

CHEM 1510 - Chemistry for the Allied Health Sciences

Fall 2026 Syllabus, Section 01, CRN 41525,

Credit hours: 4

Instructor

Michael Serra

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Public Instructor Information

Instructor Title: Professor of Chemistry

Instructor Professional Qualifications: Ph. D., Molecular, Cellular, and Developmental Biology, Iowa State University, Ames, IA

Bachelor of Science Biology, Bachelor of Arts Mathematics, Adrian College, Adrian, MI

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Course Description

1510. Chemistry for the Allied Health Sciences. An overview of general, organic, and biochemistry. General chemistry introduces basic principles of chemistry. Organic chemistry examines the physical and chemical properties of molecules based on their functional groups. Biochemistry applies these chemistry concepts to the living organism. Intended for majors in allied health and other applied sciences. Three hours lecture, three hours laboratory. Prereq.: "C" or better CHEM 1501 or equivalent, Level 20 or better on the MPT. 4 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Chemistry: An Introduction to General, Organic, and Biological Chemistry, 13th ed.	Karen Timberlake	978-0-13-442135-3

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Tentative Schedule

Day	Date	Reading(s)	Proposed Topic	Due/To Prepare for Class
Mon	8/24	2.1, 2.4	Class introduction, Prefixes and Equalities	
Wed	8/26	2.2, 2.3	Measured Numbers, Sig. Figs., Sig. Figs & Calculations	
Fri	8/28	2.5, 2.6	Conversion factors, Problem Solving w/ Conversion Factors	
Mon	8/31	2.7 4.1, 4.2	Density and Specific Gravity Elements and Symbols, The Periodic Table	
Wed	9/2	4.3 – 4.5	The Atom, Atomic # and Mass #, Isotopes and Atomic Mass	
Fri	9/4	4.6, 4.7 6.1	Electron Energy Levels, Trends in Periodic Properties Ions	Intro. to Mastering, Ch. 1 homework due
Mon	9/7	Labor Day, no classes		
Wed	9/9	6.2 – 6.4	Ionic Cmpds., Naming and Writing Ionic Formulas, Polyatomic Ions	Ch. 2 homework due
Fri	9/11	6.5 – 6.6	Molecular Compounds, Lewis Structures	Ch. 4 homework due, On-line Quiz 1: Ch. 2 and 4

Mon	9/14	6.7 – 6.8	Electronegativity and Bond Polarity, Molecular Shape	
Wed	9/16	6.9 7.1	Polarity of Molecules and Intermolecular Forces The Mole	
Fri	9/18	7.2 – 7.4	Molar Mass, Calc. w/ Molar Mass, Balanced Chemical Equations	9/20 Ch. 6 homework due
Mon	9/21	Exam 1: Ch. 1, 2, 4, and 6		
Wed	9/23	7.6	Oxidation-Reduction Reactions	
Fri	9/25	7.9 9.1, 9.2	Energy in Chemical Reactions Solutions, Electrolytes and Nonelectrolytes	
Mon	9/28	9.3, 9.4	Solubility, Solubility Rules, Solution concentrations	Online Quiz 2: Ch. 7
Wed	9/30	9.4, 9.5	Molarity, Dilutions	
Fri	10/2	9.6 10.1 – 10.3	Properties of Solutions Acids and Bases	Ch. 7 homework due
Mon	10/5	10.4, 10.5	Brønsted-Lowry Acids and Bases, Strengths of Acids and Bases, Acid-Base Equil., LeChâtelier's Principle	
Wed	10/7	10.6 11.1, 11.2	Dissociation of H ₂ O, The pH scale Org. Compds., Alkanes: IUPAC names, formulas, cycloalkanes	Online Quiz 3: Ch. 9
Fri	10/9	11.3, 11.4	Alkanes: substituents, naming, props.	Ch. 9 homework due
Mon	10/12	11.5, 11.6	Alkenes & Alkynes: naming, Naming cycloalkenes Alkenes: cis-trans isomers	
Wed	10/14	11.7	Addition reactions	Ch. 10 homework due
Fri	10/16	11.8 12.1	Aromatic compds. Alcohols, Phenols, Thiols, Ethers: structure, naming	10/18 Ch. 11 homework due
Mon	10/19	Exam 2 Ch. 7, 9, 10, 11		
Wed	10/21	12.2 – 12.4	Properties of Alcohols, Aldehydes, and Ketones: naming, properties, Rxns. of alcohols	
Fri	10/23	13.1, 13.2	Rxns. of Thiols, Aldehydes, and Ketones 12.4 Carbohydrates, Chiral molecules	
Mon	10/26	13.3, 13.4	Fischer Projections, Mutarotation	Online Quiz 4: Ch. 12
Wed	10/28	13.5 – 13.7	Ox. of monosac., Disac., Polysac: glycogen	
Fri	10/30	14.1 – 14.3	Carboxylic acids: structure, naming, properties, Neutralization, Esters: syn., naming	Ch. 12 homework due
Mon	11/2	14.4, 14.5	Ester hydrolysis, Amines: naming and class, prop., Ammonium salts	
Wed	11/4	14.6	Amides: prep., naming, properties, hydrolysis	Ch. 13 homework due
Fri	11/6	15.1 – 15.2	Lipids, Fatty acids	
Mon	11/9	15.3, 15.4	Triacylglycerols: structure, chem. properties	Online Quiz 5: Ch. 14
Wed	11/11	Veteran's Day, no classes		
Fri	11/13	15.5, 15.7	Phospholipids, Cell membranes	Ch. 14 homework due
Mon	11/16	16.1, 16.2	Proteins, Amino acids, Primary structure	11/17 Ch. 15 homework due
Wed	11/18	Exam 3 Ch. 12, 13, 14, 15		
Fri	11/20	16.3, 16.4	Secondary, Tertiary, Quaternary struct., Denaturation	
Mon	11/23	16.5	Factors affecting enzyme activity	
Wed	11/25	University open, no classes		
Fri	11/27	University closed, no classes		

Mon	11/30	18.1, 18.3, 18.4	Metabolism and ATP production, Coenzymes, Glycolysis	Ch. 16 homeowrk due
Wed	12/2	18.5, 18.6	The Citric Acid Cycle, Electron transport and Oxidative phosphorylation	Online Quiz 6: Ch. 16
Fri	12/4	18.7	Oxidation of Fatty Acids, Ketone bodies	
Mon	12/7			Ch. 18 homeowrk due
Wed	12/9	Final Exam	8:00 a.m. - 10:00 a.m.	

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.