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University of Missouri-Columbia

Bulletin



Veterinary
Medicine

University of Missouri-Columbia Calendar

Fall Semester

New Student Orientation and Registration
Registration
Classwork begins, 7:40 a.m.
Labor Day Recess
Preregistration (Winter) begins
Preregistration (Winter) ends
Thanksgiving Recess Begins
Classwork resumes, 7:40 a.m.
First Semester Classwork ends, 5:30 p.m.
Stop Day
Final Examinations begin
First Semester closes, 5:00 p.m.

Winter Semester

New Student Orientation and Registration
Registration
Classwork begins, 7:40 a.m.
Preregistration (Summer & Fall) begins
Preregistration (Summer & Fall) ends
Spring Recess begins, 12:40 p.m.
Classwork resumes, 7:40 a.m.
Second Semester Classwork ends, 5:30 p.m.
Stop Day
Final Examinations begin
Second Semester closes, 5:30 p.m.
Annual Commencement

Summer Session (4-, 6- and 8-weeks)

Registration & Orientation
All Sessions Begin, 7:40 a.m.
First 4-week session ends
Second 4-week session Registr. & Orienta.
Second 4-week session begins
Second 8-week session Registr. & Orienta.
Second 8-week session begins
First 6-week session ends
Second 6-week session Registr. & Orienta.
Second 6-week session begins
Second 4-week session ends
First 8-week session ends
Independence Day Recess
Third 4-week session Registra. & Orienta.
Third 4-week session begins
All sessions end
Summer Commencement

1979

Thurs., Aug. 23
Fri., Aug. 24
Mon., Aug. 27
Mon., Sept. 3
Mon., Oct. 22
Wed., Oct. 31
5 p.m., Nov. 20
Mon., Nov. 26
Tues., Dec. 11
Wed., Dec. 12
Thurs., Dec. 13
Thurs., Dec. 20

1980

Thurs., Jan. 10
Fri., Jan. 11
Mon., Jan. 14
Wed., April 2
Tues., April 8
Sat., March 22
Mon., March 31
Wed., April 30
Thurs., May 1
Fri., May 2
Fri., May 9
Sat., May 10

1980

Mon., June 9
Tues., June 10
Thurs., July 3
Mon., July 7
Tues., July 8

Fri., Aug. 1
Fri., Aug. 1
Fri., July 4

Fri., Aug. 1

1980

Mon., Aug. 25
Tues., Aug. 26
Wed., Aug. 27
Mon., Sept. 1

12:40 p.m., Nov. 26
Mon., Dec. 1
Thurs., Dec. 11
Fri., Dec. 12
Sat., Dec. 13
Sat., Dec. 20

1981

Thurs., Jan. 8
Fri., Jan. 9
Mon., Jan. 12

Sat., March 21
Mon., March 30
Wed., April 29
Thurs., April 30
Fri., May 1
Fri., May 8
Sat., May 9

1981

Mon., May 11
Tues., May 12
Fri., June 5
Mon., June 8
Tues., June 9
Mon., June 8
Tues., June 9
Fri., June 19
Mon., June 22
Tues., June 23
Thurs., July 2
Thurs., July 2
Fri., July 3
Mon., July 6
Tues., July 7
Fri., July 31
Fri., July 31

University of Missouri-Columbia Bulletin (USPS 651-820)

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University of Missouri-Columbia

College of Veterinary Medicine

1979-80

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All statements in this publication are announcements of present policies only and are subject to change at any time without prior notice. They are not to be regarded as offers to contract.

The University of Missouri is an Equal Opportunity/Affirmative Action institution and is nondiscriminatory relative to race, religion, color, national origin, sex, age, and qualified handicapped.

Veterinarians Control Diseases of Man & Animals

Veterinary Medicine is as old as recorded history. Today, more than ever before, it is a principal member of the health professions serving mankind throughout the world in an amazing array of responsibilities.

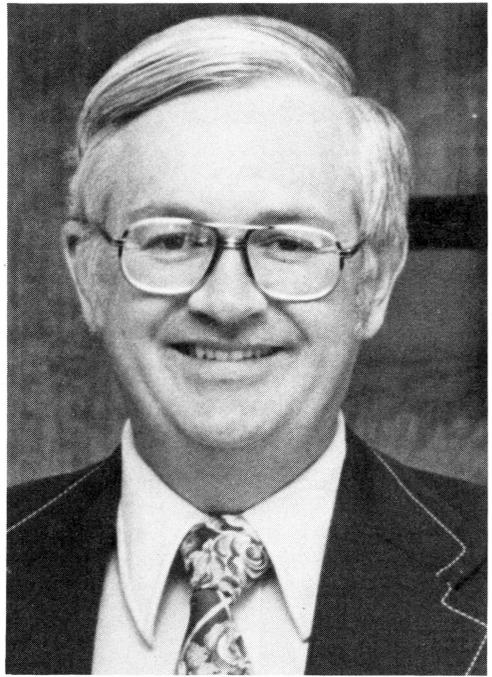
Veterinary Medicine is a science and an art which applies the principles of biomedical sciences to problems of health and disease in animals, thereby contributing to the well-being of animals, the prevention and control of diseases transmissible from animals to man, and discovery of newer knowledge in the diagnosis, treatment, and the control of disease of both man and animals.

Veterinary Medicine at the University of Missouri dates back to 1884; the present College of Veterinary Medicine graduated its first class in 1950. This bulletin outlines today's multiple dimensions of Veterinary Medicine and presents the sequence of learning culminating in the degree, Doctor of Veterinary Medicine.

We hope you will find the enclosed information useful in understanding Veterinary Medical education at the University of Missouri-Columbia. If there are unanswered questions, please call or write our office.



Kenneth D. Weide, D.V.M., Ph.D.
Dean



Veterinary Medicine at UMC

A Brief History

The University of Missouri is one university with four campuses—Columbia, Kansas City, Rolla, and St. Louis. Established in 1839 at Columbia (oldest and largest of the four campuses), the University is recognized as the first state university west of the Mississippi River. Designated a land-grant university in 1870, it has extended its educational benefits to all sections of the State of Missouri in addition to its traditionally assigned tasks of teaching and research within the campus settings.

The University is governed by a Board of Curators. The President of the University and his staff coordinate programs of all four campuses. The Chancellors are the chief academic and administrative officers for their respective campuses.

Veterinary medicine at the University of Missouri began in 1884 and has 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 of UMC, and finally, a College of Veterinary Medicine.

In 1885, the first vaccine-virus laboratory in the United States was established at the University under the supervision of the Veterinary Science Department. A veterinary laboratory building was erected in 1887. During these early years the staff veterinarians taught some courses to medical and agricultural students, conducted research on tick fever and investigated livestock losses from disease in various parts of the state.

Connaway Hall was built in 1910-11 to help house the expanding teaching program. Faculty members of the Department of Veterinary Science taught courses to agricultural students, investigated animal and poultry diseases, and performed diagnostic and extension work. Hog cholera virus and anti-hog cholera serum were produced from 1915 to 1936.

Classes in the School of Veterinary Medicine were limited to 30 students when the School opened in 1946. Those admitted were residents of Missouri. In 1965 the number was doubled with some out-of-state residents being accepted to meet the increased demand for veterinarians. In 1970, the enrollment was increased to the current class size—72 students. This increased enrollment was made possible with additional faculty members and improved facilities. In 1961 the Teaching Hospital was completed. Phase One of a building program was completed in 1977, providing an excellent facility for teaching, service, diagnostic work and research. Coupled with the increased size of the student body has been a balanced expan-



sion of graduate training and research programs.

A total of 1,209 veterinarians have been graduated from the College of Veterinary Medicine since 1946.

Careers in Veterinary Medicine

Veterinary medicine is a profession devoted to the service of man and animal, which offers a wide range of career specialties. Individual preference is the best guide when choosing a career in Veterinary Medicine.

There are more than 30,000 veterinarians in the United States with about 72 percent engaged in private practice. About 9 percent are involved in government work such as Public Health Service, military, or various positions at local, state, and federal levels. More than 10 percent of the veterinarians have found a profitable vocation in commercial fields such as the feed and drug industries. Nearly 10 percent of the veterinarians in the U.S. teach and/or conduct research at academic institutions.

The virtual explosion in numbers of small animal practitioners in the past decade indicates that veterinary medicine is important today in urban areas, as well as the rural areas of the country. The great increase of veterinarians working in special fields reflects the profession's strength and versatility in new areas such as space exploration and biomedical studies that require the highest degree of specialized knowledge and sophisticated skills.

Veterinary Practice

Private practice attracts the largest percentage of veterinarians. Along with the growth of the entire profession, various kinds of practices have evolved. Practices are owned by individuals or groups of veterinarians and range from mixed to highly selective specialty operations.

Large Animal Practice. This type of practice is concerned with the nutrition, management and disease problems of horses, cattle, sheep and swine. The large animal veterinarian is at the forefront of the struggle to protect food animals from disease and thus assure an adequate animal protein supply for our nation.

Small Animal Practice. These veterinarians are concerned with the health, care and management of dogs, cats and other small

pets. The modern small animal clinic or hospital is well-equipped with surgical units and clinical laboratories necessary for the diagnosis and treatment of the problems of household pets.

Mixed Practice. This type of practice is concerned with both large and small animals. The practices often are staffed by more than one veterinarian, so that each may concentrate in certain areas.

Specialty Practice. Specialty practices concentrate their services on one animal species or on one discipline. These include specialties in bovine, equine, avian and exotic or zoo animal medicine, and specialty disciplines such as ophthalmology, radiology or nutrition.

Laboratory Animal Medicine. Veterinarians working in this area direct their efforts toward the management of laboratory animals used for biomedical teaching and research. They are responsible for the health of species varying from pigeons to miniature swine. Others may use animals for drug testing, disease study or investigating basic biological phenomena.

