



Twin Cities Campus

Biochemistry, Molecular Biology and Biophysics Minor

Biochemistry, Molecular Biology, & Biophysics TCBS

Graduate School

Link to a [list of faculty](#) for this program.

Contact Information:

Department of Biochemistry, Molecular Biology and Biophysics

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Website: <http://cbs.umn.edu/academics/departments/bmbb/graduate-program/about-graduate-program>

- Program Type: Graduate minor related to major
- Requirements for this program are current for Spring 2018
- Length of program in credits (Masters): 6
- Length of program in credits (Doctorate): 12
- This program does not require summer semesters for timely completion.

Along with the program-specific requirements listed below, please read the [General Information](#) section of the catalog website for requirements that apply to all major fields.

The Biochemistry, Molecular Biology and Biophysics (BMBB) program is an interdisciplinary program that is supported by the College of Biological Sciences (CBS) and the Medical School of the University of Minnesota. The program provides a broad research-based education involving faculty from BMBB as well as many faculty members from several other departments in CBS, the Medical School, the College of Science and Engineering (CSE), the College of Food, Agricultural and Natural Resources Sciences (CFANS), and the College of Veterinary Medicine.

BMBB focuses on determining the molecular mechanisms that underlie basic biological functions using an integrated approach that encompasses biochemistry, chemistry, biophysics, genomics, molecular biology, proteomics, and structural biology. Special emphasis is placed on revealing how biological processes go awry in diseases including cancer, diabetes, heart disease, and AIDS. The program has four areas of emphasis: synthetic biology and biotechnology, molecular biology, metabolic and systems biology, and chemical and structural biology. All students are expected to demonstrate a minimum level of competence in these areas, but will emphasize the area most related to their thesis project.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Prerequisites for Admission

For an online application or for more information about graduate education admissions, see the [General Information](#) section of the catalog website.

Program Requirements

Use of 4xxx courses towards program requirements is not permitted.

A master's minor requires 6 credits of general graduate level coursework, which may be selected (with approval by the director of graduate studies) from the 5xxx and 8xxx courses offered by the program.

A doctoral minor requires BIOC 8001 (3 cr) and BIOC 8002 (3 cr), plus additional BIOC 5xxx-level and above courses (6 cr) approved by the director of graduate studies, to meet the minimum requirement of 12 credits total.

In extenuating cases, students may petition the director of graduate studies for substitution of a required course.

Program Sub-plans



Students are required to complete one of the following sub-plans.
Students may not complete the program with more than one sub-plan.

Doctoral

Module Options

Students must take 6 credits.

[BIOC 5535](#) - Introduction to Modern Structural Biology -- Diffraction (2.0 cr)

[BIOC 5536](#) - Introduction to Modern Structural Biology - Nuclear Magnetic Resonance (2.0 cr)

[BIOC 8005](#) - Biochemistry: Structure and Catalysis (2.0 cr)

[BIOC 8006](#) - Biochemistry: Metabolism and Control (2.0 cr)

[BIOC 8007](#) - Molecular Biology of the Genome (2.0 cr)

[BIOC 8008](#) - Molecular Biology of the Transcriptome (2.0 cr)

Biochemistry Elective Courses

In addition to the 6 required credits, a doctoral minor requires 6 credits of graduate-level BMBB coursework, chosen in consultation with the BMBB director of graduate studies.

[BIOC 5xxx](#)

[BIOC 6xxx](#)

[BIOC 7xxx](#)

[BIOC 8xxx](#)

[GCD 5036](#) - Molecular Cell Biology (3.0 cr)

Masters

Required Courses

A master's minor requires 6 credits of graduate-level BMBB coursework, chosen in consultation with the BMBB director of graduate studies.

[BIOC 5xxx](#)

[BIOC 6xxx](#)

[BIOC 7xxx](#)

[BIOC 8xxx](#)