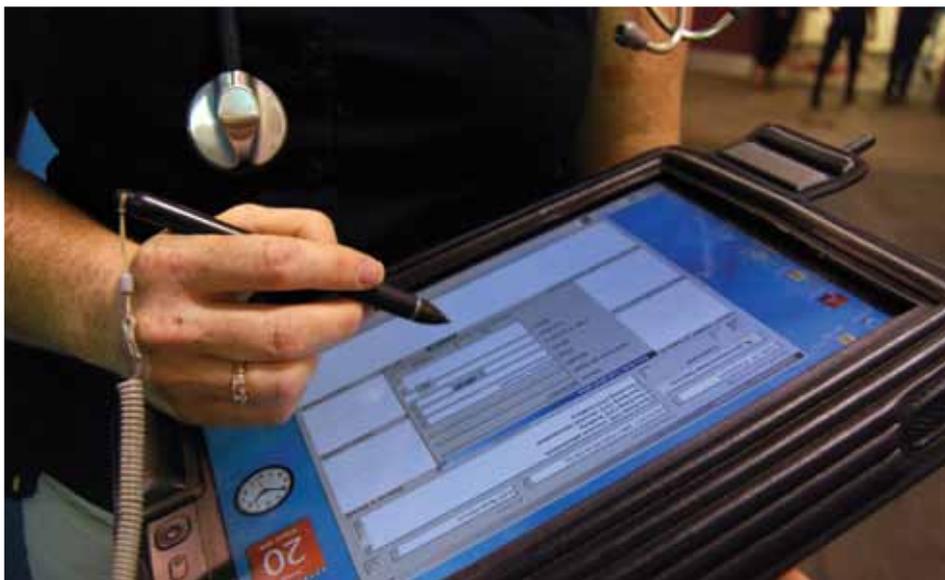
The Thelma Zalk-Missouri Professorship in Tumor Angiogenesis will integrate the College's strong **vascular biology and cancer** programs.

The Gilbreath-McLorn Professor of Comparative Medicine conducts research in **comparative medicine**.

The Nestle Purina-Missouri Program in Small Animal Nutrition is studying ways that **nutrition** can prevent disease and enhance overall health.

Dr. M. Harold Laughlin, professor and chairman of the Department of Biomedical Sciences, is a Curators' Professor. Dr. Richard Meadows, CVM professor and director of the Community Practice Section, was named a Curators' Teaching Professor.

COMPARATIVE ORTHOPAEDICS



INTERDISCIPLINARY RESEARCH AND RESOURCES ON CAMPUS

MU has an extraordinary infrastructure for the sharing of knowledge, facilities and equipment. The College of Veterinary Medicine is actively involved in this collaboration.

- At the **Bond Life Sciences Center**, novel research opportunities arise from interactions among talented and diverse scientists from the School of Medicine and the colleges of Agriculture, Food and Natural Resources, Arts and Science, Engineering, Human Environmental Sciences and Veterinary Medicine.
- At the **Dalton Cardiovascular Research Center**, Mizzou scientists from such fields as biochemistry, biological engineering, electrical engineering, medicine, physiology and veterinary medicine come together and apply their particular expertise to health problems like hypertension, cancer, cystic fibrosis and heart disease.
- The **Regional Biocontainment Laboratory** is part of our nation's bio-defense effort. This \$16.5 million facility aids researchers in fighting pathogens such as West Nile virus. It includes laboratories and associated research-support areas, and is one of only 13 such structures in the United States.
- **The Nuclear Reactor Research Facility**, the largest university-based research nuclear reactor in the nation, is in MU Research Park. College of Veterinary Medicine faculty conduct radiobiological experiments at the facility.
- The **International Institute for Nano and Molecular Medicine** is a campuswide research center dedicated to the discovery and application of fundamental and translational medical science based upon previously unexplored chemistry combined with nanotechnology and the biosciences.
- The **Low-Level Radiation Laboratory**, located within the College of Agriculture, Food and Natural Resources, is a low-level, whole-body radiation counter measuring natural and induced radioactivity in animals and humans. MU College of Veterinary Medicine researchers use this facility.
- MU and its researchers have a \$2.3 million high-powered **nuclear magnetic resonance spectrometer** (NMR), only the second of its generation in the United States and the only one in Missouri. Scientists use the NMR to see molecules in three dimensions and view their interactions. Understanding these interactions is crucial to understanding health and disease.
- MU's National Swine Resource and Research Center is the country's only **repository and distribution for swine models**. MU also houses the only Rat Resource and Research Center and one of three Mouse Resource and Research Centers in the United States.