Space and Marine Biology. The number of veterinarians employed in these fields is somewhat limited, but the employment opportunities will increase as space travel and use of marine plants and animals for food sources increase.

Government

More veterinarians are being hired by municipal, state, national and international agencies with the federal government as the leading employer.

Municipal Government. Many municipal health departments employ veterinarians full or part time. They work in food inspection, communicable disease prevention and control, epidemiological studies, laboratory diagnosis and research.

State Employment. The state veterinarian and livestock sanitary officials enforce laws and regulations in each state to safeguard the health of animals and humans. Many state health departments have one or more veterinarians on their staffs to help control animal diseases significant to human health and to investigate outbreaks of such diseases.

National Agencies. Veterinarians employed by the U.S. Department of Agriculture are concerned primarily with the production of healthy livestock and poultry. They are responsible for assuring wholesome and accurately labeled food products of animal origin for the nation's consumers.

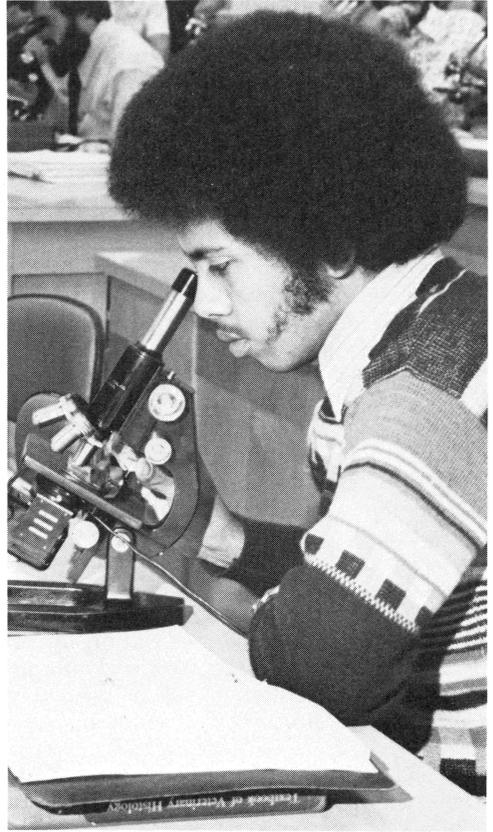
Certain sections within the Department of Agriculture contribute to the nation's health and economy by protecting livestock from foreign diseases and eradicating or controlling diseases within the country. Others are involved in evaluation of biological products to insure their effectiveness.

The Food and Drug Administration has a veterinary medical branch which supervises the production, manufacture and marketing of veterinary drugs and medicated animal feeds.

Veterinarians pursuing a career in the Public Health Service often are commissioned officers. They work with other members of the health professions to protect the health of animals and man. Many of these veterinarians conduct epidemiological studies to investigate diseases of animals transmissible to man.

Military veterinarians serve mainly in the areas of public health, research, laboratory animal medicine and canine medicine. Those concerned with public health are responsible for the general sanitation and cleanliness of U.S. military bases. They assure the quality of foodstuffs for military use. Those serving in a research capacity may be involved in projects related to aerospace exploration, nuclear medicine, laboratory animal medicine or marine biology. Veterinarians also supervise the health of dogs used for military purposes.

Veterinarians working with international agencies have helped improve the food supplies in many underdeveloped coun-



tries, thus raising the local standards of living. Opportunities for foreign service are based on one- to two-year contracts or appointments. Such positions are available through universities, foundations or specialized agencies of the United Nations. A few veterinarians also are employed directly by foreign countries, private firms or individuals on a consultant basis.

Commercial

The veterinarian's role in industry has expanded to include practically all of the knowledge, skill and special talents within the profession. As the industries serving the medical field and livestock industry expand, the need for veterinarians also increases.

Drug and Pharmaceutical Industry. Varied services are performed by veterinarians in the drug industry. They serve as integral parts of a team whose responsibilities are essential in developing, manufacturing, and marketing drugs and diagnostic products.

Feed Industry. Many veterinarians work with feed companies to provide better nutrition for livestock by scientific use of balanced rations. As the interrelationship of nutrition and disease is more clearly understood, more veterinarians will be needed to work with nutritionists in formulating satisfactory diets.

Herd Management and Food Production. Some veterinarians are employed by large commercial feedlots and corporate farms to improve the nutrition and health of thousands of cattle and swine.

Recreation. Veterinarians are in demand in the areas of dog and horse racing. Official track veterinarians check for drug use as well as supervising the care of animals at the tracks. They also are needed at organized shows, trail rides, and dog trials and act as advisors at breeding facilities.

Academia

The area of education is one of the most important in the profession, and qualified educators are in constant demand. Individuals in this area usually obtain graduate degrees, or complete a residency program, in addition to the Doctor of Veterinary Medicine degree in order to gain experience in teaching and more knowledge in a particular discipline. Veterinary educators are responsible for producing veterinarians who are trained scientists as well as educated citizens.

Most veterinarians employed by universities are active in both teaching and

biomedical research. The instructor's role is to impart to students a sound scientific base from which they can effectively fill their chosen roles in society. This is accomplished through lectures, laboratory exercises, seminars, informal discussions and actual clinical experience. Supported by private concerns as well as by government agencies, research provides an opportunity to delve into a specific field of interest. Information gained by the investigators in their research programs serves to improve the effectiveness of teaching.

Facilities

The UMC College of Veterinary Medicine is divided into the administrative and academic support offices, four academic departments and a diagnostic laboratory. These units are primarily housed in four buildings in the southeast section of the Columbia campus.

Veterinary Complex— Phase I

This complex includes the Veterinary Diagnostic Laboratory and the Veterinary Medicine Building, which is an addition to the Veterinary Medical Teaching Hospital.

The Veterinary Diagnostic Laboratory houses mammalian and avian necropsy and the Research Animal Diagnostic Laboratory. Supporting laboratory spaces for toxicology, histopathology, serology, bacteriology, virology and a large incinerator are provided. This facility provides the opportunity for veterinary students to receive instruction in diagnostic laboratory medicine.

The Veterinary Medicine Building houses teaching facilities for the departments of veterinary anatomy-physiology, veterinary pathology, and veterinary medicine and surgery. The facilities include a large gross anatomy laboratory, two classrooms, seminar rooms for small classes, learning centers for individual instruction, three surgical suites, anesthesia induction and preparation room, treatment room, hospital space for more than 50 patients, and support space such as an intensive care unit and clinical pathology laboratory.

Facilities for the Veterinary Medical Library have been expanded and are in the new building. This library, a division of Ellis Library, contains more than 25,000 volumes and receives more than 550 periodicals. The library has two learning centers designed for

individual audiotutorial carrels. Open seven days a week, it is designed to serve the veterinary medical and graduate students as well as the teaching and research needs of the College. The Medical Center Library is also available for veterinary student use. Library loans are available from other libraries in the University system.

Facilities for a student commons area on the second floor include a food preparation area with dispensing machines, television, and comfortable furniture for student relaxation.

Teaching laboratories facilitate the use of visual aids and demonstration materials and provide work and storage space for each student. Students are also assigned individual lockers with additional space for coats, books, microscopes and laboratory supplies.

Continuing education and extension functions are performed in an office-seminar room unit. This space is for the use of multiple visual aids and demonstrations for both professional and nonprofessional continuing education activities. This unit also has a television studio for closed-circuit productions.

Administrative offices in the Veterinary Medicine Building include those of the Dean, Associate Deans, Assistant Dean of Student and Alumni Affairs, and the Assistant to the Dean. Student, faculty and alumni records, and the College Fiscal Office are here.

The College's research activities are supported by graduate student offices and research laboratories and by the electron microscopes which are located in the Veterinary Medicine Building.

Connaway Hall

The Department of Veterinary Microbiology and its associated teaching and research programs are located in Connaway Hall. General teaching facilities include a large lecture room; two large laboratories equipped for instruction of students in bacteriology, virology, immunology, and parasitology; and an individual learning center.

Laboratory animal housing is scheduled to occupy space vacated by the gross anatomy laboratory.

Veterinary Science Building

This building, last of the temporary structures, provides teaching and research facilities for the physiology-pharmacology section of the Department of Veterinary Anatomy-Physiology. The facilities include a large lecture room and teaching and research laboratories. There are also laboratory animal facilities for teaching and research programs.

A learning center equipped with audiotutorial material for individual learning experiences is available for student use.

