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 interface 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 Ph.D. degree. The program is recognized as a premier research and graduate training program for students with or without a degree in veterinary medicine.

Please consult the table below for key information about this degree program’s admissions requirements. The program may have more detailed admissions requirements, which can be found below the table or on the program’s website. 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/).

**ADMISSIONS**

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Deadline</td>
<td>January 1</td>
</tr>
<tr>
<td>Spring Deadline</td>
<td>June 1</td>
</tr>
<tr>
<td>Summer Deadline</td>
<td>January 1</td>
</tr>
<tr>
<td>GRE (Graduate Record Examinations)</td>
<td>Not required but may be considered if available.</td>
</tr>
</tbody>
</table>

**FUNDING**

**GRADUATE SCHOOL RESOURCES**

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (https://grad.wisc.edu/funding/) is available from the Graduate School. Be sure to check with your program for individual policies and restrictions related to funding.

**PROGRAM RESOURCES**

Most graduate students receive financial support through fellowships, research assistantships through their major professor, and/or National Research Service Awards. Faculty in the program are PIs for Training Grants (Parasitology and Vector Biology Training Program, Comparative Biomedical Sciences Research Training for Veterinarians, and Research Training for Veterinary Medical Students) for which students with the appropriate background and credentials may compete.

**REQUIREMENTS**

**MINIMUM GRADUATE SCHOOL REQUIREMENTS**

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/#policiesandrequirementstext), in addition to the program requirements listed below.

**MAJOR REQUIREMENTS**

<table>
<thead>
<tr>
<th>Mode of Instruction</th>
<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>
<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 are able to complete a program with minimal disruptions to careers and other commitments.

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

Requirements | Detail
--- | ---
Minimum Credit Requirement | 51 credits
Minimum Residence Credit Requirement | 32 credits
Minimum Graduate Coursework Requirement | Half of degree coursework (26 credits out of 51 total credits) must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide.
Overall Graduate GPA Requirement | 3.00 GPA required.
Other Grade Requirements | Students must earn a B or above in all major coursework.

Assessments and Examinations

After the committee is chosen, the student must submit certification paperwork that details the intended coursework plan, the committee members' names and signatures, a short explanation of why they were chosen and an appended research plan. Certification plans will be reviewed and approved by the program academic committee.

Students are expected to meet with their committee at least once per year until degree completion.

There are two preliminary examinations. The first (A) consists of a take-home exam of questions authored by the student's dissertation committee, followed by an oral exam. The student may retake the exam once if they fail on the first attempt.

The second preliminary examination (B) requires that the student write their research plan in the form of a major grant application and defend it orally before the committee.

Candidates must present broad-based evidence of general proficiency in research and the ability to conduct independent investigation as demonstrated in a written dissertation presenting original research. A final public presentation, followed by an oral exam in front of their committee and official deposit of the dissertation with the Graduate School is required.

Language Requirements

No language requirements.

Doctoral Minor/Breadth Requirements

A minor is no longer required but may be completed by students who wish to receive one. The decision to fulfill a minor should be requested at the time of certification.

In general, most minors require a minimum of 10 didactic credits in a single degree program (e.g., neuroscience, population health, genetics). Focused minors usually require approval from the related program or department and may involve additional rules or credits. Check with the program in which you have an interest early in the process.

REQUIRED COURSES

Choose your coursework in consultation with your major professor. The Graduate School requires a minimum of **32** total credits prior to taking the CBMS prelim B and **51** credits to graduate (any combination of didactic or lab courses, seminars and research).

- **20 didactic credits.** Nine credits of advanced coursework, or MS/DVM coursework or equivalent, may be transferred as approved by your thesis committee and the Academic Committee, provided they are defined as graduate level. Nine credits may be transferred from coursework taken as a Special Student at UW-Madison if the student pays the difference in tuition for the terms in question and the course is numbered 700 and above. A maximum of 7 undergraduate credits may be transferred only from UW-Madison. In all cases, these credits will not count toward the 50% minimum unless courses are graduate level (700 level and above).
- **2 PATH-BIO 930 Advanced Seminar one-credit student seminar courses.**
- For students who enter fall 2016 or later: PhD students must register for four semesters of PATH-BIO 930 Advanced Seminar and
present twice after the first two semesters. One presentation must be completed prior to passing to dissertator status. The second presentation may take place after reaching dissertator status, but no later than the semester prior to the student’s dissertation defense. PhD students will take the course P/S/U (Progress/Satisfactory/Unsatisfactory) unless they are presenting.

- 28 Research 990 credits (minimum, unless you take more didactic or laboratory courses)
- Certification submitted and approved by thesis committee and Academic Committee
- Pass preliminary examinations A and B
- Completed dissertation composed of original work approved by your major professor and committee based on original research, defended before your committee and deposited with the Graduate School.

