

# MS in Biochemistry

Admission to the Biochemistry program to pursue a M.S. degree is not an option, as students are accepted with the intent that they will fulfill the Ph.D. requirements. Only under unforeseen circumstances, such as illness, a change in academic interest, or other personal reasons, is a student allowed to transfer to the M.S. degree.

## Degree Requirements

Requirements are the same as for doctoral candidates, although successful completion of a comprehensive examination is not a requirement for the Master's candidate. Students opting for a M.S. degree must complete a research project, and write and defend a Master's thesis in front of their Master's committee. The Master's Committee should consist of at least three faculty members including the mentor. At least two of the faculty should be from the Biochemistry Graduate Program, and at least one faculty member from outside of the advisor's primary department.

The Graduate School requires 30 hours of advanced study to be completed for the M.S. degree (<https://gradschool.missouri.edu/current-students/masters/>), including a minimum of 15 hours of 8000-9000 level course work. Along with courses and seminars, students embark on lab rotations, thesis research, qualifying exams and committee meetings, culminating in the thesis defense. A student must complete nine credit hours per fall/spring semester, or four per summer semester, to remain a full-time graduate student.

### Core Course Work

BIOCHM 8200	Principles and Research Practices in Biochemistry	2
BIOCHM 8240	Introduction to Graduate Biochemistry I *	3

### Elective Course Work

MS/PhD students are required to take additional 8000/9000-level science courses (9 total hours). The following are recommended and pre-approved. Other Graduate level sciences courses may complete this requirement with approval by the GEC before enrolling.

AN_SCI/PLNT_SCI 8430	Introduction to Bioinformatics Programming	4
BIOCHM 8434	Signaling in Molecular Cell Biology #	3
AN_SCI 8443	Functional Genomics of Mammals	4
BIOCHM 9001	Topics in Biochemistry (Structure Biology and Molecular Association) #	2
BIOCHM 9200	Structural Biology for the Life Sciences	3

### Ethics Seminar

BIOCHM 8060	Ethical Conduct of Research	1
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### Seminars

BIOCHM 9087	Seminar in Biochemistry	1
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Students should enroll in the first round during the second semester. Students should complete additional hours in the spring semesters while pursuing the MS.

### Thesis Research

BIOCHM 9090	Research in Biochemistry	1-99
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Enroll in sufficient hours to maintain full-time status, and obtain the 30 credit hour minimum for completion.

\* All graduate students are required to earn a grade of B or better.

# A student who earns a grade of C or lower in any of these courses must retake the course.

## Qualifying Process

The Qualifying Exam (QE) assesses the student's foundational knowledge, including knowledge of proteins and enzymes, metabolism, nucleic acids and gene expression, and supramolecular structure and gene expression. The decision of the timing and format of the QE is at the discretion of the student's Graduate Program Committee (GPC). However, the QE should be completed before the end of the fall semester (December) of their second year. The format can be oral or written. The criteria and format of the QE component can range from basic questioning of the student, including specific assessments in the context of the student's research interests or as extensive as providing a student in advance with a formalized set of specific foundational concepts or topics and evaluating the student orally or in a written format.

## Research Rotations

Starting in the fall semester of the first year, each student completes three laboratory rotations with the aim of identifying a lab in which to conduct thesis research. By the end of the second semester, most students have chosen their labs. Each rotation should be conducted for a period of at least eight weeks. Two rotations are performed in the first semester, with the second rotation ending December 31. The third rotation begins January 1 or soon after. One-half of the student's time and effort should be directed toward the rotation project and other other half toward course work. The rotation laboratory should serve as an academic home, and the student should participate in all usual laboratory activities, including weekly group meetings.

## Department Seminars

Students are expected to attend all department seminars (<https://biochem.missouri.edu/>).

## Admissions Support

Applicants are required to meet two sets of minimum qualifications for admission: the admission requirements of the PhD in Biochemistry program (<https://gradschool.missouri.edu/degreecategory/biochemistry/>) and the minimum admission requirements for the Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you have applied.

Biochemistry Graduate Admissions Support  
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