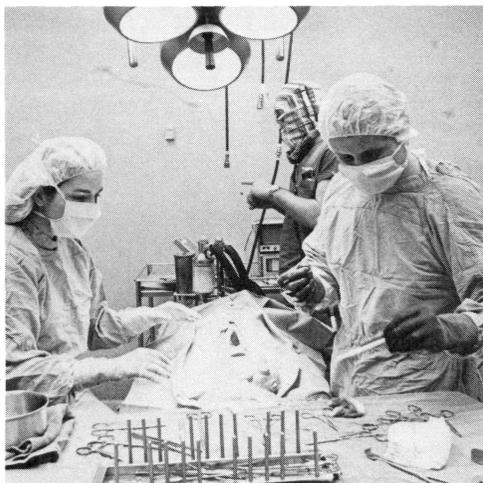
Veterinary Medical Teaching Hospital

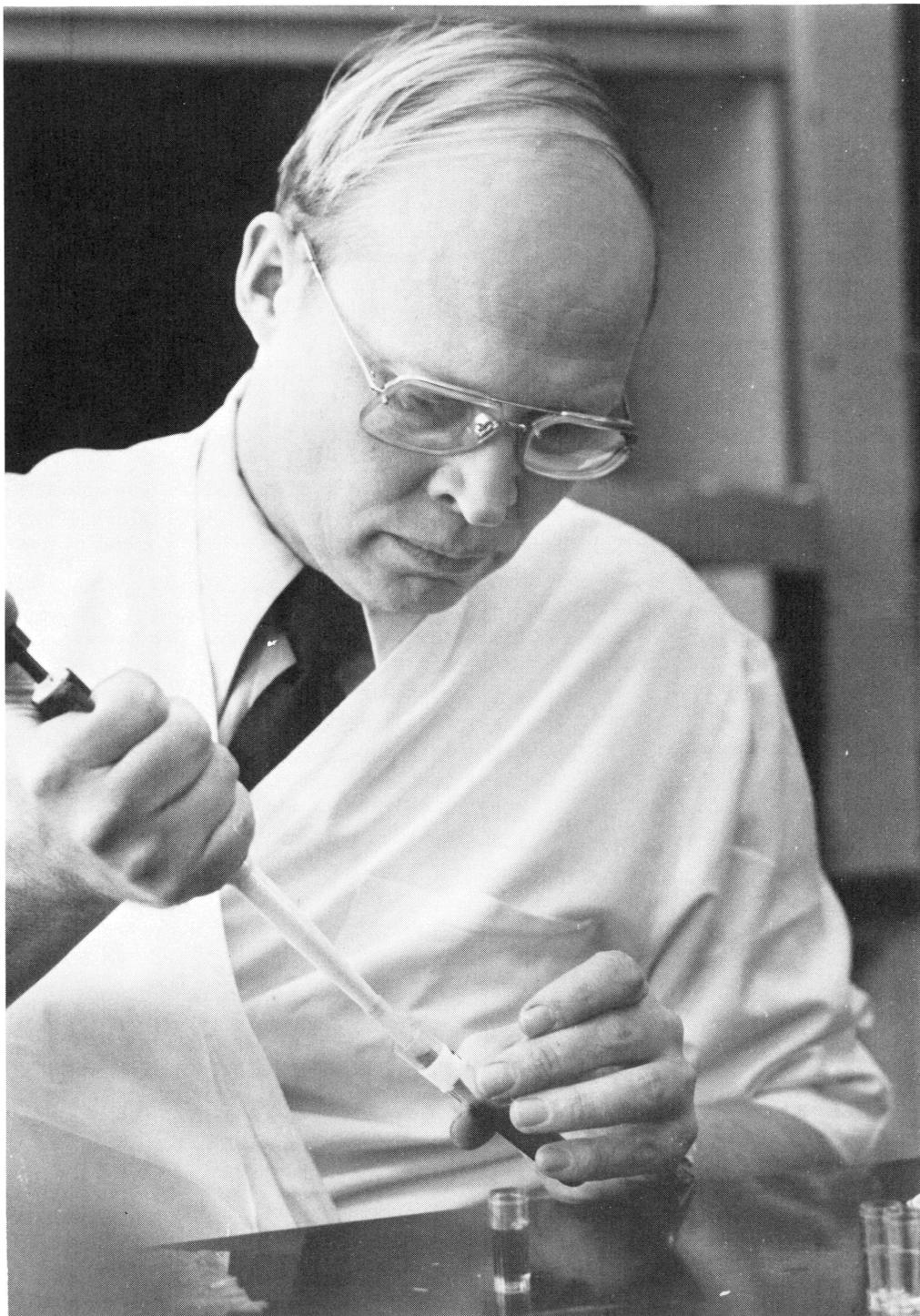
The Veterinary Medical Teaching Hospital is the center for teaching clinical medicine. Located in this building are the teaching clinics of the Department of Veterinary Medicine and Surgery. A large amphitheater for clinical conferences and student body functions, specialized laboratories for instruction, and small seminar rooms for the segmented curriculum are a few of the support facilities available.

The Food Animal Hospital specializes in total health care of livestock. Medical, obstetrical, and surgical services are performed in the hospital. A total of 60 food animals can be hospitalized in the facility.

The Ambulatory Clinic provides individual and herd health professional veterinary services for area livestock farmers. Operating with fully equipped, radio-dispatched vehicles, clinicians and students make farm calls to provide veterinary care and herd management consultation.

The Companion Animal Hospital provides diagnostic, medical and surgical treatment for local pet animals and for those referred by practicing veterinarians. Hos-





pitalization facilities are available for over 100 companion animal patients.

Middlebush Farm

This 288-acre farm south of Columbia is a divisional resource which is under development to meet needs of the College. The Equine Center and Orthopedic Foundation for Animals is located there. The Equine Center is the home of instructional courses in equine medicine and surgery for professional students. Medical, obstetrical and surgical services are provided for local patients and those referred by practicing veterinarians. Space is provided for sophisticated research projects.

Veterinary Medical Research Farm

This 90-acre farm, owned by the College of Veterinary Medicine, is a 10-minute drive from the Columbia campus. It has a large barn with three wings for housing large animals, a central research laboratory building, a laboratory for germ-free and animal experiments, a building for housing small animals, and many other large and small buildings used for various veterinary medical research projects.

Related Facilities

UMC is one of the few universities in which a college of veterinary medicine and a school of medicine are located on the same campus with colleges of agriculture, arts and science, and engineering. A number of interdisciplinary programs within the University permit the sharing of additional facilities by the College of Veterinary Medicine.

Sinclair Research Farm. This 560-acre farm, officially named the "Charles and Josie Sinclair Research Farm for Studies in Aging and Chronic Diseases," is located about four miles southwest of the Columbia campus. Animals, including miniature swine, primates and epileptic cattle, are maintained at the Farm as research subjects. Projects to investigate chronic disease or aging may utilize laboratories and/or animals at the facility.

Low-Level Radiation Laboratory. This laboratory contains a low-level, whole-body radiation counter. It is designed to measure natural and induced radioactivity in animals

and humans. Several research projects in the College of Veterinary Medicine use this facility.

Dalton Research Center provides 60,000 square feet of general laboratories, shop, offices and a specialized branch of Ellis Library. Interdisciplinary projects to increase knowledge of environmental adaptation of animal species are coordinated by the Center.

Nuclear Reactor Research Facility. One of the most powerful university nuclear reactors in the United States is in Research Park near the Memorial Stadium. The College of Veterinary Medicine has access to this facility to conduct radiobiological experiments.

Ellis Library, one of the largest university libraries in the United States, houses more than 1,800,000 volumes and 20,000 current periodicals in the main and branch libraries.

Missouri Agricultural Experiment Station coordinates certain research activities in the School of Forestry, Fisheries and Wildlife; College of Home Economics; and College of Veterinary Medicine, as well as the College of Agriculture.

Campus Computer Network has developed necessary computing facilities to assist both the educational and research programs of all divisions at UMC.

Admission

High School Study

Although there are no fixed requirements, high school preparation for the preprofessional 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, to see if the subject matter is appealing.

Actually, veterinary medicine may be considered an applied form of biological science. 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.

Preprofessional Study

A minimum of two years of preprofessional study is required before a student may be admitted to the professional program leading to the Doctor of Veterinary Medicine (D.V.M.) degree at the UMC College of Veterinary Medicine. Preprofessional requirements may be completed at any accredited college or university where the course work is offered.

Students interested in completing the preprofessional requirements at UMC should address inquiries to the Office of Admissions, 130 Jesse Hall, Columbia, Mo. 65211.

Preprofessional Curriculum

Students must complete at least 64 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 over 100 semester hours. Students admitted with only two years of preprofessional work are usually those with exceptionally good scholastic achievement records and aptitude scores.

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

The following courses and credit hours must be taken in residence at an accredited institution of higher learning to qualify for admission to the College of Veterinary Medicine. The UMC courses listed fulfill the requirements. Equivalent courses at other accredited colleges or universities are accepted. If a student has credit by examination, a more advanced course in the same discipline must be taken. Courses taken on the satisfactory/unsatisfactory grading system are not counted for admission to the College of Veterinary Medicine.

English or Communication: 6 hours

English 1, Composition; 50, Creative Writing; 60, Exposition; 65GH, Honors Exposition; 70, Creative Writing; 161, Technical Writing or more advanced courses.

Speech and Dramatic Art 75, Introduction to Speech Communication or more advanced courses.

Mathematics: 3 hours

Math 10, College Algebra or more advanced courses.

Inorganic Chemistry: 8 hours

Chemistry 11, General Chemistry; 12, General Chemistry or more advanced courses.

Organic Chemistry: 8 hours

Chemistry 210, Organic Chemistry; 211, Organic Chemistry Laboratory; 212 Organic Chemistry or more advanced courses. Biochemistry cannot be substituted for organic chemistry.

Physics: 5 hours

Physics 11, Elementary College Physics or more advanced courses.

Biological Science: 10 hours

Biological Sciences 11, Introductory Zoology and 12, General Botany or more advanced courses OR 21, General Biology and 22, General Biology or more advanced courses. Required Biological Science courses must be taken in either the area of biology or zoology.

