The Comparative Biomedical Sciences (CBMS) graduate program emphasizes an integrated approach to contemporary biology that combines molecular and cellular techniques with the analysis of complex whole animal systems. Faculty provide exceptional graduate and undergraduate interdisciplinary research training opportunities in core areas of animal and human health including immunology, molecular and cellular biology, physiology, neuroscience, genomics, oncology, virology, medical technology, infectious diseases and toxicology and pharmacology. They also contribute extensive public services, both nationally and internationally, within related faculty disciplines.

The graduate program serves as a focal point for graduate research training in the School of Veterinary Medicine (SVM) and is administered by the Department of Pathobiological Sciences. Trainers in CBMS have their tenure homes in all four departments of the School of Veterinary Medicine as well as in the College of Agricultural and Life Sciences (CALS), the School of Medicine and Public Health (SMPH), the College of Engineering, and the College of Letters & Science. Faculty in the CBMS program also serve in or with other campus training programs including bacteriology, biocore, cellular and molecular biology, endocrinology and reproductive physiology, medical microbiology and immunology, molecular and environmental toxicology, and the Primate Center.

Currently, there are over 100 faculty trainers in the Comparative Biomedical Sciences program. Affiliate faculty outside the School of Veterinary Medicine have their tenure homes in the Departments of Anatomy, Animal Sciences, Biochemistry, Dermatology, Entomology, Human Oncology, Medical Microbiology and Immunology, Medicine, Neurosurgery, Ophthalmology and Visual Sciences, Pathology and Laboratory Medicine, Population Health Sciences, Radiology, and Surgery. The program is currently comprised of approximately 55 graduate students, most of whom are pursuing the PhD degree. The program is recognized as a premier research and graduate training program for students, most of whom are pursuing the PhD degree. The program combines molecular and cellular techniques with the analysis of complex whole animal systems.

Graduate admissions is a two-step process between academic programs and the Graduate School. Applicants must meet the minimum requirements (https://grad.wisc.edu/apply/requirements/) of the Graduate School as well as the program(s). Once you have researched the graduate program(s) you are interested in, apply online (https://grad.wisc.edu/apply/).

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/)
MAJOR REQUIREMENTS

MODE OF INSTRUCTION

<table>
<thead>
<tr>
<th>Face to Face</th>
<th>Evening/Weekend</th>
<th>Online</th>
<th>Hybrid</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Mode of Instruction Definitions

Accelerated: Accelerated programs are offered at a fast pace that condenses the time to completion. Students typically take enough credits aimed at completing the program in a year or two.

Evening/Weekend: Courses meet on the UW–Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

Face-to-Face: Courses typically meet during weekdays on the UW-Madison Campus.

Hybrid: These programs combine face-to-face and online learning formats. Contact the program for more specific information.

Online: These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

CURRICULAR REQUIREMENTS

<table>
<thead>
<tr>
<th>Requirement Detail</th>
<th>Minimum Credit Requirement</th>
<th>Minimum Residence Credit Requirement</th>
<th>Minimum Graduate Coursework Requirement (50%)</th>
<th>Overall Graduate GPA</th>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30 credits</td>
<td>16 credits</td>
<td>15 credits must be graduate-level coursework. Refer to the Graduate School: Minimum Graduate Coursework Requirement policy: <a href="https://policy.wisc.edu/library/UW-1244/">https://policy.wisc.edu/library/UW-1244/</a></td>
<td>3.00 GPA required.</td>
<td>SURG SCI 812</td>
<td>Research Ethics and Career Development</td>
<td>2</td>
</tr>
<tr>
<td>Recommended Course</td>
<td></td>
<td></td>
<td>Refer to the Graduate School: Grade Point Average (GPA) Requirement policy: <a href="https://policy.wisc.edu/library/UW-1203/">https://policy.wisc.edu/library/UW-1203/</a></td>
<td></td>
<td>Any other science-based ethics course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core Courses</td>
<td></td>
<td></td>
<td>Other Grade Requirements Students must earn a B or above in all coursework.</td>
<td></td>
<td>GENETICS 466</td>
<td>Principles of Genetics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BIOCHEM 501</td>
<td>Introduction to Biochemistry</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BIOCHEM/GENETICS/MICROBIO 612</td>
<td>Prokaryotic Molecular Biology</td>
<td>3</td>
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<td></td>
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<td></td>
<td></td>
<td>BIOCHEM/GENETICS/MD GENET 620</td>
<td>Eukaryotic Molecular Biology</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ZOOLOGY 570</td>
<td>Cell Biology</td>
<td>3</td>
</tr>
</tbody>
</table>
Courses from which Students Build Disciplinary Strength

