

M.S. IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Overview

The Master of Science in Biochemistry & Molecular Biology is a full-time, 30 credit program, designed to be completed in one year. This program offers laboratory-based training in an intellectually stimulating learning environment with opportunities for students to become critical thinkers. Students are taught by faculty members who are leaders in the field of Biochemistry and Molecular Biology and span a broad area of research within the scientific community.

It is an ideal degree option for those seeking:

- A gap year before applying for MD and MD- Ph.D. programs
- Hands-On research exposure for careers in industry
- Additional training for admission to Ph.D. programs

Admission Requirements

Applicants to the Master of Science in Biochemistry and Molecular Biology Program at the Miller School must have a bachelor's degree from an accredited institution and sufficient undergraduate coursework in the areas of biological sciences, physical sciences, medicine, agricultural sciences, or chemical sciences.

Competitive candidates will have the following:

- Excellent academic record (minimum overall cumulative GPA = 3.0)
- Strong letters of recommendation
- Motivation to pursue state-of-the-art biomedical research or a career in medicine

Full application instructions can be found online (<http://biomed.med.miami.edu/apply/>).

Curriculum Requirements

The requirements for graduation with MS degree include the following:

- Successful completion of 15 credit hours of required courses and up to 15 credit hours of research work totaling 30 credit hours.
- A final oral comprehensive examination of the research performed- A student failing the comprehensive may be allowed one opportunity to retake it if the student's committee so advises. The re-examination may not be taken during the same semester or summer session and must be taken within one calendar year.

Research Track

Code	Title	Credit Hours
Required Courses ¹		
BMB 605	Principles of Biochemistry and Molecular Biology ²	3
BMB 612	Medical Genetics	3
BMB 618	Scientific Communications Journal Review	2
BMB 630	Research in Biochemistry and Molecular Biology I	3
BMB 634	Research in Biochemistry and Molecular Biology II	6
BMB 635	Research In Biochemistry and Molecular Biology III	6
Electives: Choose 7 elective credits from the list below. ³		
BMB 602	BMB Graduate Research Seminars ³	
BMB 610	Advanced Topics in Biochemistry and Molecular Biology ³	
BMB 615	Structural Biology and Applications to Drug Discovery (Masters) ³	
BMB 616	Basis of Mitochondrial Medicine ³	
BMB 621	Clinical Diagnostics and Biosensors ³	
BMB 619	Epigenetic Control of Gene Expression ³	
BMB 641	Essentials of Biotechniques I II	
BMB 644	Independent Studies in BMB Scientific Research ^{3,4}	
Total Credit Hours		30

¹ Successful completion of 15 credit hours of required courses and up to 15 credit hours of research work totaling 30 credit hours.

² If you have taken BMB 401 as an undergraduate at the University of Miami and earned a grade of B or higher, this course may be substituted. **Substitutions require advisor approval.**

³ Students must complete 7 elective credits selected with their academic advisor.

⁴ Course may be repeated for credit in Fall and Spring; Approval from Advisor required for course enrollment.

Industry Track

Code	Title	Credit Hours
Required Courses ¹		
BMB 601	Research Journal Club	1
BMB 605	Principles of Biochemistry and Molecular Biology	3
BMB 614	Molecular Genetics	3
BMB 641	Essentials of Biotechniques I II	1
BMB 642	Essentials of Biotechniques II	3
BMB 680	Responsible Conduct of Research	1
Electives		3
BMB 610	Advanced Topics in Biochemistry and Molecular Biology	3
BMB 615	Structural Biology and Applications to Drug Discovery (Masters)	3
Internship		
BMB 632	(Internship) ⁴	1-9
Capstone		
BMB 633	Capstone project in Biochemistry and Molecular Biology	1-3
Total Credit Hours		30

Suggested Plans of Study

Research Track

Year One		Credit Hours
Fall		
BMB 605	Principles of Biochemistry and Molecular Biology ²	3
BMB 618	Scientific Communications Journal Review	2
BMB 641	Essentials of Biotechniques I II	4
BMB 630	Research in Biochemistry and Molecular Biology I	3
Credit Hours		12
Spring		
BMB 602	BMB Graduate Research Seminars	1
BMB 612	Medical Genetics	3
BMB 621	Clinical Diagnostics and Biosensors	2
BMB 634	Research in Biochemistry and Molecular Biology II	6
Credit Hours		12
Summer		
BMB 635	Research In Biochemistry and Molecular Biology III	6
Credit Hours		6
Total Credit Hours		30

Industry Track

Year One		Credit Hours
Fall		
BMB 680	Responsible Conduct of Research	1
BMB 601	Research Journal Club	1
BMB 605	Principles of Biochemistry and Molecular Biology	3
BMB 614	Molecular Genetics	3

BMB 641	Essentials of Biotechniques I II	3
Credit Hours		11
Spring		
BMB 601	Research Journal Club	1
BMB 642	Essentials of Biotechniques II	3
BMB 633	Capstone project in Biochemistry and Molecular Biology	1
BMB 615	Structural Biology and Applications to Drug Discovery (Masters)	3
Credit Hours		8
Summer		
BMB 632 INTERNSHIP		9
BMB 633 CAPSTONE		2
Credit Hours		11
Total Credit Hours		30