

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.umn.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 or BIOM 570	Intro to Research	2
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 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