

# BIOCHEMISTRY AND MOLECULAR BIOLOGY UNDERGRADUATE MAJOR (BS, HBS)

Administered by the Department of Biochemistry and Biophysics under the School of Life Sciences.

The BS degree in Biochemistry and Molecular Biology provides a degree path centered on the molecular basis of living systems with training in molecular genetics, biochemistry, and cell biology, as well as in rapidly developing areas such as bioinformatics. Majors must select an option either in Advanced Molecular Biology, Computational Molecular Biology, or Pre-medicine/Biochemistry and Molecular Biology. The first two options are designed for students interested in careers in the biotechnology and pharmaceutical industries or graduate work in the molecular life sciences, with the second especially well-suited for students interested in computational aspects of molecular biology. The third option is ideal for students interested in careers in medicine and related health professions. Students majoring in Biochemistry and Molecular Biology cannot seek a double major in Biochemistry and Biophysics, Biology, Biohealth Sciences, Botany, Microbiology or Zoology.

Completion of an option is **required** to earn a degree in Biochemistry and Molecular Biology.

Students are required to achieve a C- or better in the following courses (or their honors counterparts) required for the Biochemistry and Molecular Biology major:

Code	Title	Hours
BI 211	*PRINCIPLES OF BIOLOGY	4
BI 212	*PRINCIPLES OF BIOLOGY	4
BI 213	*PRINCIPLES OF BIOLOGY	4
CH 231 & CH 261	GENERAL CHEMISTRY and *LABORATORY FOR CHEMISTRY 231	5
CH 232 & CH 262	GENERAL CHEMISTRY and *LABORATORY FOR CHEMISTRY 232	5
CH 233 & CH 263	GENERAL CHEMISTRY and *LABORATORY FOR CHEMISTRY 233	5
MTH 251	*DIFFERENTIAL CALCULUS	4
MTH 252	INTEGRAL CALCULUS	4

Code	Title	Hours
<b>Baccalaureate Core</b>		
Select 51 credits		
<b>Core</b>		
BB 111	INTRODUCTION TO BIOCHEMISTRY AND BIOPHYSICS RESEARCH	1
BB 314	CELL AND MOLECULAR BIOLOGY	4
BB 315	MOLECULAR BIOLOGY LABORATORY (WIC status removed fall 2017)	3
BB 317	^SCIENTIFIC THEORY AND PRACTICE	3
BB 481	MACROMOLECULAR STRUCTURE	3
BB 486	ADVANCED MOLECULAR GENETICS	3

BB 490	BIOCHEMISTRY 1: STRUCTURE AND FUNCTION	3
BB 491	BIOCHEMISTRY 2: METABOLISM	3
BB 492	BIOCHEMISTRY 3: GENETIC BIOCHEMISTRY	3
BB 494	BIOCHEMISTRY LABORATORY MOLECULAR TECHNIQUES 2	3
BB 498	ASBMB CERTIFICATION EXAM	0
BI 211 & BI 212 & BI 213	*PRINCIPLES OF BIOLOGY and *PRINCIPLES OF BIOLOGY and *PRINCIPLES OF BIOLOGY	12
CH 231 & CH 261	GENERAL CHEMISTRY and *LABORATORY FOR CHEMISTRY 231	5
CH 232 & CH 262	GENERAL CHEMISTRY and *LABORATORY FOR CHEMISTRY 232	5
CH 233 & CH 263	GENERAL CHEMISTRY and *LABORATORY FOR CHEMISTRY 233	5
CH 334 & CH 335 & CH 336	ORGANIC CHEMISTRY and ORGANIC CHEMISTRY and ORGANIC CHEMISTRY	9
CH 337 or CH 324	ORGANIC CHEMISTRY LABORATORY QUANTITATIVE ANALYSIS	4
MTH 251	*DIFFERENTIAL CALCULUS	4
MTH 252	INTEGRAL CALCULUS	4
PH 201 & PH 202 & PH 203	*GENERAL PHYSICS and *GENERAL PHYSICS and *GENERAL PHYSICS	15
ST 351	INTRODUCTION TO STATISTICAL METHODS	4

**Required Option**

Credits vary by option	
<b>Total credits required for graduation</b>	<b>180</b>

- \* Baccalaureate Core Course (BCC)
- ^ Writing Intensive Course (WIC)

**Major Code: 971**

Selection of one option is required.

