College of Natural Sciences & Mathematics

CNSM Academic Advising Center
California State University, Long Beach
www.csulb.edu/cnsm/advising

BACHELOR OF SCIENCE IN MICROBIOLOGY
FOUR YEAR DEGREE WORKSHEET
2019-2020 Catalog

This degree worksheet is intended to help you develop a balanced course schedule while completing your degree within 4 years. The same sequence of courses (with fewer courses each semester) is also recommended for students completing their degree in 5 or 6 years. This worksheet is not intended to replace academic advising with your assigned advisor. Students should consult with their assigned advisor to determine the appropriate sequence of required courses and electives based on their academic goals. Please note that your Major Specific Requirements (MSRs) are **bolded** in the document and are also listed as an "MSR" in the notes column. These courses must be completed in order to declare your major. **All students must have a GPA of 2.5 or higher in the STEM MSR suite.**

Pre-Biology first-time freshmen must complete CHEM 111A and MATH 119A or higher **within one year of matriculation**. Some students may need to take courses during Summer Session to meet these requirements. Students who have not met the requirements by the required semester must either declare another major or meet with an Academic Advisor to determine if the student's performance in the courses merits an additional semester to complete.

CSULB Enrollment Services prepares the Academic Requirements Report, which is the official graduation verification.

Year 1

Semester	Course #	Course Title (Units)	Prerequisites	Notes
1	**CHEM 111A**	**General Chemistry (5)**	**CPT score of 24 or higher, *Pre/Corequisite*: MATH 112A or 112B or higher, CHEM 95 if needed**	**MSR**
	MATH 119A; *OR* MATH 122 (area B4)	**Survey of Calculus I (3); *OR* Calculus I (3)**	**Appropriate placement; MATH 113; *OR* Appropriate placement; MATH 111 and either 112B or 113**	**MSR**
	GE (area A2)	**Written Communication (3)**		**MSR**
	GE (area C,D,E)	Other Exploration (3)		
	NSCI 190A	Experience Success Program 1 (1)		Fall only
2	**CHEM 111B**	**General Chemistry (5)**	**CHEM 111A or 112A, MATH 112B or higher**	**MSR**
	BIOL 211	**Intro. to Evolution and Diversity (4)**	***Pre/Corequisite*: CHEM 111A or 112A**	**MSR**
	GE (area A1)	**Oral Communication (3)**		**MSR**
	GE (area A3)	**Critical Thinking (3)**		**MSR**
	Elective	Elective Requirement (1)		

Year 2

Semester	Course #	Course Title (Units)	Prerequisites	Notes
3	CHEM 220A	Organic Chemistry I (3)	CHEM 111B or 112B, *Corequisite:* CHEM 223A	
	CHEM 223A	Organic Chemistry Laboratory I (1)	*Corequisite*: CHEM 220A	
	BIOL 212	Intro. to Cell and Molecular Biology (4)	BIOL 211, CHEM 111A or 112A, *Pre/Corequisite:* CHEM 111B or 112B	
	BIOL 260	Biostatistics (3)	BIOL 211, MATH 111, 113, 119A, or 122	
	GE (area C,D,E)	Other Exploration (3)	GE (area C, D, and E)	
	Elective	Elective Requirement (1)		
4	CHEM 220B	Organic Chemistry II (3)	CHEM 220A, *Corequisite*: CHEM 223B	
	CHEM 223B	Organic Chemistry Laboratory II (1)	CHEM 220A and 223A, *Corequisite*: CHEM 220B	
	BIOL 311	General Microbiology (4)	BIOL 211 and 212, CHEM 111B or 112B	
	BIOL 340	Molecular Cell Biology (3)	BIOL 211 and 212	
	GE (area C,D,E)	Other Exploration (3)	GE (area C, D, and E)	

Year 3

Semester	Course #	Course Title (Units)	Prerequisites	Notes
5	BIOL 320	Bacterial Pathogenesis (3)	BIOL 311, Recommended: BIOL 320L	Fall only
	BIOL 371	Microbial Genetics (3)	BIOL 311	Fall only
	CHEM 448; ***OR*** CHEM 441A	Fund. of Biological Chemistry (3); ***OR*** Biological Chemistry (3)	CHEM 220B; ***OR*** CHEM 220B and 223B, BIOL 212	
	GE Upper Division (area B-UD, C-UD, D-UD)	Upper Division (3)	GE Foundation	
	GE (area C,D,E)	Other Exploration (3)	GE (area C, D, and E)	

Semester	Course #	Course Title (Units)	Prerequisites	Notes
6	BIOL 355	Microbial Ecology (3)	BIOL 260, BIOL 211, 212, and 213 (ALL) or BIOL 311	Spring only
	Upper Division Elective	Microbiology (3)		
	Upper Division Elective	Microbiology (3)		
	PHYS 100A; ***OR*** PHYS 151	General Physics (4); ***OR*** Mechanics and Heat (4)	MATH 109, 111, 112A, 113, 119A or 122; ***OR*** *Pre/Corequisite*: MATH 122, 123, or 224	
	GE Upper Division (area B-UD, C-UD, D-UD)	Upper Division (3)	GE Foundation	

Year 4

Semester	Course #	Course Title (Units)	Prerequisites	Notes
7	BIOL 372	Methods in Microbial Genetics (2)	BIOL 311, Recommended: BIOL 371	Fall
	BIOL 471	Bacterial Physiology (3)	BIOL 320 and either CHEM 441A or 448	Spring
	Upper Division Elective	Microbiology (3)		
	GE (area C,D,E)	Other Exploration (3)	GE (area C, D, and E)	
	GE (area C,D,E)	Other Exploration (3)	GE (area C, D, and E)	
8	Upper Division Elective	Microbiology (3)		
	PHYS 100B; ***OR*** PHYS 152	General Physics (4); ***OR*** Electricity and Magnetism (4)	PHYS 100A or 151, MATH 109, 111, 112A, 113, 119A, or 122; ***OR*** PHYS 151; *Pre/Corequisite*: MATH 123	
	BIOL 480	Seminars (1)	take in final semester, department consent required	
	GE (area C,D,E)	Other Exploration (3)	GE (area C, D, and E)	
	Elective	Elective (3)		
	Elective	Elective (1)		