

Knowledge competencies:	Chemistry	Biology	Biochemistry
1. Master the foundational concepts of general and organic chemistry, including equilibrium, kinetics, and reactivity, and apply these concepts to biological systems	chem1109, chem2510, chem2320, chem3310, chem2250, chem2260, chem3270, chem 3510		
2. Identify the factors that determine the three dimensional structures of biological macromolecules and the organization of cells	chem1109, chem2510, chem2320, chem 2260, chem3250, chem3270, chem 3510	bio2124, bio1101, bio2118, bio 1109	
3. Evaluate how the structure of biological macromolecules relates to function, and predict how changes in structure will impact function	chem2320, chem3310, chem3270	bio2124, bio1101, bio2118, bio 1109	
4. Develop a conceptual, mechanistic, and mathematical understanding of biomolecular interactions, including binding and catalysis	chem2260, chem2510, chem2320, chem3310, chem3270, chem 3510	bio2124	
5. Explain how energy is stored, transformed, and harnessed in biological systems	chem2320	bio2124, bio1101, bio2118, bio 1109	
6. Understand how information is stored, retrieved, and transmitted in biological systems		bio2124, bio1101, bio2118, bio 1109	
Skill-based competencies:	Chemistry	Biology	Biochemistry
1. Solve complex data-based problems	chem2260, chem2510, chem2320, chem3310, chem3250, chem3270, chem 3510	bio2124, bio2118, bio2557, bio 2112, bio 2175	biochem 4000
2. Critically evaluate the primary literature	chem3310, chem3250, chem3270,	bio2118, bio2557, bio3304, bio 2112, bio 2175	biochem 4000
3. Independently propose and design experiments and approaches to address questions in biochemistry	chem2260, chem2320, chem3310	bio2124, bio2118, bio 2112, bio 2175	biochem 4000
4. Safely perform laboratory-based experiments	chem1109, chem2510, chem2320, chem2250, chem2260	bio2118, bio 2124, bio 2112, bio 2175, bio 1109, bio 1101	biochem 4000
5. Effectively communicate scientific information in oral, written, and visual formats to specialized and general audiences	chem1109, chem2510, chem2320, chem3310, chem2260, chem3250, chem3270, chem 3510	bio2118, bio2557, bio3304	biochem 4000
6. Interpret and critically analyze data, while appropriately invoking the principles of probability and statistics	chem1109, chem2510, chem2320, chem3310, chem3250, chem3270, chem 3510		biochem 4000
7. Understand and apply theoretical, conceptual, and empirical models	chem1109, chem2510, chem2320, chem3310, chem2250, chem2260, chem3250, chem3270, chem 3510	bio2124	biochem 4000