Course	Title	Hours
<b>First Year</b>		
<b>Fall</b>		
BI 211	*PRINCIPLES OF BIOLOGY	4
BB 111	INTRODUCTION TO BIOCHEMISTRY AND BIOPHYSICS RESEARCH	1
CH 231	GENERAL CHEMISTRY	4
CH 261	*LABORATORY FOR CHEMISTRY 231	1
WR 121	*ENGLISH COMPOSITION	3

Hours 13

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<b>Winter</b>			
BI 212	*PRINCIPLES OF BIOLOGY	4	
CH 232	GENERAL CHEMISTRY	4	
CH 262	*LABORATORY FOR CHEMISTRY 232	1	
HHS 231	*LIFETIME FITNESS FOR HEALTH	2	
MTH 251	*DIFFERENTIAL CALCULUS	4	
		Hours	15
<b>Spring</b>			
BI 213	*PRINCIPLES OF BIOLOGY	4	
CH 233	GENERAL CHEMISTRY	4	
CH 263	*LABORATORY FOR CHEMISTRY 233	1	
Select one of the following:		3	
COMM 111	*PUBLIC SPEAKING		
COMM 114	*ARGUMENT AND CRITICAL DISCOURSE		
COMM 218	*INTERPERSONAL COMMUNICATION		
MTH 252	INTEGRAL CALCULUS	4	
		Hours	16
<b>Second Year</b>			
<b>Fall</b>			
BB 314	CELL AND MOLECULAR BIOLOGY	4	
CH 334	ORGANIC CHEMISTRY	3	
PH 201	*GENERAL PHYSICS	5	
Bacc Core Course		3	
		Hours	15
<b>Winter</b>			
CH 335	ORGANIC CHEMISTRY	3	
PH 202	*GENERAL PHYSICS	5	
ST 351	INTRODUCTION TO STATISTICAL METHODS	4	
Bacc Core Course		3	
		Hours	15
<b>Spring</b>			
BB 317	*SCIENTIFIC THEORY AND PRACTICE	3	
CH 336	ORGANIC CHEMISTRY	3	
PH 203	*GENERAL PHYSICS	5	
BB 315	MOLECULAR BIOLOGY LABORATORY	3	
		Hours	14
<b>Third Year</b>			
<b>Fall</b>			
BB 490	BIOCHEMISTRY 1: STRUCTURE AND FUNCTION	3	
CH 337	ORGANIC CHEMISTRY LABORATORY	4	
Bacc Core Course		3	
Option Course		3	
Elective		3	
		Hours	16
<b>Winter</b>			
BB 491	BIOCHEMISTRY 2: METABOLISM	3	
CH 324	QUANTITATIVE ANALYSIS	4	
Bacc Core Course		3	
Option Course		3	
Elective		3	
		Hours	16
<b>Spring</b>			
BB 492	BIOCHEMISTRY 3: GENETIC BIOCHEMISTRY	3	
Bacc Core Course		6	
Option Course		3	
Elective		3	
		Hours	15
<b>Fourth Year</b>			
<b>Fall</b>			
BB 481	MACROMOLECULAR STRUCTURE	3	
Bacc Core Course		3	
Option Course		6	
Elective		3	
		Hours	15
<b>Winter</b>			
BB 494	BIOCHEMISTRY LABORATORY MOLECULAR TECHNIQUES 2	3	
Bacc Core Course		3	
Option Course		3	
Electives		6	
		Hours	15
<b>Spring</b>			
BB 486	ADVANCED MOLECULAR GENETICS	3	
BB 498	ASBMB CERTIFICATION EXAM	0	
Option Course		3	

Electives		9
	Hours	15
	Total Hours	180

\* Baccalaureate Core Course (BCC)

^ Writing Intensive Course (WIC)