# CELLULAR, MOLECULAR, AND MICROBIAL BIOLOGY PH.D.

## General Graduate Program Requirements

Graduate School policies and standards can be found on the Graduate School Policies page (https://catalog.umt.edu/graduate/school-policies/).

The minimum GPA for any graduate program is 3.0. Individual programs may require more than a 3.0 to remain in good standing.

The minimum grade for a course to be accepted toward any master's or doctoral requirement is C. The minimum grade for a course to be accepted toward a certificate program is B-. Individual programs may require higher grades for specific courses.

## Doctor of Philosophy - Cellular, Molecular, and Microbial Biology

- All CMMB PhD students have a common set of requirements: students must take a total of 60 semester credits, including 20 semester credits of courses (includes any course other than Dissertation and Research).
- At least three 3-credit (or more) graduate courses at the 500 or 600 level.
- In addition to coursework, all PhD students must teach at least one semester (typically as a Graduate Teaching Assistant) and must rotate in at least two research laboratories.
- The following credit limitations apply:
  - A maximum of 6 credits of Special Topics (BCH 591, BIOB 591, and BIOM 591).
  - A maximum of 6 credits of Independent Study (BIOB 592, and BIOM 592).
  - A maximum of 20 credits of dissertation (BCH 699 and BIOM 699).

### Course Requirements

| Code | Title | Hours |
|---|---|---|
| **Core Courses** | | |
| Complete all of the following courses: | | |
| BCH 570 | Intro to Research | 2 |
| or BIOM 570 | Intro to Research | |
| BIOB 547 | Experimental Molecular, Cellular, and Chemical Biology | 4 |
| BIOM 594 | Molecular and Biomedical Sciences Seminar | 4 |
| **Electives, Research, and Dissertation** | | |
| Complete 50 credits of elective courses. | | 50 |
| Elective courses can include any graduate-level course in General Biology (BIOB), Microbiology (BIOM), and Biochemistry (BCH). Suggested courses include: | | |
| BCH 581 | Physical Biochemistry | |
| BCH 582 | Proteins and Enzymes | |
| BCH 584 | Nucleic Acids | |
| BCH 591 | Special Topics | |
| or BIOM 591 | Special Topics | |
| BCH 590 | Research | |
| or BIOM 590 | Research | |
| BCH 600 | Cell Organization & Mechanisms | |
| BCH 699 | Dissertation | |
| or BIOM 699 | Dissertation | |
| BIOB 567 | Molecular Analysis of Development | |
| BIOM 502 | Advanced Immunology | |
| BIOM 535 | Advanced Virology | |
| BIOM 540 | Microbial Pathogenesis | |
| BIOM 592 | Independent Study | |
| **Total Hours** | | **60** |