

Undergraduate Major in Biochemistry Sample Curriculum

Health and Medical Sciences Concentration

First Year (31 total credits)

<u>Fall</u>		<u>Spring</u>	
BC 192	2 cr	LIFE 201B, 203	5 cr
LIFE 102	4 cr	CHEM 113,114	4 cr
CHEM 111,112	5 cr	CO 150	3 cr
MATH 155 or 160	<u>4 cr</u>	MATH 255 or 161	<u>4 cr</u>
	15 cr		16 cr

Sophomore Year (31 total credits)

<u>Fall</u>		<u>Spring</u>	
CHEM 341	3 cr	CHEM 343	3 cr
LIFE 210,212	5 cr	CHEM 344	2 cr
AUCC Cat 3B-E	3 cr	PH 121 or 141	5 cr
Elective ¹	<u>3 cr</u>	AUCC Cat 3B-E	3 cr
	14 cr	BMS 300 or 360	<u>4 cr</u>
			17 cr

Junior Year (30 total credits)

<u>Fall</u>		<u>Spring</u>	
BC 401	3 cr	BC 403	3 cr
PH 122 or 142	5 cr	BC 406A/475/487/495/496	3 cr
AUCC Cat 3 B-E	3 cr	Elective ¹	3-4 cr
BC 404	2 cr	BMS 301 ² OR	5 cr
STAT 301 or 307 or 315	<u>3 cr</u>	BMS 305 ²	<u>4 cr</u>
	16 cr		14 cr

Senior Year (28 total credits)

<u>Fall</u>		<u>Spring</u>	
BC 411	4 cr	BC 465	3 cr
BC 463	3 cr	BC 499 A/C	3 cr
BC 493	1 cr	BC 467	3 cr
AUCC Cat 2	3 cr	AUCC Cat 3B-E	3 cr
AUCC Cat 3 B-E	<u>3 cr</u>	Elective ¹	<u>2 cr</u>
	14 cr		14 cr

¹Students are encouraged to use their elective credits on undergraduate research or apply them toward a minor.

²BMS 301 should be taken by students pursuing health and medical fields related to human health. BMS 305 should be taken by students pursuing health and medical fields related to veterinary medicine. Students who take BMS 305 will need to complete one additional "elective" credit to obtain the total 120 credits needed to graduate.

Bioscience Electives

Course	Cr	Title	Semester	Prerequisites
One of the bioscience electives must be from the following list of physiology/organismal biology courses:				
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
The second and third bioscience electives must be from the above list or from the following:				
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