**Approved and Recommended Courses**

The following is a list of core courses taken by many students and recommended courses that are appropriate to specific research areas. These courses are suggestions only; the student and their committee ultimately decide the best coursework plan for each student’s specific program, with final approval from the program’s academic committee. Students are responsible for determining that the coursework chosen meets the Graduate School’s criteria for graduate work.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SURG SCI 812</td>
<td>Research Ethics and Career Development</td>
<td>2</td>
</tr>
<tr>
<td>Any other science-based ethics course</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Core Courses**

These courses are chosen by many students to fulfill their major coursework plan

| GENETICS 466 | Principles of Genetics                            | 3       |
| PATH-BIO 773 | 500 Molecular Biology Techniques                   | 3       |
| BIOCHEM 501 | Introduction to Biochemistry                       | 3       |
| BIOCHEM/GENETICS/MICROBIO 612 | Prokaryotic Molecular Biology                          | 3       |
| BIOCHEM/GENETICS/MD GENET 620 | Eukaryotic Molecular Biology                          | 3       |
| BIOCHEM/PHMCOL-M/ZOOLOGY 630 | Cellular Signal Transduction/ Mechanisms                   | 3       |
| ZOOLOGY 570 | Cell Biology                                       | 3       |
| PATH 750 | Cellular and Molecular Biology/ Pathology          | 2-3     |
| PATH 751 | Cell and Molecular Biology of Aging                 | 3       |
| STAT/F&W ECOL/HORT 571 & STAT/F&W ECOL/HORT 572 | Statistical Methods for Bioscience I and Statistical Methods for Bioscience II | 8       |

**Courses from which Students Build Disciplinary Strength**

**Epidemiology**

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

GRADUATE SCHOOL POLICIES
The Graduate School's Academic Policies and Procedures (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 Work from Other Institutions
With program approval, students may transfer no more than 9 credits of advanced graduate coursework from other institutions. These courses may not be used toward the Graduate School's Minimum Graduate Residence Credit. Coursework earned ten or more years prior to admission to the doctoral degree is not allowed to satisfy requirements.

UW–Madison Undergraduate
With program approval, students may count up to 7 credits of advanced undergraduate coursework taken at UW–Madison in lieu of or in combination with credits transferred from another institution. These courses must meet the Graduate School's criteria as graduate coursework and may not be used toward the 50% graduate coursework requirement unless taken at the 700 level or above.

UW–Madison University Special
With program approval, students may count up to 9 credits of coursework numbered 400 or above taken as a UW–Madison special student in lieu of or in combination with credits transferred from another institution or as a UW–Madison undergraduate. Coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned ten or more years prior to admission to the doctoral degree is not allowed to satisfy requirements.

PROBATION
A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full or part-time enrollment the student may be dismissed from the program or allowed to continue based on advisor appeal to the Graduate School.

ADVISOR / COMMITTEE
All students must have an advisor prior to final admission unless offered a rotation. A dissertation committee consisting of five members, the advisor plus two program trainers and two outside members, must be chosen by the end of the first year. The fifth member may be a scientist, industry expert, or member of the faculty from another institution. All committee members of your final oral examination committee will be designated as readers.

CREDITS PER TERM ALLOWED
15 credits

TIME CONSTRAINTS
Certification should be completed by the end of the first year of enrollment.

Preliminary examination A should be taken by the end of the second year.

Preliminary examination B should be taken by the end of the third year.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing preliminary examination B may be required to take another preliminary examination to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements, but that coursework may not count toward Graduate School credit requirements.

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/)
- Dean of Students Office (https://doso.students.wisc.edu/) (for all students to seek grievance assistance and support)
- 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 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,
and launch your career.

GRADUATE SCHOOL RESOURCES

Resources

GRADUATE SCHOOL RESOURCES

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 applies methodologies and practices in the field of study.
3. Recognizes and applies ethical conduct and professional guidelines.
4. Elicits and applies critical thinking to solve problems, engage in scholarly work, and/or produce creative products.
5. Develops hypothesis, creates research, scholarship or performance opportunities.
6. Initiates, assembles, arranges and/or reformulates ideas, concepts, designs, and/or techniques in carrying out a project beyond conventional boundaries.
7. Demonstrates breadth within their learning experiences.
8. Demonstrates breadth within their learning experiences.
9. Improves the implications of the primary field of study in terms of challenges, trends, and developments in a broader scientific context.
10. Evaluates, assesses or refines information resources or an information base within the field.
11. Communicates clearly in styles appropriate to the field of study.
12. Demonstrates breadth within their learning experiences.
13. Implements methodologies and/or practices to test hypotheses and illustrates the implications of the experimental outcome to the field of study and its relationship to allied fields.
14. Develops new concepts and methodologies and/or identifies new research opportunities.
15. Communicates complex and/or ambiguous ideas clearly.
16. Evaluates the implications of one's own scholarship/research/ performance to broader scientific advancement.
17. Recognizes and applies ethical conduct and professional guidelines.
18. Fosters ethical conduct and professional guidelines.

OTHER

Most students must be accepted by a major professor in the CBMS Graduate Program before they can be fully admitted to the program. Rotations are offered to a limited number of entering students (1–2) in the fall semester.

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 applies methodologies and practices in the field of study.
3. Recognizes and applies ethical conduct and professional guidelines.
4. Elicits and applies critical thinking to solve problems, engage in scholarly work, and/or produce creative products.
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Faculty: See Comparative Biomedical Sciences (https://www.vetmed.wisc.edu/education/ms-phd/trainers/) faculty list.