

COURSE SYLLABUS



Education That Works For a Lifetime

Course Title:	General Chemistry II	Date submitted:	May 2019 (AAC:19-25)	
Department:	Mathematics and Science			
Curriculum:	Chemistry			
Course Descriptors: Make certain that the course descriptors are consistent with college and Board of Trustees policies, and the current course numbering system.	Course Code: (eg. ACC 101) <table border="1" style="display: inline-table;"><tr><td>CHE*122</td></tr></table>	CHE*122	Prerequisites:	
	CHE*122			
	Course Type: <table border="1" style="display: inline-table;"><tr><td>X</td></tr></table>	X	C- or better in General Chemistry I (CHE*121)	
	X			
	A: Clinical B: Lab D: Distance Learning I: Individual/Independent L: Lecture N: M: Seminar Internship P: Practicum U: Studio X: Combined Lecture/Lab Y: Combined Lecture/Clinical/Lab Z: Combined Lecture/Studio			
	Elective Type: <table border="1" style="display: inline-table;"><tr><td>G/LAS/S</td></tr></table>	G/LAS/S		
	G/LAS/S			
	E: English FA: Fine Arts FL: Foreign Language G: General HI: History HU: Humanities LAS: Liberal Arts & Sciences M: Math S: Science SS: Social Science	Corequisites:		
	Credit Hours: <table border="1" style="display: inline-table;"><tr><td>4</td></tr></table>	4	None	
	4			
Developmental: (yes/no) <table border="1" style="display: inline-table;"><tr><td>NO</td></tr></table>	NO			
NO				
Lecture: <table border="1" style="display: inline-table;"><tr><td>3</td></tr></table>	3			
3				
Clinical: <table border="1" style="display: inline-table;"><tr><td>0</td></tr></table>	0			
0				
Lab: <table border="1" style="display: inline-table;"><tr><td>3</td></tr></table>	3			
3				
Studio: <table border="1" style="display: inline-table;"><tr><td>0</td></tr></table>	0			
0				
Other: <table border="1" style="display: inline-table;"><tr><td>0</td></tr></table>	0	Other Requirements:		
0				
TOTAL: <table border="1" style="display: inline-table;"><tr><td>6</td></tr></table>	6	Safety glasses, scientific calculator, technology skills		
6				
Contact Hours:	Class Maximum: <table border="1" style="display: inline-table;"><tr><td>20</td></tr></table>	20		
20				
	Semesters Offered: <table border="1" style="display: inline-table;"><tr><td>F/Sp/Su</td></tr></table>	F/Sp/Su		
F/Sp/Su				
Catalog Course Description:	Further study of the principles, theories and laws of chemistry. Topics include: thermodynamics, kinetics, chemical equilibria, oxidation and reduction reactions, descriptive chemistry of the elements and their compounds and an introduction to organic and nuclear chemistry. Lecture and laboratory.			
Topical Outline: List course content in outline format.	Lecture: 1. Solutions, molarity, molality 2. Chemical kinetics and order 3. Chemical Equilibria: acid-base, solubility product, common ion effect 4. pH and pK _a and buffers 5. Thermodynamics, enthalpy and Gibbs' Free energy 6. Electrochemistry 7. Nuclear chemistry 8. Introductory organic and biochemistry			

	<p>Laboratory:</p> <ol style="list-style-type: none"> 1. Chemical kinetics 2. Equilibrium constant for chemical reactions 3. Solubility product 4. Buffer and pH 5. Determination of water hardness 6. Spot tests for common ions 7. Formulation of a qualitative analysis scheme 8. Qualitative analysis of Group I cations 9. Qualitative analysis of Group II cations 10. Qualitative analysis of Group III cations 11. Redox titration for iron 12. Voltaic cells 13. Synthesis of aspirin
<p>Outcomes: Describe measurable skills or knowledge that students should be able to demonstrate as evidence that they have mastered the course content.</p>	<p>Upon successful completion of this course, the student will be able to do the following:</p> <ol style="list-style-type: none"> 1. express the state of equilibrium for chemical reactions and complete equilibria calculations 2. demonstrate the basic principles of thermodynamics, entropy and Gibbs' Free Energy in chemical reactions and spontaneity 3. solve kinetic's problems 4. calculate problems involving pH 5. determine hydrolysis reactions 6. demonstrate principles of electrochemistry 7. complete a qualitative analysis scheme on the following cations: Na, K, Mg, Ca, Sr, Ba, Cr, Mn, Fe, Co, Cu, Ag, Zn, Hg, Al, Sn, Pb 8. complete a qualitative analysis scheme on the following anions: $(\text{CO}_3)^{2-}$, NO_3^-, SO_4^{2-}, Br, I⁻ 9. compare the chemical properties of non-transition elements and transition elements 10. identify the functional organic groups 11. name and draw the structure of organic compounds <p>PROGRAM: (<i>Numbering reflects Program Outcomes as they appear in the college catalog</i>) N/A</p> <p>COMPETENCY FULFILLED: Scientific Knowledge & Understanding (SCKX) OR Scientific Reasoning (SCRX)</p>
<p>Evaluation: List how the above outcomes will be assessed.</p>	<p>Assessment will be based on some or all of the following criteria:</p> <p>examinations quizzes laboratory reports</p>
<p>Instructional Resources: List library (e.g. books, journals, on-line resources), technological (e.g. Smartboard, software), and other resources (e.g. equipment, supplies, facilities) required and desired to teach this course.</p>	<p>Required: Scientific calculator Desired: Software</p>

Textbook(s)Brown, *Chemistry: Central Science*, 10th ed.; PearsonSlowinski, *Chemical Principles in the Laboratory*, 8th ed.; Thomson
Chemical periodic Table, 8th ed. Permachart