

**Undergraduate Major in Biochemistry Sample Curriculum**  
**American Society for Biochemistry and Molecular Biology (ASBMB)**

**First Year (31 total credits)**

**Fall**

BC 192	2 cr
LIFE 102	4 cr
CHEM 111,112	5 cr
MATH 155 or 160	<u>4 cr</u>
	15 cr

**Spring**

LIFE 201B, 203	5 cr
CHEM 113,114	4 cr
CO 150	3 cr
MATH 255 or 161	<u>4 cr</u>
	16 cr

**Sophomore Year (30 total credits)**

**Fall**

CHEM 341	3 cr
LIFE 210	3 cr
LIFE 212	2 cr
AUCC Cat 3B-E	3 cr
Electives <sup>2</sup>	<u>3 cr</u>
	14 cr

**Spring**

CHEM 343	3 cr
CHEM 344	2 cr
PH 121 or 141	5 cr
AUCC Cat 3B-E	3 cr
Bioscience Elective <sup>1</sup>	<u>3 cr</u>
	16 cr

**Junior Year (29 total credits)**

**Fall**

BC 401	3 cr
PH 122 or 142	5 cr
STAT 301 or 307 or 315	3 cr
BC 404	2 cr
BC 360	<u>1 cr</u>
	14 cr

**Spring**

AUCC Cat 3B-E	3 cr
BC 403	3 cr
AUCC Cat 2	3 cr
Bioscience Elective <sup>1</sup>	3 cr
Electives <sup>2</sup>	<u>3 cr</u>
	15 cr

**Senior Year (30 total credits)**

**Fall**

BC 411	4 cr
BC 463	3 cr
BC 493	1 cr
AUCC Cat 3B-E	3 cr
Electives <sup>2</sup>	<u>4 cr</u>
	15 cr

**Spring**

BC 465	3 cr
BC 499A/B	3 cr
AUCC Cat 3B-E	3 cr
Bioscience Elective <sup>1</sup>	3 cr
Electives <sup>2</sup>	<u>3 cr</u>
	15 cr

<sup>1</sup>The following two lists are courses that will count as bioscience electives. Students must complete a minimum of nine bioscience elective credits. At least one bioscience elective course must be selected from the top list.

<sup>2</sup>Students are encouraged to use their free elective credits with additional bioscience electives (see next page for list), or apply them toward a minor.

