BACHELOR OF SCIENCE IN BIOCHEMISTRY - PRE-HEALTH OPTION

Code	Title	Credit Hours
Wellness Requirement		
APPH 1040	Scientific Foundations of Health	2
or APPH 10	The Science of Physical Activity and Health	
or APPH 10	Flourishing: Strategies for Well-being and Resilience	
Core IMPACTS		
Institutional Priority		
CS 1301	Introduction to Computing	3
or CS 1315	Introduction to Media Computation	
or CS 1371	Computing for Engineers	
Mathematics and Quantitative Skills		
MATH 1552	Integral Calculus	4
Political Science and U.S. History		
HIST 2111	The United States to 1877	3
or HIST 2112	The United States since 1877	
or INTA 1200	American Government in Comparative Perspective	
or POL 1101	Government of the United States	
or PUBP 3000	American Constitutional Issues	
Arts, Humanities, and Ethics		
Any HUM		6
Communicating in Writing		
ENGL 1101	English Composition I	3
ENGL 1102	English Composition II	3
Technology, Mathematics, and Sciences		
Lab Science [1]		8
MATH 1551	Differential Calculus	2
MATH 1553	Introduction to Linear Algebra [2]	2
Social Sciences		
Any SS [3]		9
Field of Study		
PHYS 2212	Principles of Physics II	4
CHEM 1212K	Chemical Principles II	4
CHEM 2380	Synthesis Laboratory I	2
BIOS 1107 & 1107L	Biological Principles and Biological Principles Laboratory	4
BIOS 1108 & 1108L	Organismal Biology and Organismal Biology Laboratory [4]	4
Major Requirements		
CHEM 2216 & 2216L	Quantitative Chemical Analysis and Quantitative Chemical Analysis Laboratory	4
or CHEM 22	Quantitative Chemical Analysis	
CHEM 2311	Organic Chemistry I	3
CHEM 2312	Organic Chemistry II	3
or CHEM 23	Organic and Bioorganic Chemistry	
CHEM 3216 & 3216L	Analytical Chemistry Lecture and Analytical Chemistry Laboratory	5
or CHEM 321	Analytical Chemistry	
CHEM 3371	Organic Chemistry Laboratory	2
CHEM 3411	Physical Chemistry I	3
CHEM 4511	Biochemistry I	3
or CHEM 35	Biochemistry I	
CHEM 4512	Biochemistry II	3
or CHEM 352	Biochemistry II	
CHEM 4581	Biochemistry Laboratory I	3
CHEM 4582	Biochemistry Laboratory II	3
CHEM 4601	Chemistry Seminar	2
Pre-Health Electives [1]		
Select 12 credits from the following:		12
BIOS 2600	Genetics	
BIOS 2601	Genetics Laboratory	
BIOS 2610 & BIOS 2611	Integrative Genetics and Honors Genetics Lab	
BIOS 3380	Microbiology	
BIOS 3381	Microbiology Lab	
BIOS 3450	Cell and Molecular Biology	
BIOS 3451	Cell and Molecular Biology Lab	
BIOS 3753	Fundamentals of Human Anatomy	
BIOS 3754	Laboratory in Human Anatomy	
BIOS 3755	Human Physiology	
BIOS 3756	Physiology Laboratory	
BIOS 4012	Protein Biology	
BIOS 4015	Cancer Biology and Biotechnology	
BIOS 4150/ BIOL 6150	Genomics and Applied Bioinformatics	
BIOS 4200	Kinesiological Basis of Human Movement	
BIOS 4238/ APPH 6238	Ion Channels	
BIOS 4340	Medical Microbiology	
BIOS 4400	Human Neuroanatomy	
BIOS 4401	Experimental Design and Statistical Methods in Biological Sciences	
BIOS 4440	Human Pathology	
BIOS 4464	Developmental Biology	
BIOS 4471	Behavioral Biology	
BIOS 4500	Drug Discovery	
BIOS 4510/ BIOL 8510	Epigenetics, Stem Cells, and Development	
BIOS 4520	Health Genes Society	
BIOS 4530/ BIOL 8530	Human Evolutionary Genomics	
BIOS 4545	Genetics of Complex Human Traits and Diseases	
BIOS 4560/ BIOL 8560	RNA Biology and Biotechnology	
BIOS 4570	Immunology	

	BIOS 4744	Microbial Symbiosis & Microbiomes
	BIOS 4607/ BIOL 6607	Molecular Biology of Microbes: Disease, Nature, and Biotechnology
	BMED 3100	Systems Physiology
	BMED 3600	Physiology of Cellular and Molecular Systems
	CHEM 4521	Biophysical Chemistry
	CHEM 4765	Drug Design, Development, and Delivery
Free Electives		
Free Electives [4,5,6,7,8]		13
Total Credit Hours		**122**

Pass-fail only allowed for Free Electives.

1. Students are highly encouraged to complete CHEM 1211K and PHYS 2211 for Core IMPACTS Area T. These courses are pre-requisites for other courses in the program.
2. MATH 1554 or MATH 1564 may be used in place of MATH 1553.
3. It is suggested that students select pre-health preparation courses (SOC and PSYC).
4. It is suggested that students select pre-health preparation courses (BIOS, HTS, LMC, PSYC)
5. VIP courses may be used only as free electives.
6. A maximum of twelve credit hours of CHEM 4699 taken on a letter-grade basis are permitted for the degree program. Up to six hours of CHEM 2699 taken on a letter-grade basis may be used as free electives.
7. Courses taken as pass-fail may only be used in free electives.
8. Pre-Health Electives and Free Electives may be applied toward completion of a minor.