MS in Biomedical Sciences with Emphasis in Comparative Medicine (post DVM)

About This Degree

The University of Missouri Comparative Medicine Program provides advanced graduate training to veterinarians who wish to pursue careers in comparative medicine. Trainees may combine one year of residency training in clinical, administrative and diagnostic laboratory animal medicine with two or more years of research training. Alternatively, trainees with experience in laboratory animal medicine, comparative pathology or related disciplines may begin research training at the time of admission. Training is designed to prepare individuals for a variety of careers including comparative medicine research and laboratory animal medicine/collaborative research. Students may either pursue an MS or PhD. Research opportunities are available in several areas including infectious disease, molecular biology, mouse biology, genetics, microbiota, biomedical engineering, cancer and cardiovascular physiology. Resources available include the University of Missouri Office of Animal Resources (OAR), the Laboratory of Infectious Disease Research (LIDR), Mutant Mouse, Rat and Swine Resource and Research Centers and IDEXX-Bioresearch, an internationally known research animal diagnostic laboratory.

Programmatic Strengths

• The opportunity for comparative studies in a joint veterinary and human medical environment
• The multidisciplinary nature of the faculty participating in the training program
• The potential to couple training in research with residency training in laboratory animal medicine, comparative pathology, diagnostics, and training toward board certification
• Strong research resources including AAALAC-accredited research animal facilities, a full-service, internationally-recognized research animal diagnostic laboratory, a BSL-3 infectious disease research facility and NIH-funded research resource centers for mice, rats and swine
• A long history of successful training in comparative medicine

Class Size and Resources

Typically there are 10-12 postdoctoral trainees in the program at a given time. Networking and sharing of experiences and cooperation among trainees is an important factor in the success of the program.

Degree Requirements

The CMP emphasizes comparative medicine research training and includes graduate course work. The minimum number of credit hours required is 30 for the MS.

Research training is performed under an established investigator in one of several life science departments on the MU campus. Research typically deals with the application of an animal model in the investigation of human diseases or the study of naturally occurring diseases of laboratory animals. Requirements for elective course work, residency and teaching experience are determined with the student’s advisory committee. Trainees also participate in teaching and instructional programs offered to veterinary students and research personnel.

Recommended graduate courses include pathology of laboratory animals, methodology of animal experimentation, biology of laboratory animals, laboratory animal resource management, grant and manuscript writing for biomedical researchers, laboratory and project management, biomedical ethics and seminars. Elective courses frequently taken by trainees include basic and advanced courses in immunology, molecular biology, physiology, reproductive biology and/or disease pathogenesis.

The five required core courses for this program are:

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>LAB_AN 9468</td>
<td>Laboratory Animal Biology</td>
<td>4</td>
</tr>
<tr>
<td>LAB_AN 9437</td>
<td>Pathology of Laboratory Animals</td>
<td>4</td>
</tr>
<tr>
<td>LAB_AN 9469</td>
<td>Laboratory Animal Resource Management</td>
<td>4</td>
</tr>
<tr>
<td>LAB_AN 9476</td>
<td>Grant and Manuscript Writing for Biomedical Researchers</td>
<td>3</td>
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Ethical Conduct of Research

The MS degree requires the completion of a significant first author manuscript suitable for publication in a refereed journal, or an approved equivalent scholarly effort.

Residency

For trainees enrolled in the combined graduate/residency program, residency rotations are performed during the first year of training and research training occurs in years two and three.

Residency rotations include:

• clinical medicine and animal resource management in the Office of Animal Resources (OAR)
• colony management, diagnostic, comparative and research pathology in the Mutant Mouse Regional Resource Center (MMRRC) and Rat Resource and Research Center (RRRC)

Moving to a PhD Program

Trainees desiring to change to a PhD program have the opportunity to do so in a variety of programs including the Pathobiology Area Program.

Admission Criteria

• Fall deadline: N/A
• DVM or equivalent from an accredited college of veterinary medicine or successful completion of the foreign equivalency examination and approval by the Comparative Medicine Program faculty
• Meet standards for admission to the Graduate School

Required Application Material

To the Graduate School:
• All required Graduate School documents

To the CMP Postdoctoral MS Program:
• For combined residency/degree positions, the CMP uses the Veterinary Internship and Residency Matching Program

Admission Contact Information
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