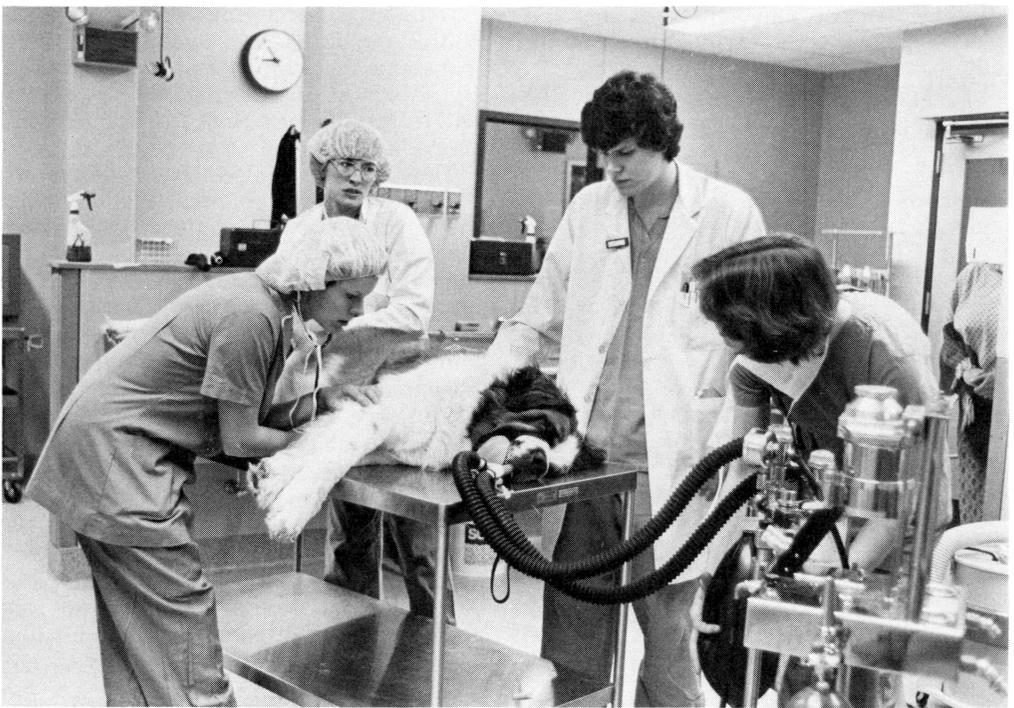
Social Science and/or

Humanistic Studies: 10 hours

Can include courses from history, economics, political science, geography (except those in cartography, meteorology and climatology), fine arts, classical and foreign languages, literature, mythology and philosophy.

Animal Science: 5 hours*

Dairy Production 12, Poultry Production 12 or Animal Science 12 or more advanced courses.



Animal Nutrition: 3 hours*

Principles of Animal Nutrition 202 or more advanced courses.

Electives: 6 hours

May be taken in any area. Students, again, are encouraged to pursue a degree program.

Total: 64 hours

*Applicants applying with the entering class of 1982 must meet these additional requirements.

Admissions Guidelines

Since the UMC College of Veterinary Medicine is a state-supported institution and there are far 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. Second-level consideration is usually extended to applicants from states without schools of veterinary medicine.
3. Third-level consideration is generally granted to applicants from states with schools of veterinary medicine.

A Missouri resident must have attained an accumulative grade point average of 2.5 (A=4.0) or better during preprofessional work in order to have the application ac-

cepted. Out-of-state applicants should establish scholastic records of at least 3.5 in order to receive serious consideration for admission.

Application Procedure

It is recommended that all UMC students interested in veterinary medicine contact the Office of the Assistant Dean for Student and Alumni Affairs, College of Veterinary Medicine, for advisement during the fall semester preceding the year of application.

Students must enter the College of Veterinary Medicine at the beginning of the fall semester. Application forms must be requested, completed, and submitted not later than December 31 of the year prior to that in which admission is sought. Students seeking admission should follow this procedure:

1. Request admission forms from the Office of the Assistant Dean for Student and Alumni Affairs, UMC, College of Veterinary Medicine, Columbia, Mo. 65211. Application materials are available September 1 through December 15.
2. Return the completed forms to the Office of the Assistant Dean for Student and Alumni Affairs by December 31.
3. Applicants must take the Veterinary Medical Aptitude Test. Information con-

cerning this test, and a list of dates and places where the test is given is sent with other admission forms.

All applications are considered by the Committee on Admissions and Scholarship for the College of Veterinary Medicine to determine if students meet the required standards. After initial screening, the remaining applicants are evaluated on the basis of their applications, academic records, veterinary aptitude test scores, personal interviews (when required), experience and personal references. The committee selects students with as many of the following characteristics as possible: high scholastic ability, reasonable judgment and common sense, moderately wide range of interests, some evidence of leadership ability, pleasing and alert personality, willingness to work for a worthwhile objective, and at least a fair understanding of the scope of veterinary medicine.

Fees & Expenses

The University reserves the right to change fees at any time. UMC attempts to keep required fees at a minimum. The following schedule lists fees and estimated expenses of an unmarried student.

First Year (August-July)

Tuition	\$1,632
Includes UMC incidental fee, Veterinary Medical supplemental fee and student activities fee.	
Supplies, Books, Instruments	300
Living Expenses	6,050
Includes off-campus rent, utilities, food, transportation, clothing and personal items, insurance and recreation.	
Total Estimated Fees & Expenses	7,982
Non-resident Tuition (additional)	1,584

Second Year (August-July)

Tuition	\$1,632
Supplies, Books, Instruments	650
Living Expenses	6,050
Total Estimated Fees & Expenses	8,332
Non-resident Tuition (additional)	1,584

Third Year (July-July)

Tuition	\$1,632
Supplies, Books, Instruments	500
Living Expenses	6,785
Total Estimated Fees & Expenses	8,917
Non-resident Tuition (additional)	1,584

Fourth Year (July-May)

Tuition	\$1,632
Supplies, Books, Instruments	650
Living Expenses (includes expenses for job interviews)	7,185
Total Estimated Fees & Expenses	9,467
Non-resident Tuition (additional)	1,584

Detailed information on fees and expenses, including supplemental fees, is furnished in the UMC *Schedule of Courses*. Upon request, the Cashier, 123 Jesse Hall, will furnish the pamphlet *Tuition and Residence Rules*.

The College of Veterinary Medicine provides students with high quality, binocular microscopes that meet College requirements and receive periodic maintenance. Each student accepting the opportunity to enter the professional curriculum is assessed a microscope use fee. The use fee is evaluated annually and may be adjusted, but will not change during a student's enrollment. The use fee covers maintenance and replacement cost of the microscope. It is not refundable.

Refund of Academic Fees. Students leaving the College may receive a refund of fees. Subject to certain exceptions, and due to the nature of the curriculum, refunds will be calculated following written request to the Manager of Cashiering. Fee refunds are paid in accordance with the following schedule.

100% refund before 1st day of class less \$10.00 for processing enrollment.

70% refund within 1/8 of fee period completed

50% refund within 3/8 of fee period completed

0% refund after 3/8 of fee period completed

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

Aids & Awards

UMC has numerous scholarship and loan funds, described in detail in the *Scholarships, Aids and Awards Bulletin*. Additional information on these funds is available from the Director of Student Financial Aids, 11 Jesse Hall, or the Assistant Dean for Student and Alumni Affairs, College of Veterinary Medicine.

Scholarships

The Alpo Scholarship. Each year the Allen Products Co. presents a scholarship to a member of the second-, third-, and fourth-year class. The recipient is chosen by the Scholarships and Awards Committee.

Curators Scholars in Veterinary Medicine. These awards for students entering their first year of veterinary medicine are made on the basis of scholarship, and cover the incidental and special fees for Missouri residents during the first year. The recipients are chosen by the Admissions and Scholarship Committee.

Pfizer Scholarship. A \$400 award for scholarship and leadership is given to a third-year veterinary medical student for fourth year expenses while completing requirements for the D.V.M. degree. This scholarship is by application, and the recipient is selected by the Scholarships and Awards Committee.

Frank Wells Scholarships in Veterinary Medicine. Scholarships for fourth-year students in the professional curriculum in veterinary medicine. Applications can be obtained in the Office of the Assistant Dean for Student and Alumni Affairs. The Scholarships and Awards Committee selects recipients.

J. B. Arthur Foundation Scholarships in Veterinary Medicine. All students in good standing and classified as second, third or fourth-year students in the professional curriculum in Veterinary Medicine at the University of Missouri are eligible. Applications can be obtained in the Office of the Assistant Dean for Student and Alumni Affairs. The Committee on Scholarships and Awards selects recipients.

Loans

Students enrolling in the College of Veterinary Medicine should be financially independent during the first year. They should establish themselves as professional students before applying for money from the funds available to veterinary medical students.

Health Professions Student Loan Program. This loan was made available through the enactment of the Veterinary Medicine Education Act of 1966. To qualify for the program an applicant must be (1) a citizen of the United States, (2) a full-time student, (3) engaged in pursuing a course of study leading to a D.V.M. degree and (4) in good standing and capable of maintaining such standing.

National Direct Student Loans. Title II of the National Defense Education Act of 1958 (Public Law 85-864) as

amended provides funds for student loans on very favorable terms. The loan fund is composed of money provided 90 per cent by the federal government and 10 per cent by the University.

Federally Insured Loan Program. A student may arrange a loan of reasonable size with a hometown bank, or other eligible lender, and the note is endorsed by the federal government. Thus the student need not provide collateral and the lender is assured of no losses on student loans.

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 during their final year in school. Additional contributions to the fund have been made in memory of Marlyn 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, 10 of which were 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 may also be considered. Maximum amount loaned to any one student is \$2400 at the annual interest rate of 8 per cent.

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 is a short-term, emergency fund available to third- and fourth-year veterinary medical students.



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

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

Awards

Basic Science Department Awards

Anatomy Award. This award of cash and a certificate sponsored by the Kansas City Veterinary Medical Association recognizes the first-year student who has demonstrated outstanding proficiency, interest and ability in anatomy. The recipient is selected by the department of veterinary anatomy-physiology.

Physiology Award. This award of cash and a certificate, sponsored by the Greater St. Louis Veterinary Medical Association, recognizes an outstanding first-year student for performance in physiology. The recipient is selected by the department of veterinary anatomy-physiology.

Microbiology Award. This award of cash and a certificate sponsored by Philips-Roxane, is presented to a second-year student for scholarship proficiency and interest in veterinary microbiology. The recipient is selected by the department of veterinary microbiology.

Cecil Elder Award. This award of cash and a certificate, endowed by Dr. Elder, is presented to a second-year student who has demonstrated exceptional interest and academic capability in veterinary pathology. The recipient is selected by the department of veterinary pathology.

