LAboratory Animal Medicine

Graduate Program Head  Ronald P. Wilson
Program Code            LAM
Campus(es)              Hershey (M.S.)
Degrees Conferred       Master of Science (M.S.)
The Graduate Faculty     View (https://secure.gradsch.psu.edu/gpms/?searchType=ac&prog=LAM)

All students entering the program must have completed a professional degree program in veterinary medicine and must hold the degree of D.V.M., V.M.D., or equivalent. This program is only offered at the Penn State College of Medicine, Milton S. Hershey Medical Center.

The Department of Comparative Medicine is a basic science, academic department of the College of Medicine. It is concerned with the range of variation of normal and abnormal structure, function, and behavior in a variety of species of animals used for teaching, testing, and research. Its faculty, staff, and students work in a multidisciplinary and collaborative fashion with all other departments in the college to advance the research mission.

Graduate study in laboratory animal medicine consists of advanced training in biology, medicine and methodology pertinent to animal-based research, and the development of scholarship and research capabilities within the specialty. The general plan is one that provides a broad, basic foundation upon which the individual can build a career in teaching and research and/or in the professional direction of research animal facilities.

Admission Requirements
Applicants apply for admission to the program via the Graduate School application for admission (https://gradschool.psu.edu/graduate-admissions/how-to-apply/). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (https://gradschool.psu.edu/graduate-education-policies/).

Degree Requirements

Master of Science (M.S.)
Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies (https://gradschool.psu.edu/graduate-education-policies/).

To earn the master’s degree, each student must complete at least 30 credits of course work at the 500 or 600 levels.

The curriculum of this training program includes:

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CMED 501</td>
<td>Biology and Care of Laboratory Animals</td>
<td>3</td>
</tr>
<tr>
<td>CMED 503</td>
<td>Laboratory Animal Genetics</td>
<td>3</td>
</tr>
<tr>
<td>CMED 507</td>
<td>Techniques of Laboratory Animal Experimentation</td>
<td>3</td>
</tr>
<tr>
<td>CMED 515</td>
<td>Experimental Surgery of Laboratory Animals</td>
<td>3</td>
</tr>
<tr>
<td>CMED 530</td>
<td>Diseases of Laboratory Animals I</td>
<td>3</td>
</tr>
<tr>
<td>CMED 531</td>
<td>Diseases of Laboratory Animals II</td>
<td>3</td>
</tr>
<tr>
<td>CMED 535</td>
<td>Comparative Pathology</td>
<td>3</td>
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Culminating Experience
Students completing a thesis enroll in CMED 600; students in the non-thesis option enroll in CMED 596. 1

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<tr>
<td>CMED 600</td>
<td>Thesis Research (for M.S. thesis) 2</td>
<td>9</td>
</tr>
<tr>
<td>or CMED 596</td>
<td>Individual Studies</td>
<td>1</td>
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Total Credits 36-38

1 A non-thesis option may be elected by the student but must be approved in writing by the Program Director. A scholarly paper on a topic relevant to the fields of laboratory animal medicine or laboratory animal science must be written and presented. Up to 9 credits of independent study (CMED 596) may be earned for this work.

2 The submission and defense of a thesis based on an original hypothesis-driven research project is required. A minimum of 9 credits of thesis research (CMED 600) are required (a maximum of 6 credits may receive a quality grade).

Students may, with the approval of the Program Director, enroll in graduate level courses offered at the Penn State College of Medicine, Penn State Harrisburg, University Park, or Penn State’s World Campus.

Minor
A graduate minor is available in any approved graduate major or dual-title program. The default requirements for a graduate minor are stated in Graduate Council policies listed under GCAC-600 Research Degree Policies (https://gradschool.psu.edu/graduate-education-policies/) and GCAC-700 Professional Degree Policies (https://gradschool.psu.edu/graduate-education-policies/), depending on the type of degree the student is pursuing:

- GCAC-611 Minor - Research Doctorate (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-611-minor-research-doctorate/)
- GCAC-641 Minor - Research Master’s (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-641-minor-research-masters/)
- GCAC-709 Minor - Professional Doctorate (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-700/gcac-709-professional-doctoral-minor/)
- GCAC-741 Minor - Professional Master’s (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-700/gcac-741-masters-minor-professional/)

Student Aid
Graduate assistantships available to students in this program and other forms of student aid are described in the Tuition & Funding (https://gradschool.psu.edu/graduate-funding/) section of The Graduate School’s website. Students on graduate assistantships must adhere to the course load limits (https://gradschool.psu.edu/graduate-education-policies/gsad/gsad-900/gsad-901-graduate-assistants/) set by The Graduate School.

Courses
Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may
be used to meet some graduate degree requirements when taken by
graduate students. Courses below the 400 level may not. A graduate
student may register for or audit these courses in order to make up
deficiencies or to fill in gaps in previous education but not to meet
requirements for an advanced degree.

Comparative Medicine (CMED) Course List (https://bulletins.psu.edu/
university-course-descriptions/graduate/cmed/)

Learning Outcomes
1. **KNOW:** Demonstrate appropriate breadth and depth of knowledge of
   husbandry, veterinary care, pathology, and colony management of
   species of animals commonly used in biomedical research.

2. **APPLY/CREATE:** Apply knowledge of laws, regulations, guidelines,
   and position statements concerning the use of animals in biomedical
   research to common research activities and scenarios.

3. **APPLY/CREATE:** Apply knowledge of anesthesia and analgesia of
   animal species used in biomedical research to critical evaluation of
   IACUC protocols, development of recommendations for prevention
   of pain and distress, and veterinary medical management of surgical
   procedures.

4. **APPLY/CREATE:** Apply knowledge of adult learning theory and
   education methodology to the design and execution of techniques
   training for researchers and other teaching activities.

5. **APPLY/CREATE:** Apply knowledge of research ethics, experimental
   design, techniques, data management, and data analysis to create
   new knowledge connected to the field of laboratory animal science
   and/or other biomedical science disciplines.

6. **COMMUNICATE:** Demonstrate a variety of methods for
   communicating scientific information, including formal presentations,
   discussion facilitation, written abstracts, written manuscripts, and
   poster presentations.

7. **THINK:** Critically evaluate published research in the field of laboratory
   animal science and biomedical research disciplines in order to
   practice evidence-based laboratory animal medicine, support animal
   welfare, and support the research mission.

8. **PROFESSIONAL PRACTICE:** Practice veterinary medicine in
   accordance with the highest ethical standards, values, and best
   practices for the recognized veterinary specialty of laboratory animal
   medicine.

Contact

**Campus**

**Hershey Med Ctr**

**Graduate Program Head**

Ronald Paul Wilson

**Director of Graduate Studies (DGS) or Professor-in-Charge (PIC)**

Tiffany Lynn Whitcomb

**Program Contact**

Mandy Houser

College of Medicine, Dept of

Comparative Medicine, H054

500 University Drive

Hershey PA 17033

mlh36@psu.edu

**Program Website**

View (http://med.psu.edu/
laboratory-animal-medicine-ms/)