Veterinary medicine and human medicine oncologists developed Quadramet for bone cancer pain, one of many MU discoveries based on collaborative research.

Service

THE VETERINARY Medical Teaching Hospital provides a wide range of clinical services on the MU campus, and Mizzou Animal Cancer Care provides diagnostic services, radiation therapy and clinical trials in the St. Louis area. A new, service-oriented shelter medicine program has been designed to provide future veterinarians with experience in community service as well as to improve the welfare of companion animals in shelters. In addition to research, the MU Research Center for Human-Animal Interaction facilitates a number of community programs that engage individuals in activities focusing on the health benefits of human-animal interaction.



MU is the only Missouri institution that awards the doctor of veterinary medicine degree, graduating approximately 100-110 new veterinarians each year.

EQUINE LAMENESS



PROFESSIONAL CURRICULUM LEADING TO DVM

The DVM degree is achieved after a four-year course of study. At the University of Missouri, the first two years are largely spent in classrooms and laboratories with the second two years devoted primarily to clinical study in the MU Veterinary Medical Teaching Hospital.

THE CURRICULUM at the MU College of Veterinary Medicine is designed to provide students with the knowledge and technical skills necessary to be competent entry-level veterinarians. We prepare our students for general veterinary practice, for entry into graduate or specialty training programs and with the background necessary for careers in regulatory medicine.

The first two years of the veterinary curriculum are designed to provide students with a solid foundation in basic biomedical science. The courses in the preclinical professional curriculum include anatomy, physiology, cell and molecular biology, pathology, pharmacology, microbiology, virology and toxicology. The fundamentals of the clinical disciplines are also taught during this time and include anesthesiology, clinical pathology, radiology, public health, and medicine and surgery.



The organizational structure of the professional curriculum differs from other schools in that the first two academic years are divided into eight-week instructional periods that run from August through June. Students have summer breaks between the first and second, and second and third years of instruction that are six weeks in duration each.

Clinical training in the Veterinary Medical Teaching Hospital and the Veterinary Medical Diagnostic Laboratory consists of service rotations that range from two to six-to-eight weeks in length. Students must complete the following core rotations: equine medicine and surgery, food animal medicine and surgery, anesthesiology, radiology, neurology/neurosurgery, oncology, ophthalmology, small animal orthopaedic surgery, small animal soft tissue surgery, diagnostic pathology, small animal community practice, small animal internal medicine, small animal emergency and critical care, and theriogenology.

In addition, students must select elective rotations for a total of 14 weeks. Four weeks of elective experience must be off-campus under the supervision of a licensed veterinarian. Ten weeks of elective courses must be completed on campus. Enrollment in clinical elective rotations may be limited by space or faculty availability. Electives that are currently offered include anesthesiology, cardiology, small animal clinical nutrition, external food animal service and theriogenology teaching program, equine medicine and surgery, laboratory animal medicine, neurology/neurosurgery, oncology, ophthalmology, orthopaedic surgery, pathology, public health/regulatory medicine, radiology, research techniques, small animal emergency and critical care, small animal internal medicine, small animal soft tissue surgery, and special problems.

During their clinical rotations, students are allotted 12 weeks as 'free' time. Most students utilize their free time to study for licensing examinations, complete preceptorships, or interview with prospective employers. They may also take additional clinical rotations during this time.

Preceptorships

Students are encouraged to use their free time to gain additional experience in veterinary practices or to explore the many other employment opportunities available to veterinarians. Veterinary licensing boards in some states (including Missouri) require applicants for licensure to complete an internship under the supervision of a licensed veterinarian. It is important that students contact the licensing board in the state in which they wish to practice to determine the requirements for licensure in that state.

State Licensure

In addition to successfully completing a professional veterinary education, most states require state and national licensing examinations to meet requirements to practice. Students interested in veterinary medicine should visit the National Board of Veterinary Medical Examiners (NBVME; www.nbvme.org) and the American Association of Veterinary State Boards (AAVSB; www.aavsb.org) websites for further information regarding the requirements for licensure.

advanced specialized training

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.



Schedule and Completion of Required Courses

In the first two years, all students follow the same schedule, and courses must be successfully completed in sequence. Because pre-clinical courses are offered yearly, academic or hardship issues that prevent a student from completing a course will prolong professional training by one year.

In the final two years of the professional program the student must successfully complete the required and elective clinical rotations to fulfill 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 courses. In addition to passing examinations, attendance and participation in all lectures, laboratories and clinical exercises is required.

