

# PRINCIPLES OF CHEMISTRY I

CHEM 1210

Fall 2023

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<b>Instructor:</b>	Matthew Rowley	<b>Office Hours:</b>	MWRF 10:00 am – 11:00 am
<b>Telephone:</b>	(435) 586-7875		T 1:00 pm – 2:00 pm
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Please include the course number in the subject line of all correspondence.

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## Tentative Schedule

This class will meet on Mondays, Tuesdays, Wednesdays, and Fridays from 3:00 – 3:50 in room 228 of the Science Center (SC).

For the best lecture experience, read the indicated textbook chapter *before* each lecture.

	Date	Topic	Chapter
Week 1	W, Aug. 30	Classification and Properties of Matter and Energy	1.1-1.3
	F, Sep. 1	The Scientific Method	1.4
Week 2	M, Sep. 4	<b>Labor Day - No Class!</b>	
	T, Sep. 5	Units and Significant Digits	1.5-1.6
	W, Sep. 6	Dimensional Analysis, Density, and Temperature	1.7-1.9
	F, Sep. 8	Chemical Symbols and Chemical Combination	2.1-2.2
Week 3	M, Sep. 11	The History of the Atom and Atomic Structure	2.3-2.4
	T, Sep. 12	Atomic Masses and the Periodic Table	2.5-2.6
	W, Sep. 13	Formulas and Names – Binary Covalent Compounds	3.1-3.2
	F, Sep. 15	Formulas and Names – Ionic Compounds	3.3-3.4
Week 4	M, Sep. 18	Naming Acids and Nomenclature Review	3.5-3.6
	T, Sep. 19	The Mole and Molar Mass	3.7-3.8
	W, Sep. 20	Percent Composition and Empirical Formulas	3.9-3.10
	F, Sep. 22	Molecular Formulas and Combustion Analysis	3.11-3.12

	Date	Topic	Chapter
Week 5	M, Sep. 25	Chemical Equations and Reactions	4.1-4.2
	T, Sep. 26	Compounds in Aqueous Solution and Precipitation Reactions	4.3-4.4
	W, Sep. 27	Acid-Base Reactions	4.5
	F, Sep. 29	Oxidation States and Redox Reactions	4.6-4.7
Week 6	M, Oct. 2	Calculations for Chemical Reactions	5.1-5.2
	T, Oct. 3	Limiting Quantities and Yields	5.3-5.4
	W, Oct. 4	Definition and Uses of Molarity	5.5-5.6
	F, Oct. 6	Calculations Involving Other Quantities	5.7
Week 7	M, Oct. 9	Calculations with Net Ionic Equations	5.8
	T, Oct. 10	Titration	5.9
	W, Oct. 11	Energy, Heat, and Work	6.1-6.3
	F, Oct. 13	Enthalpy and Specific Heat	6.4-6.5
Week 8	M, Oct. 16	<b>Fall Break - No Class!</b>	
	T, Oct. 17	<b>Fall Break - No Class!</b>	
	W, Oct. 18	Calorimetry: Measuring Energy Changes	6.6
	F, Oct. 20	Enthalpy in Chemical Reactions	6.7
Week 9	M, Oct. 23	Standard Enthalpies of Formation	6.8
	T, Oct. 24	Gas Pressure and Simple Gas Laws	7.1-7.3
	W, Oct. 25	The Combined Gas Law and the Ideal Gas Law	7.4-7.6
	F, Oct. 27	Partial Pressures, Molar Mass, and Density of gases	7.7-7.8
Week 10	M, Oct. 30	Gas Reactions and the Kinetic Molecular Theory	7.9-7.10
	T, Oct. 31	Movement of Gas Particles	7.11
	W, Nov. 1	Behavior of Real Gases	7.12
	F, Nov. 3	Light and the Bohr Model of the Atom	8.1-8.2

	Date	Topic	Chapter
Week 11	M, Nov. 6	Electron Shells, Subshells, and Orbitals	8.3
	T, Nov. 7	Energy-Level Diagrams and Electron Configurations	8.4-8.5
	W, Nov. 8	Quantum Numbers	8.6
	F, Nov. 10	Valence Electrons and Atomic/Ionic Sizes	9.1-9.2
Week 12	M, Nov. 13	Ionization Energy and Electron Affinity	9.3
	T, Nov. 14	Ionic Bonding and Lattice Energy	9.4-9.5
	W, Nov. 15	Formation of Covalent Bonds	10.1
	F, Nov. 17	Lewis Structures	10.2
Week 13	M, Nov. 20	<b>Thanksgiving Break - No Class!</b>	
	T, Nov. 21	<b>Thanksgiving Break - No Class!</b>	
	W, Nov. 22	<b>Thanksgiving Break - No Class!</b>	
	F, Nov. 24	<b>Thanksgiving Break - No Class!</b>	
Week 14	M, Nov. 27	Resonance and Formal Charges	10.3
	T, Nov. 28	Exceptions to the Octet Rule	10.4
	W, Nov. 29	Polar Bonds and Bond Enthalpy	10.5-10.6
	F, Dec. 1	VSEPR and Molecular Geometry	11.1
Week 15	M, Dec. 4	Polar and Nonpolar Molecules	11.2
	T, Dec. 5	Valence Bond Theory	11.3
	W, Dec. 6	Using Valence Bond Theory	11.4
	F, Dec. 8	Molecular Orbital Theory	11.5
Finals Week	T, Dec. 12	<b>Final Exam 3:00–4:50 pm: Bring a pencil and scantron</b>	