

## BIOCHEMISTRY M.S.

All students must meet the Requirements for the Master's Degree

### OVERVIEW

The objective of this program is to provide students both a theoretical and practical knowledge of fundamental biochemical concepts while preparing students for careers in research (academic or industrial) or increasing their competitiveness for additional graduate degrees.

### SPECIFIC REQUIREMENTS

#### Requirements for Admission to Graduate Studies for the Degree of Master of Science

An acceptable undergraduate major in biochemistry, biology, chemistry, or a related field. The general (aptitude) Graduate Record Examination (GRE) and the subject GREs are NOT required but may be helpful to your application. Completion of the following courses may also be helpful: year-long courses in organic chemistry (equivalent to CHEM 1500 / CHEM 1550 or CHEM 2580 / CHEM 2585); physical chemistry (equivalent to CHEM 2600), and physics (equivalent to PHYS 1600 / PHYS 1650); quantitative chemistry; mathematics (preferably through differential and integral calculus); a biological science. If a physical chemistry course has not been taken previously, a student must take Physical Chemistry (CHEM 2600) in their 1<sup>st</sup> year (for which they do not receive credit toward the M.S. degree).

#### Minimum Degree Requirements

A minimum of 30 credits (at least 17 of which must be taken from graduate courses offered by the Department of Biochemistry and 6 of which must be at the 6000-level) and successful completion of a comprehensive exam are required for completion of the master's degree in biochemistry. Students must meet all of the requirements stipulated by the UVM Graduate College for the Master's Degree.

Students must complete the following courses:

Requirement Description		Credits
BIOC 6001	General Biochemistry I *	3
BIOC 6002	General Biochemistry II *	3
BIOC 6990	Special Topics (Proteins I: Structure & Function)	1-18
BIOC 6072	Cancer Biology	3

\*Successful completion of BIOC 3005/BIOC 3006 can substitute for the BIOC 6001/BIOC 6002 requirement for previous UVM students only. However, these will not count towards the 30 graduate credit requirement.

Remaining credits in the degree program should be selected from the following approved list. Special topics or other graduate courses may

be acceptable by prior approval from the Chair of the Departmental Graduate Studies Committee.

Requirement Description		Credits
CLBI 6010	Cell Biology	3
MPBP 6010	Human Physiology & Pharm I	4

Thesis Track:

At least 9 (and up to 13) credits of Master's Thesis Research (BIOC 6391) are required. In addition, a written thesis and defense of this thesis must occur according to the guidelines laid out by the Graduate College.

Non-Thesis Track:

At least 6 (and up to 9) credits of Independent Study (BIOC 6993) and 2 credits of independent research set up as a special topics course (BIOC 6995) with your mentor are required. In addition, a manuscript in the format of a review article must be submitted to the Departmental Graduate Studies Committee and a seminar on the manuscript must be presented to the Department.

#### Comprehensive Examination

The comprehensive examination must be taken by the end of the 2<sup>nd</sup> semester as a matriculated graduate student. The examination will cover broad knowledge of the student's discipline. The details and format of the examination and its form (written or oral or both) are decided upon by the Departmental Graduate Studies Committee and will be discussed with the student well in advance of the exam. A single re-take is permitted for the comprehensive exam.

#### Requirements for Advancement to Candidacy for the Degree of Master of Science

All requirements outlined in the Biochemistry Program handbook including:

- Maintain a 3.00 GPA
- Satisfactory completion of the comprehensive exam