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

Any student who receives a grade of D in any required course of the professional curriculum and whose cumulative 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.

A 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.

A student who receives a grade of F in any required or elective 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. Students who accumulate in excess of 9.0 credit hours of D grades in the professional curriculum will be dismissed.

UNDERGRADUATE COURSES IN BIOMEDICAL SCIENCES AND TECHNOLOGY

In addition to the four-year professional curriculum leading to the doctor of veterinary medicine degree, the College offers a variety of undergraduate courses. Courses serve as electives for other degree programs, as a component of the general studies degree program, and as partial requirements in the pre-veterinary medicine program.

Dean's Certificate of Achievement in Biomedical Sciences

A dean's certificate of achievement in biomedical sciences is awarded to any student who takes at least 15 credit hours in biomedical courses and achieves a biomedical grade point average of 3.0, or higher, with no less than a C- in any biomedical course on the first attempt.

Online Veterinary Biomedical Technology

Graduate veterinary technicians with an AAS degree from an accredited veterinary technician program can further their education, earn continuing education credits, prepare to become a certified veterinary technician specialist, and receive academic credits applicable to a certificate in veterinary biomedical technology or a baccalaureate degree by taking online courses. For more information, www.cvm.missouri.edu/online_biomed_technology.htm.



Academic Scholarship Regulations:

www.cvm.missouri.edu/stuhandbook_sec1.htm

GRADUATE DEGREE AND OTHER ADVANCED STUDY PROGRAMS



The Department of Veterinary Medicine and Surgery offers graduate training leading to the master of science degree through the veterinary clinical sciences emphasis area in the biomedical sciences degree program. The department's graduate faculty includes more than 30 members with dynamic and diverse research programs. Research areas include comparative orthopaedics and oncology, food animal, equine, and small animal medicine and surgery, physiology, pharmacology, cell and molecular biology, imaging, neurology, nuclear

medicine, ophthalmology, and tissue engineering, among others.

The Department of 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

make them well-rounded, competitive scientists. Departmental faculty represent diverse 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. Faculty interests include cardiovascular, exercise and health membrane transport, neurohumoral regulation and reproductive endocrinology.

The Department of Veterinary Pathobiology offers a graduate program leading to the master of science degree. For admission, the

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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. 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, ultrastructural 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.

Combined DVM/Graduate Degree (Dual) Programs and Leave of Absence

Veterinary medical students with a baccalaureate degree and who otherwise qualify for graduate school may take graduate courses during the DVM program when DVM schedule and DVM degree requirements permit.

Departments and graduate committees establish specific requirements to achieve graduate degrees. Interested students should contact the associate dean for Academic Affairs or the associate dean for Research and Post-Graduate Studies for further information.

To facilitate progression toward graduate degrees in combined DVM-graduate degree programs, an academic leave of absence for one year to take graduate courses may be requested. Permission is required from the student's graduate program committee and from the Committee on Admissions and Scholarship.

Requests for deferment must be received at least six weeks prior to the beginning of instructional period seven.

Veterinary Medical Extension and Continuing Education

The mission of the Department of Veterinary Medical Extension and Continuing Education is twofold: The first is to enhance the professional competence of veterinarians, thus improving the quality of veterinary medical services and animal care. The second is to acquaint the animal owning public with the benefits of veterinary medical services and the advantages of developing a veterinary/client/patient relationship. These objectives are accomplished by providing educational programs in conjunction with College faculty and the University community that build partnerships between livestock producers, companion animal owners, veterinarians, allied industry and the University of Missouri.



Research programs

Research programs in the MU College of Veterinary Medicine contribute to the advancement of science and significantly enhance the quality of professional education. Students who participate gain a clearer understanding of disease processes, methods of prevention, and treatments for animals and humans.

Members of the veterinary medical profession, because of their versatile 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, foundation awards and grants, contracts from industries, livestock producer association funds, and funding from other groups.

MU is one of only five universities nationwide that offers law, medicine, veterinary medicine and a nuclear research reactor on one campus.



