

## First Semester General Chemistry:

Week	Lecture Topics	Reading	Suggested Laboratory Activities
1	Scientific method, units, significant figures	1	Measurements and density
	Dimensional analysis	2	
2	Elements, compounds, and mixtures	2	Chromatography
	Periodic properties, nomenclature	3	
3	Ionization energies, line spectra	4	Periodic properties of the elements
	Bohr theory and quantization	4	
4	Quantum theory and orbital configurations	5	Atomic spectroscopy
	<b>Exam</b>	N/A	
5	Ionic bonds, nomenclature II	6	Absorption spectroscopy
	Lewis formulas	7.1-6	
6	Lewis formulas II	7.7-11	Lewis formulas and VSEPR worksheets, working with molecular models
	VSEPR	8	
7	Molecular Orbitals	9.1-4	Properties of ionic and covalent compounds, cycles of copper, or similar
	Localized Bond Orbitals	9.5-13	
8	Chemical Reactivity	10	Types of reactions
	<b>Exam</b>	N/A	
9	Moles, Avogadro's number	11.1-2	Percent composition by gravimetric analysis
	Formulas and analysis	11.3-6	
10	Stoichiometry and calculations	11.7-9	Synthesis reaction and yield
	Limiting reactants	11.10-11	
11	Calculations for solutions	12	Determining the chemical formula
	Gases, pressure, ideal gas law	13.1-5	
12	Molar mass, partial pressures	13.6-8	Equivalent mass determination by titration
	Kinetic theory of gases	13.10-13	
13	<b>Exam</b>	N/A	Gas laws
	Work, heat, enthalpy	14.1-4	
14	Hess' law, bond enthalpies	14.5-6	Calorimetry
	Calorimetry	14.7-8	
15	Intermolecular forces	15.1-7	Molecular mass of a volatile liquid
	Phase diagrams and solids	15.8-13	
16	Review	N/A	Locker Check-out
	<b>Final Exam</b>	N/A	

## Second Semester General Chemistry:

Week	Lecture Topics	Reading	Suggested Laboratory Activities
1	Colligative properties	16	Colligative properties
	Reaction kinetics, initial rates	17.1-2	
2	Integrated rate laws	17.3-8	Iodine clock
	Arrhenius equation	18.1-4	
3	Reaction mechanisms	18.5-7	Reaction kinetics
	Chemical equilibrium	19.1-4	
4	Equilibrium calculations	19.5-6	Le Châtelier's principle
	Le Châtelier's principle	19.7-9	
5	<b>Exam</b>	N/A	Determining the equilibrium constant
	Acids, bases, and pH	20.1-5	
6	Weak acids and bases	20.6-12	pH measurement and buffers
	Buffers and indicators	21.1-3	
7	Acid-base titrations I	21.4-5	Experimental determination of $K_a$ from a titration curve using a pH meter
	Acid-base titrations II	21.6-7	
8	Solubility equilibria	22.1-4	Solubility of a salt
	Selective precipitation, analysis	22.4-8	
9	<b>Exam</b>	N/A	Qualitative analysis I (or similar set)
	Thermochemistry review	14	
10	Second law of thermodynamics	23.1-5	Qualitative analysis II
	Gibbs energy	23.6-7	
11	$\Delta G_{rxn}$ and $\Delta G_{rxn}^\circ$	23.8-9	Qualitative analysis III
	Temperature and $K$	23.10-11	
12	Assigning oxidation states	24.1-3	Temperature and the equilibrium constant
	Oxidation-reduction reactions	24.4-7	
13	<b>Exam</b>	N/A	Oxidation-reduction reaction or titration
	Electrochemical cells	25.1-3	
14	Nernst equation	25.4-7	Electrochemical cells
	Faraday's laws and electrolysis	25.8-9	
15	The transition metals	26.1-8	Synthesis of a coordination compound
	Transition metal complexes	26.9-13	
16	Review	N/A	Locker Check-out
	<b>Final Exam</b>	N/A	