Clinical Proficiency Awards

Dr. Edgar Ebert Memorial Awards. The Ebert Fund, established by Mrs. Edgar Ebert with contributions from faculty, alumni, and friends, provides awards of cash and a certificate for two fourth-year students who have demonstrated outstanding ability; one in large animal medicine and one in small animal medicine. The recipients are selected by the department of veterinary medicine and surgery.

English Practitioner Award. Dr. and Mrs. James E. English established this award of cash and a plaque for the fourth-year student most likely to succeed in general practice, because of overall proficiency in large and small animal veterinary medicine and surgery. The recipient is selected on ballot by classmates.

Veterinary Medicine Journal Awards. The late Dr. Robert L. Anderes, editor of *Veterinary Medicine*, established awards (cash and certificates) for two fourth-year students who have demonstrated the most improvement in large and small animal clinical medicine. The recipients are selected by the department of veterinary medicine and surgery.

Columbia Kennel Club Award. An award of cash and a certificate is presented to a fourth-year veterinary student for outstanding ability and scholastic proficiency in small animal surgery. The recipient is selected by the department of veterinary medicine and surgery.

American Animal Hospital Award. This award of a plaque and a certificate is presented to a fourth-year student for proficiency in small animal medicine and surgery, as judged by the small animal medicine and surgery faculty.

Harlan E. Jensen Ophthalmology Award. This award of cash and a certificate is presented to a fourth-year student who, during the clinical years, has demonstrated outstanding proficiency and interest in ophthalmology. The recipient is selected by Dr. Harlan E. Jensen.

The Elsie Roth Equine Proficiency Award. This award of cash and a certificate is presented to either a third- or fourth-year student who, in the judgment of the faculty, has demonstrated superior competency as a student and exhibits outstanding future potential in the area of equine medicine and surgery. The recipients are selected by the department of veterinary medicine and surgery.

Hill's Senior Award. Hill's Division Riviana Foods, Inc. will award to a senior student or students \$200 cash for the best clinical documentation of a clinical small animal case where dietary management was employed, as all or a substantial part of the treatment, and demonstrated to be beneficial.

Loren D. Kintner Veterinary Diagnostic Laboratory Award. This award of cash and a certificate is presented to a fourth year student for reliability, proficiency, interest, contributions, and performance in the Veterinary Diagnostic Laboratory. The recipient of the award is recommended by the Committee on Scholarships and Awards.

Scholastic Awards

Phi Zeta Award. This award of cash and a certificate is presented to the second-year student who has attained the highest scholastic record for the first three semesters of professional veterinary medical curriculum.

The Gamma Sigma Delta Award. The society annually honors a fourth-year student who has demonstrated high academic and extracurricular achievement. The student's name is inscribed on a permanent plaque which hangs in the Veterinary Medicine Library.

Merck Awards. Merck and Company presents Merck Veterinary Manuals to two students, one from the third-year class and one from the fourth-year class, who have attained high scholastic averages.

Dr. and Mrs. Leslie C. Murphy Scholarship Award. This award is presented to the fourth-year student who has attained the highest scholastic average for the total professional curriculum.

Arkansas Veterinary Medical Association Award. This award is presented to a fourth-year student who is a resident of the state of Arkansas, has attained at least a G.P.A. of 3.0 and has been active in extracurricular activities in the College of Veterinary Medicine. The recipient is selected by the Arkansas Veterinary Medical Association.

Service Awards

West Central VMA Leadership Award. An award of cash and a plaque is presented to a first-year student who is active in the promotion of organized veterinary medicine. The recipient is selected by classmates.

Auxiliary to the AVMA Award. An award of cash and a certificate is presented to a fourth-year student who has contributed the most to advance the prestige of the College of Veterinary Medicine on the Columbia Campus. The recipient is selected by the fourth year class.

Missouri Veterinarian Award. A gift is awarded to the most outstanding student serving on the publication staff of the *Missouri Veterinarian*. The recipient is selected by SAVMA.

Peristalsis Award. This award, supported by the Student Chapter of the AVMA, is in recognition of outstanding efforts in the publication of the annual yearbook. The recipient is selected by SAVMA.

A. H. Groth Student Research Award. This award is presented to a third-year student in the professional

curriculum who has demonstrated superior competency as a student and exhibits outstanding future potential in the area of veterinary research. The recipient is selected by the Scholarships and Awards Committee.

Diamond Service Award. Diamond Laboratories has established a service award recognizing a fourth-year student for contributions to the Student Chapter of the AVMA, the College of Veterinary Medicine and achievement of the academic objective through persistence, tenacity and perseverance. The recipient is selected by the senior students in the professional curriculum.

Student Employment

Many students work part time while attending school. Because of the high number

of classroom and laboratory hours required of veterinary medical students, it is recommended 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 Student Employment Office, a division of the Office of Student Financial Aids, 11 Jesse Hall, provides information and assistance to students seeking part-time work.



Student Activities

Code of Ethics (Honor Code)

Honesty is an essential part of professionalism. The "Code of Ethics" at the UMC College of Veterinary Medicine places the responsibility for honor and honesty on the student. Examinations are not closely proctored by faculty members. The expensive drugs and equipment used in clinics and laboratories are made available for most effective instruction, with the understanding that the candidate for the D.V.M. degree will use these materials only for their intended purposes without being policed by faculty members.

This Code applies to all students in the College of Veterinary Medicine and helps promote ethical standards of personal and professional conduct among the students. Reported 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 College of Veterinary Medicine.

Student Chapter of the American Veterinary Medical Association

All veterinary medical students are eligible for membership in the Missouri Student Chapter of AVMA. A guest speaker usually is featured at monthly meetings. Other activities include a picnic given by the second-year class to welcome the incoming class, a smoker at which new students and faculty members are welcomed by the other three classes, an all-school dance in the fall, and an annual Junior-Senior Banquet and Dance in the spring.

The Student Chapter is a divisional arm of Missouri Student Government and functions as the Veterinary Student Council. The official journal for the organization is the *Missouri Veterinarian*, published three times a year. The Chapter sends delegates to the national convention, offers support for members to attend national educational symposiums and provides numerous benefits for new D.V.M.'s upon graduation.

Members of the Student Chapter of the AVMA elect a president, vice-president, secretary and treasurer who, along with several officers of each class, make up the Executive Council. Committees for the student chapter of the AVMA are appointed by the president.

Student Honor Committee

As set forth in the preamble to the College of Veterinary Medicine Honor Code, the students of the College have established a code deserving of the high trust and irreplaceable conduct demanded by their chosen profession. The Honor Committee is composed of two members from each class. With approval of the Student Chapter of the AVMA, the president appoints the members. The committee is chaired by a fourth-year member.

Class Officers

Each class elects its own officers annually—a president, vice-president, secretary-treasurer and a class representative. The president of each class and the AVMA Student Chapter President serve on the Student Advisory Council which meets regularly with the Dean and Assistant Dean for Student and Alumni Affairs to discuss College concerns.

The Missouri Veterinarian

This is a student-published journal, with a state-wide circulation to veterinarians within Missouri in addition to the College of Veterinary Medicine faculty, students and alumni. Articles in the journal are directed to veterinary medical practice.

All students interested in assisting with this publication are invited to join the staff to help with reporting, editing, assembling or circulation. Editors and business, advertising and circulation managers are selected on their previous experience with the journal, along with their ability and dedication to the profession.

Student Auxiliary

Spouses of students who are members of the Student Chapter of the AVMA are eligible to join this auxiliary organization. Monthly meetings are held with a variety of programs: guest speakers on subjects related to the veterinary profession, homemaking, fashion, business and many others. Spouses of faculty members serve as sponsors of the group.

Pre-Veterinary Medicine Club

Students on the Columbia campus engaged in pre-veterinary medical study qualify to join this club. A faculty member of the College of Veterinary Medicine acts as adviser. Regular meetings are held, with speakers, discussing 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 College of Veterinary Medicine.

Other Campus Activities

All UMC 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 with national affiliation on campus.

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, Veterinary Medicine, and Home Economics, and the School of Forestry, Fisheries and Wildlife who have shown exceptional ability during undergraduate or graduate work and also recognizes alumni and faculty members who have rendered signal service to the cause of agricultural development.

Senior Honor Societies. Mortar Board, Mystical Seven, Omicron Delta Kappa, LSV, QEBH and Pi Omicron Sigma are senior organizations that recognize leadership and service in addition to scholastic achievement.



Professional Program

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, biochemistry, 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 audiotutorial teaching approach is being used.

After successful completion of the second year of the professional program, the student enters a segmented curriculum for the years of clinical training. In this concept of veterinary training the final two years are divided into 11 two-month blocks. Students must complete successfully seven required blocks for graduation. Each two-month block 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 blocks are food animal medicine and surgery, theriogenology, equine medicine and surgery, small animal medicine, small animal surgery, medical services, and diagnostic pathology/special species medicine.

Students may use free blocks to coordinate with their professional objectives. For example, a student may work with a practicing veterinarian, complete a continuation block or take vacation time.