Residency programs

The College of Veterinary Medicine administers residency training programs through the Veterinary Medical Teaching Hospital, the Veterinary Medical Diagnostic Laboratory and the Research Animal Diagnostic Laboratory. Available clinical specialty training includes the following:

- Anesthesiology
- Small animal internal medicine
- Small animal surgery
- Equine medicine
- Equine surgery
- Food animal medicine and surgery
- Food animal production
- Oncology
- Ophthalmology
- Radiation oncology
- Radiology
- Toxicology
- Pathology
- Cardiology
- Clinical pathology
- Theriogenology
- Neurology
- Small animal emergency medicine and critical care
- Comparative medicine
- Nutrition
- Zoo medicine

The Comparative Medicine Program is a postdoctoral (post-DVM) program that prepares graduates for careers in comparative medicine research and laboratory animal medicine. The CMP emphasizes comparative medicine research training that can be coupled with a laboratory animal medicine residency that meets the training requirements for eligibility for the American College of Laboratory Animal Medicine (ACLAM) certification examination. If a concurrent residency is pursued, two residency rotations are performed: laboratory animal diagnostics and research pathology in the Research Animal Diagnostic Laboratory (RADIL) and clinical medicine and animal resource management in the Office of Animal Resources

(OAR). The remaining time in the program is primarily devoted to research training under an established investigator. Trainees may select from more than 50 laboratories across the MU campus. These labs encompass multiple disciplines including immunology, infectious disease, biodefense, cancer, exercise and cardiovascular physiology, genetics, translational medicine, reproductive biology, and many more. The master's degree (comparative medicine emphasis area) requires the completion of a significant manuscript suitable for publication in a refereed journal or an approved equivalent scholarly effort. Trainees desiring to obtain a PhD have opportunities to do so in a variety of programs such as the pathobiology area program.



CVM faculty and graduate students are among the more than 1,000 life scientists at MU who are working to improve human and animal health, food and the environment.

VARIOUS FACILITIES AND RESOURCES



THE VETERINARY MEDICAL DIAGNOSTIC LABORATORY provides in-depth diagnostic support to veterinary practitioners, livestock and poultry industry interests, companion animal interests, wildlife conservationists, scientists utilizing animals in their research, state and regulatory officials, and MU Veterinary Medical Teaching Hospital clinicians. It is one of only 43 veterinary medical diagnostic laboratories in the nation accredited by the American Association of Veterinary Laboratory Diagnosticians.

Middlebush Farm is a 288-acre farm south of Columbia that 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.

The Department of Veterinary Pathobiology and its associated teaching and research programs are located in Connaway Hall. It houses state-of-the-art research labs specializing in infectious disease research, genetic testing, and molecular biology.

The Veterinary Medicine Building features teaching laboratories, classrooms, seminar rooms, computer laboratories, administrative offices, and the veterinary medical library. This building also houses facilities for electron microscopy and transgenic animals, and the H.

Richard Adams Conference Room and Auditorium, a 250-seat conference center and auditorium used for meetings, research, teaching and other instructional purposes. It features audiovisual and computer support equipment.

The Veterinary Medical Science Building accommodates research laboratories and office space for faculty and graduate students in the Departments of Biomedical Sciences, Veterinary Pathobiology, Veterinary Medicine and Surgery and the Veterinary Medical Diagnostic Laboratory.

The Veterinary Medical Library was established in 1951 to serve not only the students, staff and faculty of the College of Veterinary Medicine, but also members of other subject disciplines who interact with veterinary medicine. The library is the only one of its kind in Missouri and is one of only 28 in the United States (with 11 of those established since 1970). Therefore, its unique and historical resources frequently fill the needs of researchers not only in Missouri, but across the nation and around the world.

All aspects of veterinary medicine are collected including pet therapy, human-animal bond, animal welfare, animal law, pet bereavement, comparative medicine and laboratory animals. There are specialized collections in veterinary history (particularly the state of Missouri), mules, Clydesdales, veterinary instrument catalogs, and veterinary patent medicine booklets, pamphlets and catalogs.

The goal of the library is to provide high quality service in fulfilling the information needs of its clientele. This is achieved through the selection, acquisition and maintenance of infor-

mational materials (electronic and print formats) consistent with the teaching and research mission of the College of Veterinary Medicine and the University of Missouri.

In 2005, the library was named the Zalk Veterinary Medical Library in honor of Thelma Zalk. The library is part of the J. Otto Lottes Health Sciences Library and the MU Libraries.

The Information Technology Unit (CVM-IT) maintains up-to-date information technology resources supporting the College's teaching, service and research missions. CVM-IT provides critical behind-the-scenes infrastructure management and front-line support for IT applications in biomedical research, veterinary care, education, specialized graphics arts production, and College-wide administrative support. The unit provides in-person and phone technical support for many devices and applications used by members of the College.

