

# COMPARATIVE BIOMEDICAL SCIENCES, PHD

## REQUIREMENTS

### MINIMUM GRADUATE SCHOOL REQUIREMENTS

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

### MAJOR REQUIREMENTS MODE OF INSTRUCTION

| Face to Face | Evening/<br>Weekend | Online | Hybrid | Accelerated |
|--------------|---------------------|--------|--------|-------------|
| Yes          | No                  | No     | No     | No          |

#### 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

#### Requirement Detail

Minimum Credit Requirement 51 credits

Minimum Residence Credit Requirement 32 credits

Minimum Graduate Coursework Requirement 26 credits must be graduate-level coursework. Refer to the Graduate School: Minimum Graduate Coursework (50%) Requirement policy: <https://policy.wisc.edu/library/UW-1244> (<https://policy.wisc.edu/library/UW-1244/>).

Overall Graduate GPA Requirement 3.00 GPA required. Refer to the Graduate School: Grade Point Average (GPA) Requirement policy: <https://policy.wisc.edu/library/UW-1203> (<https://policy.wisc.edu/library/UW-1203/>).

Other Grade Requirements Students must earn a B or above in all 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.

Graduate School Breadth Requirement A doctoral minor or graduate/professional certificate is not required but may be completed by students who wish to receive one. The decision to fulfill a minor or certificate should be requested at the time of certification. In general, most minors or certificates require a minimum of 9 didactic credits in a single degree program (e.g., neuroscience, population health, genetics). Focused minors or certificates 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 Comparative Biomedical Sciences prelim B and **51** credits to earn the degree (any combination of didactic or lab courses, seminars and research).

- 20 didactic credits.
- 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.
- 27 Research 990 credits (minimum, unless you take more didactic or laboratory courses.)

### 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.

| Code   | Title  | Credits |
|--|--|---------|
| <b>Recommended Course</b>  |  |         |
| SURG SCI 812   | Research Ethics and Career Development   | 2       |
| Any other science-based ethics course  |  |         |
| <b>Core Courses</b>  |  |         |
| These courses are chosen by many students to fulfill their major coursework plan |  |         |
| GENETICS 466   | Principles of Genetics   | 3       |
| BIOCHEM 501  | Introduction to Biochemistry   | 3       |
| BIOCHEM/<br>GENETICS/<br>MICROBIO 612  | Prokaryotic Molecular Biology  | 3       |
| BIOCHEM/<br>GENETICS/<br>MD GENET 620  | Eukaryotic Molecular Biology   | 3       |
| ZOOLOGY 570  | Cell Biology   | 3       |
| PATH 750   | Cellular and Molecular Biology/<br>Pathology   | 2       |
| PATH 751   | Biology of Aging   | 2       |
| STAT/F&W ECOL/<br>HORT 571<br>& STAT/F&W ECOL/<br>HORT 572                       | Statistical Methods for Bioscience I<br>and Statistical Methods for<br>Bioscience II | 8       |
| <b>Courses from which Students Build Disciplinary Strength</b>                   |  |         |
| <i>Epidemiology</i>  |  |         |
| PATH-BIO 512   | Introduction to Veterinary Epidemiology  | 2       |
| POP HLTH/<br>SOC 797   | Introduction to Epidemiology   | 3       |
| <i>Physiology</i>  |  |         |
| AN SCI/DY SCI 434  | Reproductive Physiology  | 3       |
| COMP BIO 551   | Veterinary Physiology A  | 4       |
| COMP BIO 506   | Veterinary Physiology B (spring)   | 4       |
| ZOOLOGY 611  | Comparative and Evolutionary Physiology  | 3       |

|  |  |     |
|--|--|-----|
| ZOOLOGY/AN SCI/<br>OBS&GYN 954           | Seminar in Endocrinology-<br>Reproductive Physiology       | 1   |
| <i>Infectious Disease and Immunology</i> |  |     |
| PATH-BIO 510                             | Veterinary Immunology                                      | 3   |
| PATH-BIO 513                             | Veterinary Virology  | 2   |
| PATH-BIO 514                             | Veterinary Parasitology                                    | 3   |
| PATH-BIO 517                             | Veterinary Bacteriology and<br>Mycology                    | 4   |
| PATH-BIO/<br>M M & I 528                 | Immunology   | 3   |
| PATH-BIO/<br>M M & I 750                 | Host-Parasite Relationships in<br>Vertebrate Viral Disease | 3   |
| M M & I/PATH-<br>BIO 720                 | Advanced Immunology: Critical<br>Thinking                  | 3   |
| <i>Neuroscience</i>                      |  |     |
| COMP BIO 505                             | Veterinary Neuroanatomy and<br>Neurophysiology             | 3   |
| ZOOLOGY/<br>PSYCH 523                    | Neurobiology   | 3   |
| NTP/<br>NEURODPT 610                     | Cellular and Molecular Neuroscience                        | 4   |
| NTP/NEURODPT/<br>PSYCH 611               | Systems Neuroscience                                       | 4   |
| <i>Toxicology and Pharmacology</i>       |  |     |
| COMP BIO 555                             | Veterinary Toxicology                                      | 2   |
| <i>Oncology</i>                          |  |     |
| ONCOLOGY 675                             | Advanced or Special Topics in<br>Cancer Research           | 1-3 |
| ONCOLOGY 703                             | Carcinogenesis and Tumor Cell<br>Biology                   | 3   |
| <i>Virology</i>                          |  |     |
| PATH-BIO 513                             | Veterinary Virology  | 2   |
| BIOCHEM/<br>M M & I 575                  | Biology of Viruses   | 2   |
| ONCOLOGY/<br>M M & I/<br>PL PATH 640     | General Virology-Multiplication of<br>Viruses              | 3   |
| M M & I/PATH-<br>BIO 750                 | Host-Parasite Relationships in<br>Vertebrate Viral Disease | 3   |