Professional Curriculum

VAP—Veterinary Anatomy-Physiology
VMS—Veterinary Medicine and Surgery
VM—Veterinary Microbiology
VP—Veterinary Pathology
V—following course number signifies courses for veterinary students only
Credit hours in parentheses

First Year (Instructional Periods 1-4)

Period 1
VAP202V Veterinary Anatomy (4)
VAP220V Veterinary Physiology (2.5)
VAP224V Veterinary Physiological Chemistry (2.5)

Period 2
VAP202V Veterinary Anatomy (4)
VAP220V Veterinary Physiology (2.5)
VAP224V Veterinary Physiological Chemistry (2.5)
Period 3
VAP203V Veterinary Anatomy (6)
VAP221V Veterinary Physiology (3)
Period 4
VAP203V Veterinary Anatomy (4)
VAP221V Veterinary Physiology (3)
VM 241V Veterinary Immunology (2)

Second Year (Instructional Periods 5-9)

Period 5
VP 231V General Pathology (3)
VM 242AV Veterinary Bacteriology I (3)
VM 245AV Veterinary Parasitology I (3)
Period 6
VP 232AV Systemic & Special Pathology I (3)
VM 242BV Veterinary Bacteriology II (2)
VM 243V Veterinary Virology (1.5)
VM 245BV Veterinary Parasitology II (3)
Period 7
VAP226V Veterinary Pharmacology (3)
VP 232BV Veterinary Systemic & Special Pathology II (3)
VM 243V Veterinary Virology (1.5)
VM 246V Introduction to Epidemiology & Infectious Diseases (2)
Period 8
VAP227V Veterinary Pharmacology/Anesthesiology (3)
VMS271V Introduction to Clinical Sciences (3)
VM247V Veterinary Clinical Epidemiology & Preventive Medicine (4)
Period 9
VMS271V Introduction to Clinical Sciences (4)
VMS273V Radiology (2)
VAP228V Veterinary Toxicology (3)

Third and Fourth Years

Period 10
VMS272V Small Animal Surgery (2.5)
VMS274V Small Animal Medicine (2.5)
VMS275V Food Animal Medicine & Surgery (3.5)
VMS276V Lab Animal Medicine (1.5)
Required Clinical Blocks
VMS251V Food Animal Medicine & Surgery I (10)
VMS253V Small Animal Medicine I (10)
VMS255V Equine Medicine and Surgery I (10)
VMS257V Small Animal Surgery I (10)
VMS259V Theriogenology I (10)
VMS261V Medical Services I (10)
VP263V Diagnostic Pathology & Special Species Medicine I (10)
Continuation Blocks (requires special consent)
VMS252V Food Animal Medicine & Surgery II* (1-10)
VMS254V Small Animal Medicine II* (1-10)
VMS256V Equine Medicine and Surgery II* (1-10)
VMS258V Small Animal Surgery II* (1-10)
VMS259V Theriogenology II* (1-10)
VMS262V Medical Services II* (1-10)
VP 264V Diagnostic Pathology & Special Species Medicine II* (1-10)
VMS266V Lab. Animal Med. & Mgt. II* (1-10)
VMS268V Herd Health Mgt. & Nutrition II*†(10)
VM270V Epidemiology & Community Health* (1-10)

*Offered by departmental consent only, with minimal enrollment to be determined by instructional faculty and department chairman.

†To follow Food Animal Medicine and Surgery and Theriogenology blocks.

Requirements for Graduation

A student who receives a grade of F in any required course of the professional curriculum will be dismissed.

Any student whose cumulative GPA in the required professional curriculum is below 2.0 will be placed on academic probation. Probation must be removed by the end of the next two successive grading periods. Any student failing to remove probation will be dismissed from the College of Veterinary Medicine.

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 instructional blocks available in the curriculum for the fulfillment of graduation requirements.

The D.V.M. degree, Doctor of Veterinary Medicine, is awarded after successful completion of the professional program.

Advanced Study

Graduate Degree Programs

Graduate education and research are integral parts of veterinary medicine. All departments of the college offer advanced training leading to the Master of Science degree. The departments of veterinary anatomy-physiology, veterinary microbiology and veterinary pathology also offer graduate programs leading to the Doctor of Philosophy degree. Ph.D. degree programs are intercollegiate programs in disciplinary areas of study.

Research programs in the College of Veterinary Medicine provide a clearer understanding of disease processes and methods of prevention and treatment of diseases of animals and man. Such efforts contribute to the advancement of science and significantly enhance the quality of professional education.

The versatility of the veterinary profession permits its members to work in a wide variety of research areas. Some areas investigated include: infectious and non-infectious diseases of livestock, poultry and companion animals; zoonoses (diseases transferred from animal to man); reproductive biology; comparative anatomy, physiology, pharmacology and pathology; neoplasia; laboratory animal medicine; veterinary public

health; environmental health; radiation biology; clinical research and drug evaluation; and nutritional studies. Research projects are supported by federal and state funds, foundation awards, and grants or contracts from industries, livestock producer associations, and other groups.

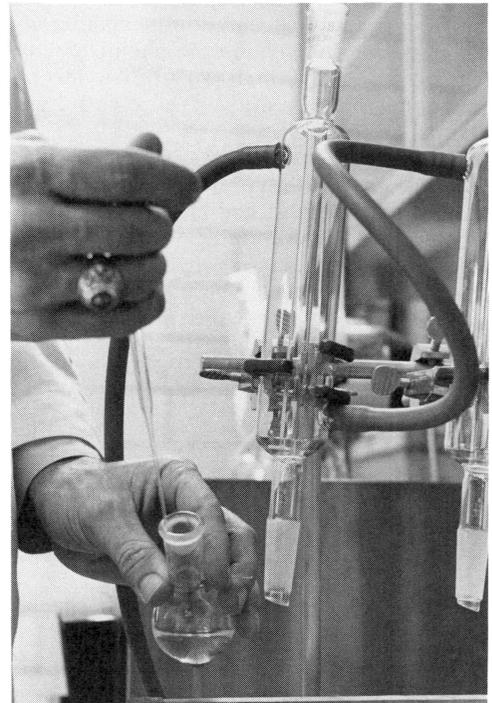
Residency Programs

Residencies are available in medicine and surgery, toxicology, pathology, public health, laboratory animal medicine, and microbiology. The primary purpose of residency programs is to qualify veterinarians for board certification.

Graduate Study for Veterinary Medical Students

Undergraduate students often find an opportunity to participate actively in research programs. In some cases it is possible to augment training for the D.V.M. degree with study for the Master of Science degree. The general requirements for advanced degrees are published in the Graduate School Bulletin.

The specific requirements are established by the various departments and areas, and



are somewhat variable for individual students. Those contemplating this program should recognize that it usually requires a one-year interruption of the professional curriculum. They are urged to consult with appropriate faculty about prerequisites and a specific degree program.

Departments

Veterinary Anatomy-Physiology

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 concurrently study normal functions of cells, tissues, organs and body systems in physiology and physiologic chemistry. The veterinarian's knowledge of anatomy, physiology and physiologic chemistry provides the basis for understanding disease processes and the recognition and treatment of animal diseases.

First-year veterinary students study anatomy in laboratory exercises in gross anatomic dissection, microscopic examination of cells and tissues, and study of embryologic and neuroanatomic specimens. Laboratories in physiologic chemistry and 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 taught as part of the clinical training in physical examination, clinical diagnosis and surgery.

Graduate Program

The department offers graduate study leading to the Master of Science degree in four disciplines: veterinary anatomy, veteri-

nary biochemistry and nutrition, veterinary pharmacology, and veterinary physiology. Graduate study leading to the Doctor of Philosophy degree can be accomplished in the department under the auspices of various area programs. The program of study leading to a graduate degree is arranged individually, and prospective students are encouraged to correspond directly with the Director of Graduate Studies about available opportunities. The *UMC Graduate School Bulletin* contains information regarding graduate offerings and specific program requirements.

The courses of study in veterinary anatomy include gross, microscopic, and ultrastructural levels; comparative neuroanatomy and neurology; embryology and developmental anatomy; and anatomy of laboratory animals. Work for the Ph.D. degree can be accomplished in cooperation with the department of anatomy, School of Medicine.

Study and research in biochemistry and nutrition includes such areas as interactions between biochemical nutrition and disease, effects of stress on metabolism and other problems related to nutritional biochemistry. Work for the Ph.D. degree in biochemistry and nutrition can be accomplished in the department under the authority of the area program in nutrition.

Graduate study in veterinary pharmacology provides a basis for the understanding of the fundamental principles of pharmacology. Although neuropharmacology is emphasized, a student may work in other areas of pharmacology. The Ph.D. degree in pharmacology is granted in cooperation with the department of pharmacology, School of Medicine.

Graduate students in veterinary physiology survey knowledge of normal functions in domestic animals and become familiar with research in the field. Work for the Ph.D. degree in veterinary physiology can be accomplished in the department under the auspices of the area program in physiology.

Veterinary Medicine & Surgery

Professional Program

In the clinical years of the professional curriculum, the student is introduced to the art and science of clinical veterinary medicine and surgery. The practical applica-

tion of the basic principles of medicine and surgery to the diagnosis, prevention and treatment of disease in all species of animals presents a challenge to the mental and physical resources of the student.

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 a considerable amount of responsibility for the total health requirements of animals assigned to their care. Discussion periods, formal lectures, rounds and laboratory training guide the progress of the clinical student in systematic medicine and surgery. Broad exposure to clinical practice is gained through the curriculum design.

Graduate Program

Programs of excellence exist in the specialty areas of small and large animal surgery, small and large animal medicine, anesthesiology, radiology and nuclear medicine, comparative cardiology, ophthalmology and theriogenology.

Completion of the D.V.M. degree (or its approved equivalent) is a prerequisite for admission to the Master of Science degree program. Graduate Records Examination (GRE) and UMC Graduate School acceptance is required of all applicants. A minimum of 30 hours selected from courses receiving graduate credit must be completed for the master's degree. An acceptable thesis based upon original research is generally required of all degree candidates. All students must be found acceptable by the adviser, the Director of Graduate Studies, and the department chairman.

Since the department does not offer the Doctor of Philosophy degree, individuals interested in doctoral research on clinical problems should consult and work with faculty members in the department who hold doctoral faculty appointments in the Graduate School, area program in physiology.

Veterinary Microbiology

Professional Program

Courses offered in the department 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 and on veterinary community health and immunology. Lectures, laboratory periods, special demonstrations, special projects and autotutorial programs are offered.

