BIOCHEMISTRY (M.S.)

https://colsa.unh.edu/mcbs/grad/biochemistry/biochemistry-ms

### Description

The M.S. in Biochemistry combines a rigorous curriculum in biochemistry and related disciplines with interdisciplinary research opportunities at the frontiers of biochemistry, molecular biology, and cell biology. Graduates of the program are equipped for successful careers in biotechnology and pharmaceutical companies, academic and government research laboratories, and as preparation for doctoral programs, medical school, and health-related professional programs.

#### Distinctive Features of the Program

- Advanced course offerings include signal transduction pathways, pharmacology, physical biochemistry, proteomics, endocrinology, structural biology, bioinformatics, and cancer biology
- Emphasis on interdisciplinary research training
- Well-equipped research laboratories and core facilities on the UNH campus
- Laboratory rotations upon entry to the program to become familiar with different research laboratories
- Weekly graduate student seminar presentations, as well as a departmental seminar series of outside speakers
- Opportunities to gain teaching experiences as a Graduate Teaching Assistant
- Accelerated M.S. program available to UNH students enrolled in the B.S. program in Biochemistry, Molecular, and Cellular Biology

#### Research Opportunities

- Tumor cell biology
- Protein structure, function, and regulation
- Signal transduction pathways
- Molecular neurobiology
- Genomics and bioinformatics
- Transcriptional and translational regulation
- Proteomics and glycomics

#### Financial Support

- Students admitted to the M.S. Program are typically supported by Research Assistantships or Teaching Assistantships
- Internal summer and academic year fellowships are available to students on a competitive basis.
- Teaching Assistantships are not available for students enrolled in the Accelerated M.S. program

#### Career Prospects

- Research scientists in biotechnology and pharmaceutical industries
- Lab managers in academic research labs and research institutes, state and federal government agencies
- Academic preparation for doctoral programs and professional health programs (e.g., medical school)

### Admission Requirements

- Completion of foundational courses in biology, chemistry (including organic chemistry), physics, and mathematics
- Otherwise well-qualified applicants can correct academic deficiencies with enrollment in appropriate courses or independent study during the first year of graduate studies
- Graduate Record Examination (GRE) scores (taken within the past five years)
- Applicants from non-English speaking countries must provide Test of English as a Foreign Language (TOEFL) scores
- International applicants living outside the U.S.A. should first complete a free online pre-application, which can be found on the Graduate School’s website.
- Three letters of recommendation
- Personal statement, including research interests and two or three potential Biochemistry faculty thesis advisors.

#### Accelerated M.S. Program Requirements

- Current junior standing in the B.S. in Biochemistry, Molecular, and Cellular Biology program at the time of application
- GPA of 3.2 or greater
- Thesis advisor identified who supports entry into the program
- Three letters of recommendation (one of which is from the thesis advisor)
- Personal statement of research interests and career aspirations
- GRE is waived

### Requirements

#### M.S. Degree Requirements

Student must meet the Graduate School’s requirements for the master’s degree (minimum 30 credits) and are expected to develop a culminating thesis based on the completion of a research project. Demonstration of proficiency in physical chemistry and biochemistry will be assessed in the first year by examination or coursework. All candidates for the M.S. degree must pass an oral examination based on the thesis or project report and on the graduate courses completed in the degree program.

**Credits:** A minimum of 30 graduate credits is required including 6-10 master’s thesis credits (MCBS 899 Master’s Thesis). Graduate credits are earned for courses numbered 800-999. Up to 12 credits earned in non-Biochemistry courses numbered 700-799 may be taken for graduate credit upon approval of the Graduate School. Typically, master’s students enroll in BCHM 851-852 Principles of Biochemistry during their first year of study, unless diagnostic examinations indicate that undergraduate preparation in general biochemistry is sufficient.

**Thesis Committee:** During the first semester, the Graduate Program Coordinator will assist the student in choosing courses. Following selection of the research advisor, the student and the advisor jointly agree on the members of the Thesis Committee during the second semester and communicate this recommendation to the Biochemistry Graduate Program Coordinator. A Master’s Supervisory Committee Nomination Form must be completed and submitted to the Graduate School. The Thesis Committee consists of the advisor as chair and two other members. The committee meets soon after selection of a thesis project to approve the student’s proposed curriculum.

Courses required by the Thesis Committee must be taken for credit and completed with a passing grade (B-minus or better). Courses
recommended by the committee may be audited or taken for credit, but in either case the student is expected to be familiar with the subject matter of these courses. It is recommended that the student meet with their Thesis Committee every semester to review progress of the thesis project and academics.

**Written Thesis and Oral Presentation:** Students must prepare a written master’s thesis for submission to their Thesis Committee. A copy of the complete thesis must be made available to the committee at least 14 days before the date of the final examination. Consult the *Thesis and Dissertation Manual* provided by the Graduate School for details on preparing the manuscript.

The oral examination of the master’s thesis consists of two parts: an oral presentation of the research that is open to the public and an oral defense of the master’s thesis conducted by the Thesis Committee.

Final approval of the master’s thesis will be determined by the Thesis Committee. The final thesis must be submitted to the Graduate School via the procedures outlined in the *Thesis and Dissertation Manual*. As their program nears completion, students must submit the Intent-to-Graduate prior to the deadline posted on the Graduate School’s calendar.