Bioscience Electives

Course	Cr	Title	Semester	Prerequisites
<b>One of the bioscience electives must be from the following list of physiology/organismal biology courses:</b>				
BMS 300	4	Principles of Human Physiol.	F,SP,S	(BZ 101 or BZ 110 or LIFE 102) and (CHEM 103 or CHEM 107 or CHEM 111)
BMS 301	5	Human Gross Anatomy	F,SP,S	BZ 110 or LIFE 102
BMS 305	4	Domestic Animal Gross Anat.	SP	BZ 110 or LIFE 102
BMS 330	4	Microscopic Anat/Mam.	SP	BMS 300 or BMS 360
BMS 345	4	Functional Neuroanatomy	F,SP	BMS 300 or BMS 360
BMS 360	4	Fundamentals of Physiology	SP	(BZ 110 or LIFE 102) and (CHEM 245 or 341, may be taken concurrently)
BMS 420	3	Cardiopulmonary Physiology	F	BMS 300 or BMS 360
BMS 430	3	Endocrinology	F	BMS 300 or BMS 360
BMS 450	3	Pharmacology	SP	BMS 300 or BMS 360
BMS 500	4	Mammalian Physiology	F	BMS 300 or BMS 360
ERHS 332	3	Principles of Epidemiology	SP	MIP 300 or concurrent registration; STAT 301 or STAT 307 or concurrent registration
FSHN 350	3	Human Nutrition	F,SP,S	BMS 300 or concurrent registration; CHEM 245 or CHEM 341
HES 319	4	Neuromuscular	F,SP	BMS 300 and HES 207
HES 403	4	Physiology of Exercise	F,SP,S	BMS 300 or BMS 360; LIFE 102
VS 331	4	Histology	F,SP,S	BMS 300
<b>The second and third bioscience electives must be from the above list or from the following:</b>				
BC 406A*	2	Investigative Biochemistry	F, SP	BC 404
BC 467	3	Biochemistry of Disease	SP	BC 401
BC 475*	3	Mentored Research	F, SP, S	BC 404
BC 487*	1 to 18	Internship	F, SP, S	BC 401; BC 403; BC 404
BC 495*	1 to 18	Independent Study	F, SP, S	None
BC 496*	1 to 18	Group Study	F, SP, S	None
BMS 325	3	Cellular Neurobiology	F	BMS 300 or BMS 360
BMS 405	3	Nerve & Muscle Toxins...	SP	BMS 325 or BMS 345
BZ 220	3	Introduction to Evolution	F,SP,S	BZ 110; BZ 120 or LIFE 103
BZ 311	4	Developmental Biology	SP,S	BZ 310
BZ 346	3	Pop. And Evolut. Genetics	F	BZ 220; MATH 155; STAT 301 or STAT 307/ERHS 307
BZ 360	3	Bioinformatics & Genomics	SP	BZ 110 or BZ 120 or LIFE 102; CHEM 245 or CR, CHEM 341 or CR or CHEM 345 or CR
BZ 401	3	Comparative Animal Phys.	SP	BZ 214
BZ 402	4	Molecular Cytogenetics	SP	(BZ 310 or LIFE 210) and (BZ 350 or LIFE 201A or LIFE 201B or SOCR 330) may be CR
BZ 403	3	Comp. Endocrinology	F	BZ 310
BZ 440	3	Plant Physiology	SP	BZ 120 or LIFE 103
BZ 455	3	Human Heredity & Birth Def	SP	BZ 110 and BZ 111 or LIFE 103
BZ 476	3	Genetics of Model Orgs.	F even yr	BZ 350 or LIFE 201A or LIFE 201B or SOCR 330.
CHEM 334	1	Quantitative Analysis Lab	F,SP	CHEM 114 and CHEM 335, may be taken concurrently
CHEM 335	3	Intro to Analytical Chemistry	F,SP	CHEM 113 with a minimum grade of C and CHEM 334, may be taken concurrently
CHEM 433	3	Clinical Chemistry	SP	CHEM 334; BC 351 or BC 401
ERHS 450	3	Intro to Radiation Biology	SP	LIFE 102 and PH 122, may be taken concurrently
FSHN 470	3	Integrative Nutr. & Met	F,SP	BC 351 and FSHN 350
FTEC 350	2	Fermentation Microbiology	SP	CHEM 245 or FTEC 210 or LIFE 206 or MIP 302
FTEC 460	3	Brewing Sci & Technology	F,SP	CHEM 245 and MATH 118
MIP 300	3	General Microbiology	F,SP,S	BZ 110 or BZ 120 or LIFE 102; CHEM 245 or CR, CHEM 341 or CR or CHEM 345 or CR
MIP 302	2	General Microbiology Lab	F,SP	MIP 300, may be taken concurrently
MIP 342	4	Immunology	F,SP	(CHEM 245 or 341 or 345; or CR) and (LIFE 201B or LIFE 210 or MIP 300)
MIP 343	2	Immunology Lab	SP	MIP 302 and MIP 342, may be taken concurrently
MIP 351	3	Medical Bacteriology	SP	MIP 342
MIP 352	3	Medical Bacteriology Lab	SP	MIP 302 and MIP 351, may be taken concurrently
MIP 420	4	Medical & Molecular Vir.	F	MIP 342; BC 351 or concurrent registration, or BC 401 or concurrent registration
MIP 425	2	Virology and Cell Culture Lab	F	MIP 302; MIP 420 or concurrent registration
MIP 450	3	Microbial Genetics	F	MIP 300; BC 351 or concurrent registration or BC 401 or concurrent registration
MIP 462	5	Parasitology & Vector Biol.	F	BZ 110 or LIFE 103; BZ 212 or LIFE 206 or MIP 302
NB 501	2	Cell & Molec. Neurophys.	F	One college-level course in each: biology, biochemistry, physics, calculus

\* A maximum of three credits of BC 475, BC 487, BC 495 or BC 496 can be applied to the bioscience elective requirement