

Point Loma Nazarene University		LO 1	LO 2a	LO 2b	LO 2c	LO 2d	LO 2e	LO 3	LO 4	LO 5	LO 6
<b>Biology-Chemistry B.S. Curriculum Map - Students will be able to:</b>		Demonstrate an understanding of the process of science, and of the concepts and theories of biology across a broad range of organizational levels: molecular (M), cellular (C), and organismal (O).	Apply key concepts and principles in quantitative analysis.	Apply key concepts and principles in biochemistry.	Apply key concepts and principles in bioinorganic chemistry.	Apply key concepts and principles in organic chemistry.	Apply key concepts and principles in physical chemistry (thermodynamics and kinetics).	Use standard instrumentation and laboratory equipment to conduct scientific experiments and perform chemical characterization and analyses.	Participate in the life of the Biology and/or Chemistry Department by involvement in one or more of the following areas: research, biology and/or chemistry clubs, and/or various positions of responsibility serving as graders, tutors, stockroom workers and/or teaching assistants.	Develop a rationally defensible integration of science and faith.	Be prepared for post graduate studies or a science-related career.
		Course	Course Title								
<b>LOWER-DIVISION REQUIREMENTS</b>		<b>M C O</b>									
BIO 210	Cell Biology and Biochemistry	I I								I	I
BIO 211	Ecological and Evolutionary Systems		I							I	I
BIO 212	Organismal Biology		I								I
CHE 151	General Chemistry Tutorial <i>(can be waived)</i>		I	I	I	I	I				
CHE 152	General Chemistry I		I	I	I	I	I	I			
CHE 153	General Chemistry II		I	I	I	I	I	I			
CHE 213	Analytical Chemistry		D/M				D	D			
CHE 294	Organic Chemistry I			I		D		D			
<b>UPPER-DIVISION REQUIREMENTS</b>		<b>M C O</b>									
BIO 345	Genetics	D D D								D	D
BIO 380	Molecular Biology	D/M D									D
BIO 497*	Biology Seminar										
CHE 304	Organic Chemistry II			D		M		M		M	M
CHE 325	Physical Chemistry I						M	M			
CHE 466	Advanced Inorganic Chemistry I			D	D/M						
BIO 450/CHE 450	Advanced Biochemistry	M M		M	D		D	M			D
<b>One course from:</b>		<b>M C O</b>									
CHE 326	Physical Chemistry II										
CHE 351	Organic Structure Elucidation										
CHE 370	Instrumental Analysis										
CHE 453	Advanced Organic Chemistry										
CHE 468	Advanced Inorganic Chemistry II										
<b>Two courses from:</b>		<b>M C O</b>									
BIO 301	Research Methodology	D D D									D
BIO 315	Microbiology	D D									D
BIO 350	Advanced Cell Biology	M M									D
BIO 390	Immunology	M M M									D
BIO 400	Developmental Biology	M M D								M	D
BIO 420	Vertebrate Physiology	D D/M									D
<b>Other Activities</b>											
Advising (faculty, pre-health, pre-teaching)											I/D
Career Dinners											D
Science clubs and/or grader, tutor, stockroom worker, TA									I/D/M		I/D
Research		M M M							D/M		D/M
Internships											D/M

\*Core competencies (critical thinking, information literacy, oral communication, quantitative literacy, written communication) assessed