Graduate Program

Advanced study leading to the Master of Science in veterinary microbiology and the Doctor of Philosophy in the area program in microbiology is offered. The Master of Science in Public Health (M.S.P.H.) is offered through a joint program with the department of family and community medicine. The M.S. and Ph.D. programs are designed to prepare students for teaching, research and diagnostic services in veterinary microbiology, infectious diseases and the biomedical area. The M.S.P.H. program prepares students for teaching, research and administrative positions in veterinary community health and epidemiology. Additional information is provided in the *UMC Graduate School Bulletin* and brochures provided through the departmental office.

Veterinary Pathology

Professional Program

The primary function of the veterinary pathology department is to teach professional courses in which instruction is given on the 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. The extensive and varied case loads in the 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. For admission, the candidate should have completed the D.V.M. or an acceptable baccalaureate degree. Parts I, II, III of the GRE must be taken before entering Graduate School or during the first semester of residence. Students should rank in the upper third of their class. Further details for re-

quirements of the degree are listed in a brochure available through the Department and in the UMC *Graduate School Bulletin* available through the Graduate School.

The Ph.D. area program in pathology is staffed jointly and presented by the departments of pathology, School of Medicine; veterinary pathology, College of Veterinary Medicine; and plant pathology, College of Agriculture. Ph.D. candidates may choose their research areas to take advantage of the interests and specialties of various advisers in the departments. Research is conducted in various areas including morphologic alterations in response to disease, ultrastructural and histochemical changes, clinical chemistry, and immunofluorescence, all of which are related to host-agent interrelationships in the pathogenesis of disease. Included in these studies are food animals, companion animals, research laboratory animals and some exotic wild animals. A detailed, illustrated brochure on this program is available through the departmental office.

Veterinary Medical Diagnostic Laboratory

The Veterinary Medical Diagnostic Laboratory in the College of Veterinary Medicine is interdisciplinary, with responsibility for diagnostic service, teaching and research. It serves clinicians of the Veterinary Teaching Hospital, veterinary practitioners throughout the state of 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. It holds full accreditation from the American Association of Veterinary Laboratory Diagnosticians as a full-service veterinary medical diagnostic laboratory. The laboratory was moved into a new building in the spring of 1977 placing its operations and personnel in a single location.

The Diagnostic Laboratory provides an opportunity for veterinary students to receive instruction in diagnostic laboratory medicine. Two blocks of instruction entitled Diagnostic Pathology and Special Species Medicine I and II are offered. Students are assigned to this area during their clinical years for partial credit and are under the supervision of staff members. They conduct necropsy examinations and learn interpretation of laboratory tests, e.g., bacteriologic

culturing, serological tests, viral isolation, and parasitological and histopathological examinations. One duty station of the Diagnostic Pathology Block is in the Clinical Pathology Laboratories, located in the Veterinary Medicine Building. Graduate students in pathology and related disciplines receive part of their graduate experience in the Diagnostic Laboratory.

The laboratory is a valuable resource for graduate training through its daily access to disease conditions in more than 60 different animal species. Approximately 15,000 accessions are received by the laboratory annually, including 7,000-8,000 necropsies and a wide variety of disease specimens for examination by virologists, bacteriologists, serologists, toxicologists and chemists.

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

Laboratory Animal Medicine Area Program

A formal graduate program in laboratory animal medicine leads to a Master of Science degree. Training includes biology, husbandry, management, surgery, diseases and pathology of laboratory animals. The study of animal models for human-health-related research and independent research also are included in the training program. Graduates assume positions in universities, research centers and other institutions conducting biomedical research. The program is designed to prepare trainees for certification by the American College of Laboratory Animal Medicine (ACLAM) and should provide the basis for a career in teaching, research and professional management of laboratory animal facilities.

Applicants for the laboratory animal medicine graduate program must have a Doctor of Veterinary Medicine degree or its equivalent and meet the requirements specified by the UMC Graduate School. Qualified applicants for the program are selected by the Laboratory Animal Medicine Executive Committee.

Program

Master of Science Degree. The program follows the guidelines established by the Institute of Laboratory Animal Resources and the American College of Laboratory Animal Medicine. Completion of the program usually requires three years, varying according to the ability and qualifications of the individual student. The first two years include formal courses, assigned problems, residency training and research. The first two summer sessions and approximately 20 hours each week during the initial two years are devoted to residency training dealing with day-to-day activities in the department of laboratory animal medicine at the University Medical Center, the Sinclair Comparative Medicine Research Farm and the Research Animal Diagnostic Laboratory. The third year is devoted primarily to research, preparing a thesis, and continued residency training. Students interested in obtaining a Ph.D. in a basic science may bypass the M.S., if otherwise satisfying the requirements of the program. Trainees are assigned an adviser and are encouraged to select a research area as early in the program as possible.

Courses and Research. Courses may be selected from those offered by the College of Veterinary Medicine, the School of Medicine, and other schools and colleges on the Columbia campus.

The faculty members participating in this program are actively involved in research on animal models of human disease and diseases of laboratory animals.

Faculty. Diplomates of the American College of Laboratory Animal Medicine provide leadership in the area of laboratory animal medicine. All hold academic appointments in the College of Veterinary Medicine and some hold joint appointments in the School of Medicine. Other faculty and technical staff of the College of Veterinary Medicine, the School of Medicine, and the Sinclair Comparative Medicine Research Farm assist with the program.

Continuing Education

The UMC Extension Division is organized to serve the people and institutions of the state. As part of this division, the extension activities in the College of Veterinary Medicine are centered on the activities of the director of continuing education and other full- and part-time staff veterinarians.

The two principal objectives of veterinary medical continuing education are continuing professional training for veterinarians and cooperative extension activities. The first serves to increase the professional competence of veterinarians and thereby improve the quality of veterinary medicine offered to clients in the prevention and control of diseases of livestock and pets. The latter acquaints the owners of food producing or companion animals with better utilization of veterinary medical services and with the advantages of preventive medicine. Rural and urban extension veterinary medicine are an integral part of College programs. Considerable community health consultation is carried out regarding animal bites and the risks and occurrence of zoonotic diseases.

Continuing professional education is facilitated by information mailed regularly to more than 950 veterinarians. Conferences, seminars and short courses also are scheduled for practitioners to participate in intensive learning opportunities. A Mid-Career Program is conducted to give in-depth individualized training in special areas to practicing veterinarians or those veterinarians changing their careers. This is a two-month program, with goals mutually agreeable to the participant and instructors involved. Information on disease problems is presented to animal owners and allied interest groups in several ways. Group meetings on general subjects are requested by, or scheduled through, county extension directors. Persons in attendance are encouraged to participate in the presentations by asking questions and relating their experiences and problems. Local practicing veterinarians also are invited to attend and participate in these programs.

Statement of Courses

Veterinary Anatomy-Physiology

200 Problems (cr.arr.)

202V Veterinary Anatomy (8). Instructional periods 1 and 2. Prerequisite: enrollment in College of Veterinary Medicine.

203V Veterinary Anatomy (10). Continuation of 202V. Instructional periods 3 and 4. Prerequisite: same as for 202V.

219 Elements of Veterinary Anatomy (3). Prerequisite: 5 hours biological sciences (zoology) or equivalent. f.

220V Veterinary Physiology (5). Instructional periods 1 and 2. Prerequisite: enrollment in College of Veterinary Medicine.

221V Veterinary Physiology (6). Continuation of 220V. Instructional periods 3 and 4. Prerequisite: same as for 220V.

222 Fundamentals of Animal Physiology (3). For students not enrolled in the professional Veterinary Medicine curriculum. w.

224V Veterinary Physiological Chemistry (5). Instructional periods 1 and 2. Prerequisite: enrollment in College of Veterinary Medicine.

226V Veterinary Pharmacology (3). Instructional period 7. Prerequisite: enrollment in College of Veterinary Medicine.

227V Veterinary Pharmacology/Anesthesiology (3). Instructional period 8. Prerequisite: same as for 226V.

228V Veterinary Toxicology (3). Instructional period 9. Prerequisite: same as for 226V.

300 Problems (cr. arr.)

303 Cytology, Histology and Microscopic Anatomy of Domestic Animals (5). Prerequisite: graduate standing, background in biological sciences, instructor's consent.

305 Histological and Anatomical Techniques (cr. arr.). Prerequisite: background in biological sciences, instructor's consent.

307 Embryology and Development of Domestic Animals (2). Prerequisite: background in biological science and departmental consent.

311 Canine Dissection (6). Prerequisite: background in biological science and departmental consent. f.

312 Anatomy of Common Domestic Animals (5). Prerequisite: background in biological science and departmental consent. w.

326 Veterinary Pharmacology (3).

327 Principles of Physiologic Adaptation (3). Prerequisite: vertebrate physiology or physiological zoology, 4 credits; chemistry, 5 credits; or instructor's consent.

328 Adaptation to Xenobiotics (3). Prerequisite: biochemistry or instructor's consent. f.

400 Problems (cr. arr.)

409 Advanced Microscopic Anatomy (cr. arr.). Prerequisite: graduate standing, 303 or equivalent, instructor's consent.

410 Seminar (1). Prerequisite: departmental consent.

418 Correlative Neuroanatomy (4). Prerequisite: graduate standing and/or instructor's consent.

420 Veterinary Physiology (5). Prerequisite: Biochemistry 270 and Biochemistry 272 or equivalent. w.

421 Veterinary Physiology (5). Continuation of 420. f.

427 Fate of Drugs in the Animal Body (2). (same as Pharmacology 427). Prerequisite: 10 hours physiology, 5 hours pharmacology and 5 hours biochemistry. alt. w. odd yrs.