**Epidemiology**
- PATH-BIO 512 Introduction to Veterinary Epidemiology 2
- POP HLTH/SOC 797 Introduction to Epidemiology 3

**Physiology**
- AN SCI/DY SCI 434 Reproductive Physiology 3
- COMP BIO 551 Veterinary Physiology A (fall) 4
- COMP BIO 506 Veterinary Physiology B (spring) 4
- ZOOLOGY 611 Comparative and Evolutionary Physiology 3
- ZOOLOGY/AN SCI/OBS&GYN 954 Seminar in Endocrinology- Reproductive Physiology 1

**Infectious Disease and Immunology**
- PATH-BIO 510 Veterinary Immunology 3
- PATH-BIO 514 Veterinary Parasitology 3
- PATH-BIO 517 Veterinary Bacteriology and Mycology 4
- PATH-BIO 513 Veterinary Virology 2
- PATH-BIO/M M & I 528 Immunology 3
- PATH-BIO/M M & I 750 Host-Parasite Relationships in Vertebrate Viral Disease 3
- M M & I/PATH-BIO 720 Advanced Immunology: Critical Thinking 3

**Neuroscience**
- COMP BIO 505 Veterinary Neuroanatomy and Neurophysiology 3
- ZOOLOGY/PSYCH 523 Neurobiology 3

**Toxicology and Pharmacology**
- NTP/NEURODPT 610 Cellular and Molecular Neuroscience 4
- NTP/NEURODPT/PSYCH 611 Systems Neuroscience 4

**Oncology**
- COMP BIO 555 Veterinary Toxicology 2
- ONCOLOGY 675 Advanced or Special Topics in Cancer Research 1-3
- ONCOLOGY 703 Carcinogenesis and Tumor Cell Biology 3

**Virology**
- PATH-BIO 513 Veterinary Virology 2
- BIOCHEM/M M & I 575 Biology of Viruses 2
- ONCOLOGY/M M & I/PL PATH 640 Host-Parasite Relationships in Vertebrate Viral Disease 3

**General Virology-Multiplication of Viruses**

### POLICIES

**GRADUATE SCHOOL POLICIES**
The Graduate School's Academic Policies and Procedures ([https://grad.wisc.edu/acadpolicy/](https://grad.wisc.edu/acadpolicy/)) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

**MAJOR-SPECIFIC POLICIES**

**PRIOR COURSEWORK**

**Graduate Credits Earned at Other Institutions**
With program approval, students may transfer up to 6 credits of advanced graduate coursework from other institutions. These courses may not be used toward the Graduate School’s minimum residence credit requirement. Coursework earned ten or more years prior to admission to a master’s degree is not allowed to satisfy requirements.

**Undergraduate Credits Earned at Other Institutions or UW-Madison**
With program approval, students may transfer up to 6 credits of advanced undergraduate coursework from UW-Madison. These courses must meet the Graduate School’s criteria as graduate-level coursework and may not be used toward the 50% graduate coursework requirement unless numbered 700 or above. Credits earned at other institutions do not transfer. Coursework earned ten or more years prior to admission to a master’s degree is not allowed to satisfy requirements.

**Credits Earned as a Professional Student at UW-Madison (Law, Medicine, Pharmacy, and Veterinary careers)**
Refer to the Graduate School: Transfer Credits for Prior Coursework ([https://policy.wisc.edu/library/UW-1216/](https://policy.wisc.edu/library/UW-1216/)) policy.

**Credits Earned as a University Special Student at UW-Madison**
With program approval, students may transfer up to 6 credits of coursework numbered 400 or above taken as a University Special student. These credits are not allowed to count toward the 50% graduate coursework minimum unless numbered 700 or above or are taken to meet the requirements of a capstone certificate and has the “Grad 50%” attribute. Coursework earned ten or more years prior to admission to a master’s degree is not allowed to satisfy requirements.

(Students may transfer up to 6 credits of prior coursework between these categories.)

**PROBATION**
ADVISOR / COMMITTEE
All students must have an advisor prior to final admission. A thesis committee consisting of three members, the advisor plus one program trainer and one outside member, must be chosen by the end of the first semester. The third member may be a scientist, industry expert, or a member of the faculty from UW-Madison or from another institution.

CREDITS PER TERM ALLOWED
15 credits

TIME LIMITS
Certification should be completed by the end of the first semester of enrollment.

Refer to the Graduate School: Time Limits (https://policy.wisc.edu/library/UW-1221/) policy.