The College has one of the largest computer facilities on the MU campus. One computer lab has 40 stations available on a 24/7 basis for student use. The other computer lab houses 80

computers for use in the teaching of histology, microbiology, parasitology and pathology. This facility is primarily used as a lecture/laboratory, but is available for student use outside of normal class time. Both facilities, along with an additional testing room, are used to administer computerized exams. Classrooms are equipped for lecture capture, enabling web-hosted review by students following the instructional session. Additionally, devices for wireless real-time interactive assessment and response between instructors and students are available.

Clydesdale Hall is the Veterinary Medical Teaching Hospital. Located on the University of Missouri campus, it features three specialized clinics: small animal, equine and food animal.

Mizzou Animal Cancer Care, an extension of the teaching hospital, is located in Wentzville, Mo.



STUDENT LIFE



STUDENT BODY

Beginning with the Class of 2013, the College will graduate each year approximately 100 to 110 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 pet-therapy groups, and other educational service organizations.

Veterinary student volunteers organize an annual Open House to educate the public on the scope and depth of veterinary medicine. More than 2,000 people tour the College and attend demonstrations during the Open House.

STUDENT RESPONSIBILITY

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.

The code applies to all students in the MU College of Veterinary Medicine and helps to promote ethical standards of personal and professional conduct. 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.

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. Details of the Student Honor Code and Academic Regulations can be found in the Student Handbook on the College website.

STUDENT CHAPTER OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION (SCAVMA)

All veterinary medical students are eligible for membership in the College's Student Chapter of American Veterinary Medical Association. 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. The SCAVMA president appoints committees. Membership requirements are annual dues and the commitment to work at the SCAVMA booth during at least one football game while being a VM-1 and VM-2.

Benefits of membership include:

- Reduced subscription rate for the *Journal of the AVMA*
- Free registration to national AVMA meetings
- Surgery instrument rental program
- Free AVMA dues first year after graduation
- Financial support to attend symposiums and meetings

CLASS OFFICERS

Annually, each class elects a president, vice president, secretary, treasurer and a SCAVMA class representative. Each class president and the AVMA student chapter president serve on the student advisory council, which meets regularly with the dean, associ-

ate dean for academic affairs, and the associate dean for student and alumni affairs to discuss College concerns.

STUDENT CLUBS AND SPECIAL INTEREST ORGANIZATIONS

The College recognizes the varied interests related to the numerous fields seen in veterinary medicine. Extracurricular opportunities provided through clubs and organizations within the College allow students to explore all avenues of interest related to the profession. Clubs and organizations representing special interests in certain animal species, veterinary specialties, veterinary business management, community service, and research are active in the College.

Many of these clubs are affiliated with national organizations. Some provide outreach through community service and education. Intramural sports teams are often offered as an outlet for those interested.

HONOR SOCIETIES

There are two honor societies at the MU College of Veterinary Medicine. Phi Zeta is a veterinary honorary society to which third- and fourth-year veterinary medical students may be elected. Gamma Sigma Delta, a 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.

GRADUATE HONOR SOCIETIES

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

AD-HOC COMMITTEES

One of the largest non-sporting public events on the MU campus is planned and executed by veterinary medical students. The College's annual Open House attracts almost 2,000 visitors who enjoy animal- and health-related exhibits and demonstrations. Students handle logistics, marketing, crowd control and coordinating with outside vendors. Students serve as spokespeople to the media, representing their College and profession.

OTHER CAMPUS ACTIVITIES

All College students are members of the Missouri Students Association and may 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.

ALUMNI FACTS

WHILE MOST VETERINARIANS choose self-employment in community general practices, others have selected careers in specialty medicine such as cardiology, oncology or ophthalmology. Some use their skills in state and federal health agencies such as the USDA or Department of Agriculture. Others have joined the staffs of biological and pharmaceutical companies, or academic institutions.

The approximately 3,000 alumni of the College have been successful in their chosen areas of the profession. Many become involved in community affairs by becoming members of school boards, city councils, 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 prominent roles in the federal government. Others have advanced to leadership roles

in veterinary medical colleges in teaching and research. Alumni have been active as administrators in veterinary medical colleges, industry, and government work. In the last 20 years, three of the presidents of the American Veterinary Medical Association, which represents approximately 88,000 veterinarians, were MU College of Veterinary Medicine graduates.

The College of Veterinary Medicine Alumni Organization is centered in the MU College of Veterinary Medicine Dean's Office. Officers are elected by the alumni. The Associate Dean of Student and Alumni Affairs is a permanent member of the Board of the Alumni Organization. Each autumn, in conjunction with the Alumni Organization, the MU College of Veterinary Medicine hosts an alumni reunion day.



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