

**Biotechnology, B.S.: 120 units**  
2019-2020 Academic Year

	Fall		Units	Spring		Units	Comments
	Courses	Requirements/Comments		Courses	Requirements/Comments		
<b>Year 1</b>	BIO 1210 Foundations of Biology: Energy, Matter, and Information (B2) (Success Marker)	Coreq: BIO 1210L.	3	BIO 1220 Foundations of Biology: Evolution, Ecology, and Biodiversity	Prereq: BIO 121, BIO 121L, and BIO 1210B, or BIO 1210 and BIO 1210L. Coreq: BIO 1220L.	3	
	BIO 1210L Foundations of Biology: Energy, Matter, and Information Laboratory (B3) (Success Marker)	Coreq: BIO 1210.	1	BIO 1220L Foundations of Biology: Evolution, Ecology, and Biodiversity Laboratory	Prereq: BIO 121, BIO 121L, and BIO 1210B, or BIO 1210 and BIO 1210L. Coreq: BIO 1220.	1	
	CHM 1210 General Chemistry I (B1)	Prereq: C or better in MAT 12, 105, 106, 112, 114, 115, 116, 120, 125, 130, 191, 214, 216, 224, MAT 1050, MAT 1052, MAT 1060, MAT 1140, MAT 1150, MAT 1200, MAT 1250, MAT 1300, MAT 1310, MAT 1910, MAT 2140, MAT 2240, MAT 2250, STA 120, or STA 1200; or C- or better Coreq: CHM 1210L.	3	CHM 1220 General Chemistry II (B1)	Prereq: C- or better in CHM 1210, CHM 122 or CHM 122B; and C- or better in CHM 1210L, CHM 122L or CHM122LB. Coreq: CHM 1220L.	3	
	CHM 1210L General Chemistry Laboratory I (B3)	Prereq: C or better in MAT 12, 105, 106, 112, 114, 115, 116, 120, 125, 130, 191, 214, 216, 224, MAT 1050, MAT 1052, MAT 1060, MAT 1140, MAT 1150, MAT 1200, MAT 1250, MAT 1300, MAT 1310, MAT 1910, MAT 2140, MAT 2240, MAT 2250, STA 120, or STA 1200; or C- o	1	CHM 1220L General Chemistry Laboratory II (B3)	Prereq: C- or better in CHM 1210, CHM 122 or CHM 122B; and C- or better in CHM 1210L, CHM 122L or CHM122LB. Coreq: CHM 1220.	1	
	ENG 1103 First Year Composition (A2) (Success Marker)	or ENG 1101 - Stretch Composition II (3) (A2)	3	MAT 1200 Calculus for Life Sciences (B4) (Success Marker)	or MAT Calculus I (4) (B4)	3	
	GE Area E: Lifelong Learning and Self-Development		3	GE Area A3: Critical Thinking	ENG 2105 - Written Reasoning (3) (A3) or PHL 2020 - Critical Thinking (3) (A3)	3	
	<b>Total Units</b>		<b>14</b>	<b>Total Units</b>		<b>14</b>	

Year 2	Fall		Units	Spring		Units	Comments
	Courses	Requirements/Comments		Courses	Requirements/Comments		
	BIO 2060 Basic Microbiology	Prereq: BIO 123/BIO 123L, BIO 1220/BIO 1220L, BIO 122/BIO 122L/BIO 1220C, BIO 115/BIO 115L/BIO 115A, or BIO 1150/BIO 1150L. Coreq: BIO 2060L.	3	BIO 3220 Cell and Molecular Biology	Prereq: BIO 303 or BIO 2400.	3	
BIO 2060L Basic Microbiology Laboratory	Prereq: BIO 123/BIO 123L, BIO 1220/BIO 1220L, BIO 122/BIO 122L/BIO 1220C, BIO 115/BIO 115L/BIO 115A, or BIO 1150/BIO 1150L. Coreq: BIO 2060.	1	CHM 2210 Quantitative Analysis	Prereq: C- or better in CHM 123 or CHM 1220; and CHM 123L or CHM 1220L. Coreq: CHM 2210L.	2		
BIO 2400 Genetics	Prereq: BIO 123/BIO 123L, BIO 1220/BIO 1220L, BIO 122/BIO 122L/BIO 1220C, BIO 115/BIO 115L/BIO 115A, BIO 1150/BIO 1150L, BIO 110/BIO 111 or BIO 1110/BIO 1110L.	3	CHM 2210L Quantitative Analysis Laboratory	Prereq: C- or better in CHM 123 or CHM 1220, and C- or better in CHM 123L or CHM 1220L. Coreq: CHM 2210.	2		
CHM 3140 Organic Chemistry I	Prereq: C- or better in CHM 123 or CHM 1220; and C- or better in CHM 123L or CHM 1220L.	4	CHM 3150 Organic Chemistry II	Prereq: C- or better in CHM 3140, CHM 315, or CHM 315B.	3		
CHM 3140L Organic Chemistry Laboratory I	Prereq: C- or better in CHM 3140 or CHM 315; CHM 3140 can be concurrent.	1	GE Area C1: Visual and Performing Arts		3		
GE Area A1: Oral Communication		3	GE Area C2: Literature, Modern Languages, Philosophy and Civilization		3		
<b>Semester Total Units</b>		<b>15</b>	<b>Semester Total Units</b>		<b>16</b>		

