

	Learning Objectives	311	341	342	343	344	Adv. Bioch.	347	350	365	421D	421F	421L	421T	421U	493L
I.	Chemical concepts and foundations															
I.A.	stoichiometry	X	X	X	X	X	X		X		X	X	X		X	X
I.B.	States of matter								X						X	
I.C.	Atomic structure								X							
I.D.	Molecular structure and bonding		X	X	X	X	X		X		X		X	X	X	X
I.E.	thermochemistry								X							
I.F.	equilibria	X	X	X	X		X	X	X		X	X	X		X	X
I.G.	kinetics		X	X	X	X	X	X	X		X	X	X	X	X	X
I.H.	quantum mechanics								X		X			X		
I.J.	Nuclear chemistry															
I.K.	basic organic reactivity		X	X	X	X	X	X	X			X	X		X	X
I.L.	basic inorganic reactivity		X	X			X		X						X	
I.M.	biochemical systems		X	X	X	X	X						X			X
I.N.	synthesis		X	X	X	X	X	X	X			X	X		X	X
I.O.	Chemical analysis and spectroscopy	X	X	X	X	X	X	X	X		X	X	X	X	X	X
I.P.	thermodynamics		X	X			X	X	X		X	X	X	X	X	X
I.Q.	Electrochemistry and redox	X	X	X					X						X	
I.R.	Acid base chemistry		X	X	X	X			X			X				X
I.S.	Stereochemistry	X	X	X				X	X			X				X
I.T.	Chemical Nomenclature		X	X	X	X						X				X
II.	Factual chemical knowledge													X		
II.A.	structures and properties of atoms and molecules		X	X	X	X	X	X	X		X	X	X		X	X
II.B.	structures and properties of bulk substances		X	X			X	X	X		X	X			X	
III	Problem Solving Skills															
III.A.	define problems clearly	X		X	X	X	X	X	X		X	X	X	X	X	X
III.B.	develop testable hypotheses	X					X	X			X	X	X	X	X	X
III.C.	Design experiments	X			X	X	X	X			X	X	X	X	X	X
III.D.	Understand and execute experiments	X		U	X	X	U	X			X	X	X	X	X	X
III.E.	analyze data	X		X	X	X	X	X			X	X	X	X	X	X
III.F.	interpret experimental results and draw appropriate conclusions	X		X	X	X	X	X	X		X	X	X	X	X	X
III.G.	use appropriate laboratory skills and instrumentation to solve problems	X			X	X		X			X	X	X	X	X	X
III.H.	understand the fundamental uncertainties in experimental measurements	X		X	X	X	X	X			X	X	X	X	X	X

VIII.	Other Technology Skills	311	341	342	343	344	Adv. Bioch.	347	350	365	421D	421F	421L	421T	421U	493L
VIII.A.	familiarity with the applications of computers in the modeling and simulation of chemical phenomena.					X		X				X				X
VIII.B.	appreciation of the applications of computers in data acquisition and processing.	X	X	X	X	X	X					X	X	X	X	X
VIII.C.	ability to navigate software used to acquire and analyze data on modern instrumentation	X			X							X	X	X	X	X
IX.	Team Skills															
IX.A.	Work effectively in a group to solve scientific problems	X		X	X	X		X				X	X	X	X	X
IX.B.	Be effective leaders as well as effective team members	X		X	X	X		X				X	X	X	X	X
IX.C.	Interact productively with a diverse group of peers	X	X	X	X	X		X				X	X	X	X	X
X.	Ethics															
X.A.	Conduct themselves ethically	X	X	X	X	X	X	X				X	X	X	X	X
X.B.	Awareness of the place of chemistry in contemporary societal and global issues	X	X	X	X	X	X	X	X			X	X	X	X	X