450 Research (cr. arr.)

490 Research (cr. arr.)

Veterinary Medicine & Surgery

Courses: Departmental course listings include the professional and graduate courses. The graduate student may select from this listing, from other departments in the College of Veterinary Medicine, the School of Medicine, and other schools and colleges at the University of Missouri-Columbia. Course selection to insure adequate support for the research and to provide a well-rounded program of study are commanded. Graduate courses require departmental consent.

200V Problems (cr. arr.).

251V Food Animal Medicine and Surgery I (10). Six times per year.

252V Food Animal Medicine and Surgery II (1-10). Prerequisite: 251V.

253V Small Animal Medicine I (10). Six times per year.

254V Small Animal Medicine II (1-10). Prerequisite: 253V or equivalent.

255V Equine Medicine and Surgery I (10). Six times per year.

256V Equine Medicine and Surgery II (1-10). Continuation of 255V.

257V Small Animal Surgery I (10). Six times per year.

258V Small Animal Surgery II (1-10). Prerequisite: 257V or equivalent.

259V Theriogenology I (10). Six times per year.

260V Theriogenology II (1-10). Continuation of the prerequisite 259V.

261V Medical Services I (10). Six times per year.

262V Medical Services II (1-10). Continuation of the prerequisite 261V.

266V Laboratory Animal Medicine and Management II (1-10).

268V Herd Health Management and Nutrition II (10). Prerequisite: 251V & 259V.

271V Introduction to Clinical Sciences (7). Instructional Periods 8 and 9.

272V Small Animal Surgery (2-½). Instructional Period 10.

273V Radiology (2). Instructional Period 9.

274V Small Animal Medicine (2-½). Instructional Period 10.

275V Food Animal Medicine and Surgery (3-½). Instructional Period 10.

276V Laboratory Animal Medicine (1-½). Instructional Period 10.

300 Problems (cr. arr.)

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 & physics/chemistry; or instructor's consent.

351 Advanced Surgical Techniques (cr. arr.) Prerequisite: D.V.M.

355 Advanced Techniques in Radiology (cr. arr.) Prerequisite: D.V.M.

356 Advanced Studies of Poisonous Plants and Toxicology (cr. arr.) Prerequisite: D.V.M.

400 Problems (cr. arr.)

410 Seminar (1).

450 Research (cr. arr.)

487 Nuclear Medicine (3). Prerequisite: one year college physics, D.V.M. degree & departmental consent.

488 Radiation Therapy (3). Prerequisite: one year college physics, D.V.M. degree & departmental consent.

490 Research (cr. arr.)

Veterinary Microbiology

241V Veterinary Immunology (2). Instructional Period 4.

242AV Veterinary Bacteriology I (3). Prerequisite: enrollment in the College of Veterinary Medicine. Instructional Period 5.

242BV Veterinary Bacteriology II (2). Continuation of 242AV. Prerequisite: same as 242AV. Instructional Period 6.

243V Veterinary Virology (3). Instructional Periods 6 and 7.

245AV Veterinary Parasitology I (3). Prerequisite: enrollment in the College of Veterinary Medicine. Instructional Period 5.

245BV Veterinary Parasitology II (3). Continuation of 245AV. Prerequisite: same as 245AV. Instructional Period 6.

246V Introduction to Epidemiology and Infectious Disease (2). Instructional Period 7.

247V Veterinary Clinical Epidemiology and Preventive Medicine (4). Instructional Period 8.

270V Epidemiology and Community Health (1-10). Prerequisite: 247V or instructor's consent. Instructional Period arranged.

300 Problems (cr. arr.)

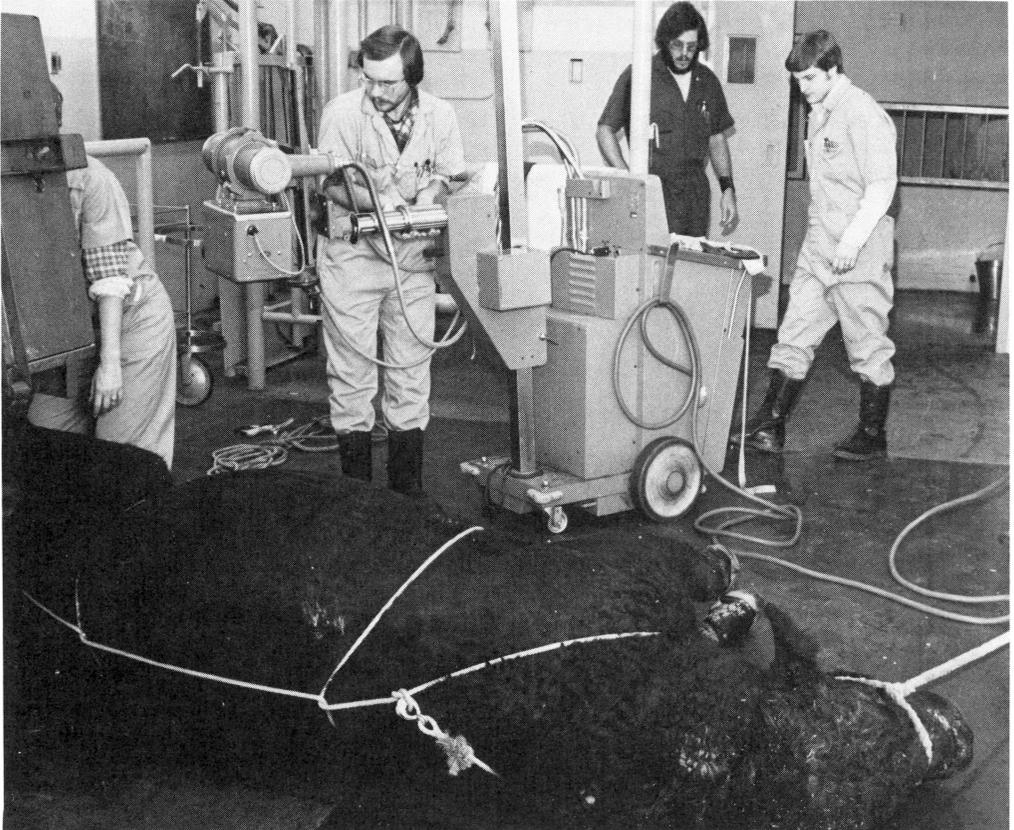
340 Microbial Physiology (3). Prerequisite: one course in microbiology & one in general biochemistry. alt. f. odd yrs.

343 Concepts and Methods in Animal Virology (3). Prerequisite: general microbiology, general biochemistry & instructor's consent. alt. f. odd yrs.

345 Veterinary Parasitology I (3). Presented concurrently with 245AV. Prerequisite: Biological Sciences 210 or equivalent & instructor's consent. Instructional Period 5.

346 Veterinary Parasitology II (3). Continuation of 345. Also concurrent with 245BV. Prerequisite: Biological Sciences 210 or equivalent & instructor's consent. Instructional Period 6.

347 Clinical Epidemiology and Environmental Health (1-10). Prerequisite: enrollment in a professional medi-



cal, dental or public health curriculum. Instructional Period 8.

348 Epidemiology of Zoonotic Diseases (1-10). Prerequisite: enrollment in a professional medical, dental or public health curriculum.

410 Seminar (1)

421 Advanced Epidemiology (3) (Same as Family and Community Medicine 421). Prerequisite: completion of 420 or instructor's consent. alt. w. even yrs.

441 Topics in Veterinary Microbiology (1-3). Prerequisite: graduate standing & instructor's consent.

442 Advanced Veterinary Microbiology (3). Prerequisite: graduate standing & instructor's consent.

443 Viral Infection and Immunity (3). Prerequisite: graduate standing & instructor's consent. alt. w. even yrs.

444 Diseases of Laboratory Animals (3) (same as Laboratory Animal Medicine Area 444). alt. w. even yrs.

445 Advanced Veterinary Parasitology (3). Prerequisite: one course in general parasitology & graduate standing. alt. w. even yrs.

447 Oncogenic Animal Viruses (3). Prerequisite: general microbiology, virology, general biochemistry, & instructor's consent. alt. f. even yrs.

449 Epidemiology of Zoonoses (3) (same as Family & Community Medicine 449). Prerequisite: epidemiology & medical microbiology or instructor's consent. alt. w. even yrs.

490 Research (cr. arr.)

Veterinary Pathology

200 Problems (cr. arr.)

230 Animal Sanitation and Disease Prevention (3). Prerequisite: Veterinary Anatomy-Physiology 219 or Veterinary Anatomy-Physiology 222.

231V General Pathology (3). Instructional Period 5. f.

232AV Systemic and Special Pathology I (3). Instructional Period 6. w.

232BV Systemic and Special Pathology II (3). Continuation of 232AV. Instructional Period 7.

263V Diagnostic Pathology and Special Species Medicine I (10). Offered six times yearly.

264V Diagnostic Pathology and Special Species Medicine II (1-10). Prerequisite: 263V or equivalent.

300 Problems (cr. arr.) Prerequisite: D.V.M. & departmental consent.

335 Techniques in Pathology (cr. arr.)

410 Seminar (1). f.w.

430 Comparative Pathology (3) (same as Plant Pathology 430, Pathology 430).

431 Advanced Veterinary Pathology (3-5). Prerequisite: departmental consent.

432 Advanced Histopathology (5). Prerequisite: departmental consent.

433 Veterinary Oncology (3). Prerequisite: departmental consent.

434 Advanced Clinical Pathology (4). Prerequisite: departmental consent. alt. f. even yrs.

437 Pathology of Laboratory Animals (3) (same as Laboratory Animal Medicine Area 437). Prerequisite: departmental consent. alt. w. even yrs.

438 Primatology (3) (same as Laboratory Animal Medicine Area 438). Prerequisite: departmental consent. alt. f. even yrs.

450 Research (cr. arr.)

490 Research (cr. arr.)

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