	Fall		Units	Spring		Units	Comments
	Courses	Requirements/Comments		Courses	Requirements/Comments		
<b>Year 3</b>	Major Elective	Select from Curriculum Sheet	4	Major Elective	Select from Curriculum Sheet	4	<i>Graduation Writing Test must be taken before completion of 75 units.</i>
	Major Required	CHM 3270 Biochemistry I/Laboratory or CHM 3210 Elements of Biochemistry	4	BIO 2300 Horizons in Biotechnology	Prereq: Undergraduate standing.	1	
	PHY 1210 Physics of Motion, Fluids, and Heat (B1)	Prereq: C- or better in MAT 106, MAT 1060, MAT 112, MAT 114, MAT 1140, MAT 1140C, MAT 115, MAT 116 or MAT 1150 . Coreq: PHY 1210L.	3	PHY 1220 Physics of Electromagnetism, Circuits, and Light	Prereq: C- or better in PHY 122, PHY 122B, PHY 1210, or PHY 1210B. Coreq: PHY 1220L.	3	
	PHY 1210L Physics of Motion, Fluids, and Heat Laboratory (B3)	Coreq: PHY 1210.	1	PHY 1220L Electromagnetism, Circuits, and Light Laboratory	Coreq: PHY 1220.	1	
	GE Area D1: U.S. History American Ideals		3	STA 1300 Biostatistics (B4)	Prereq: C or better in MAT 12, ESM 12, MAT 1060, MAT 106, MAT 1250, MAT 125, MAT 1910, MAT 191, MAT 1050, MAT 105, STA 1200, or STA 120; or C- or better in MAT 1051.	3	
			0	GE Area D2: U.S. Constitution and California Government		3	
	<i>Take the Graduation Writing Test</i>						
	<b>Semester Total Units</b>		<b>15</b>	<b>Semester Total Units</b>		<b>15</b>	

	Fall		Units	Spring		Units	Comments	
	Courses	Requirements/Comments		Courses	Requirements/Comments			
<b>Year 4</b>	BIO 4300 Concepts of Molecular Biology	Prereq: BIO 310 or BIO 3220.	3	Major Required	BIO 4320/L Molecular Biology Techniques/Laboratory or BIO 4360/L Recombinant DNA and Protein Technology/Laboratory	4		
	Major Elective	Select from Curriculum Sheet	4	Major Required	BIO 4410 Internship in Biology or BIO 4610 Undergraduate Research	1		
	GE Area B5: Science and Technology Synthesis	BIO 3000 or BIO 3010 or BIO 3030 or BIO 3040 or BIO 3070 or BIO 3090 or BIO 3120 or BIO 3130	3	Major Elective	Select from Curriculum Sheet	4		
	GE Area C1 or GE Area C2	Prereq: Select either C1: Visual and Performing Arts or C2: Literature, Modern Languages, Philosophy and Civilization course	3	GE Area C3: Arts and Humanities Synthesis		3		
	GE Area D3: Social Sciences: Principles, Methodologies, Value Systems, and Ethics		3	GE Area D4: Social Science Synthesis		3		
	<i>File an application to graduate</i>							
	<b>Semester Total Units</b>		<b>16</b>	<b>Semester Total Units</b>		<b>15</b>		
<b>Total Units</b>						<b>120</b>		