GRIEVANCES AND APPEALS
These resources may be helpful in addressing your concerns:

- Bias or Hate Reporting (https://doso.students.wisc.edu/bias-or-hate-reporting/)
- Graduate Assistantship Policies and Procedures (https://hr.wisc.edu/policies/gapp/#grievance-procedure)
- Hostile and Intimidating Behavior Policies and Procedures (https://hr.wisc.edu/hib/)
  - Office of the Provost for Faculty and Staff Affairs (https://facstaff.provost.wisc.edu/)
- Employee Assistance (http://www.eao.wisc.edu/) (for personal counseling and workplace consultation around communication and conflict involving graduate assistants and other employees, post-doctoral students, faculty and staff)
- Employee Disability Resource Office (https://employeedisabilities.wisc.edu/) (for qualified employees or applicants with disabilities to have equal employment opportunities)
- Graduate School (https://grad.wisc.edu/) (for informal advice at any level of review and for official appeals of program/departmental or school/college grievance decisions)
- Office of Compliance (https://compliance.wisc.edu/) (for class harassment and discrimination, including sexual harassment and sexual violence)
- Office Student Assistance and Support (OSAS) (https://osas.wisc.edu/) (for all students to seek grievance assistance and support)
- Office of Student Conduct and Community Standards (https://conduct.students.wisc.edu/) (for conflicts involving students)
- Ombuds Office for Faculty and Staff (http://www.ombuds.wisc.edu/) (for employed graduate students and post-docs, as well as faculty and staff)
- Title IX (https://compliance.wisc.edu/titleix/) (for concerns about discrimination)

If a student feels unfairly treated or aggrieved by faculty, staff, or another student, the University offers several avenues to resolve the grievance. Students' concerns about unfair treatment are best handled directly with the person responsible for the objectionable action. If the student is uncomfortable making direct contact with the individual(s) involved, they should contact the advisor or the person in charge of the unit where the action occurred (program or department chair, section chair, lab manager, etc.). For more information see the Graduate School Academic Policies & Procedures: Grievances & Appeals: https://grad.wisc.edu/acadpolicy/#grievancesandappeals

Procedures for proper accounting of student grievances:

1. The student is encouraged to speak first with the person toward whom the grievance is directed to see if a situation can be resolved at this level.
2. Should a satisfactory resolution not be achieved, the student should contact the program's Grievance Advisor or Director of Graduate Study to discuss the grievance. The Grievance Advisor or Director of Graduate Study will facilitate problem resolution through informal channels and facilitate any complaints or issues of students. The first attempt is to help students informally address the grievance prior to any formal complaint. Students are also encouraged to talk with their faculty advisors regarding concerns or difficulties if necessary.
3. If the issue is not resolved to the student's satisfaction, the student can submit the grievance to the Grievance Advisor in writing, within 60 calendar days of the alleged unfair treatment.
4. On receipt of a written complaint, a faculty committee will be convened by the Grievance Advisor to manage the grievance. The program faculty committee will obtain a written response from the person toward whom the complaint is directed. This response will be shared with the person filing the grievance.
5. The faculty committee will determine a decision regarding the grievance. The Grievance Advisor will report on the action taken by the committee in writing to both the student and the party toward whom the complaint was directed within 15 working days from the date the complaint was received.
6. At this point, if either party (the student or the person toward whom the grievance is directed) is unsatisfied with the decision of the faculty committee, the party may file a written appeal. Either party has 10 working days to file a written appeal to the School/College.
7. Documentation of the grievance will be stored for at least 7 years. Significant grievances that set a precedent will be stored indefinitely.

OTHER
All students must be accepted by a major professor in the Comparative Biomedical Sciences Graduate Program before they can be fully admitted to the program.

PROFESSIONAL DEVELOPMENT

PROFESSIONAL DEVELOPMENT

GRADUATE SCHOOL RESOURCES
Take advantage of the Graduate School's professional development resources (https://grad.wisc.edu/pd/) to build skills, thrive academically, and launch your career.

LEARNING OUTCOMES

LEARNING OUTCOMES

1. Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry and/or schools of practice in the field of study.
2. Articulates sources and assembles evidence pertaining to questions or challenges in the field of study.
3. Assesses and/or applies methodologies and practices in the field of study.
4. Articulates challenges involved in practicing the field of study, elucidates its leading edges, and delineates its current limits with respect to theory, knowledge, and/or practice.
5. Appreciates the implication of the primary field of study in terms of challenges, trends, and developments in a broader scientific context.
6. Demonstrates abilities to apply knowledge through critical thinking, inquiry, and analysis to solve problems, engage in scholarly work, and/or produce creative products.
7. Evaluates, assesses or refines information resources or an information base within the field.
8. Communicates clearly in styles appropriate to the field of study.
9. Recognizes and applies ethical conduct and professional guidelines.

**PEOPLE**

**Faculty:** See Comparative Biomedical Sciences (https://www.vetmed.wisc.edu/education/ms-phd/trainers/) faculty list.