

**SN1 COURSE CONTENT & SCHEDULE**REFERENCE: Zumdahl / Zumdahl, 11<sup>th</sup> Ed.

## Chapter 1: CHEMICAL FOUNDATIONS

*No lecture; this section has to be completed by yourself.*

Section	Suggested problems
1.5 Significant Figures and Calculations	34, 38, 42, 44, 54, 66
Appendix 2 NYA Lab manual p. 97-98	NYA Lab manual p. 99

## Chapter 2: ATOMS, MOLECULES, AND IONS

2 LECTURES

Section	Suggested problems
2.5 The Modern View of Atomic Structure: An introduction	71, 75, 77, 79, 81,
2.6 Molecules and Ions	83
2.7 An Introduction to the Periodic Table	65
2.8 Naming Simple Compounds	85, 87, 89, 93, 95, 97, 99, 119

## Chapter 3: STOICHIOMETRY

4 LECTURES

Section	Suggested problems
3.2 Atomic Masses	39
3.3 The Mole	47, 49, 54, 55, 57, 59, 65, 71, 73, 76, 77
3.4 Molar Mass	
3.6 Percent Composition of Compounds	79, 85
3.7 Determining the Formula of a Compound	87, 89, 93, 95, 97, 99, 105
3.8 Chemical Equations	111, 112
3.9 Balancing Chemical Equations	
3.10 Stoichiometric Calculations: Amounts of Reactants and Products	119, 121, 123, 127
3.11 The concept of Limiting Reagent	133, 137, 142

## Chapter 5: GASES

2 LECTURES

Section	Suggested problems
5.4 Gas Stoichiometry	73, 75, 77, 81, 83, 87
5.5 Dalton's Law of Partial Pressures	95, 109

## Chapter 4: TYPES OF CHEMICAL REACTIONS

3 LECTURES

Section	Suggested problems
4.2 The Nature of Aqueous Solutions: Strong and Weak Electrolytes	04, 23, 33, 37
4.3 The Composition of Solutions	11, 12, 14, 39, 41, 43, 45, 51, 53
4.4 Types of Chemical Reactions	
4.5 Precipitation Reactions	59, 61
4.6 Describing Reactions in Solution	65, 69
4.7 Stoichiometry of Precipitation Reactions	73
4.8 Acid-Base Reactions	83, 85, 89, 91, 96
4.9 Oxidation-Reduction Reactions	31, 97, 99, 103 (Chapter 18: 21, 22, 23)
4.10 Balancing Oxidation-Reduction Equations	105, 107 (Chapter 18: 25)

## Chapter 7: ATOMIC STRUCTURE AND PERIODICITY

7 LECTURES

Section	Suggested problems
7.1 Electromagnetic Radiation	51, 53, 57, 159
7.2 The Nature of Matter	59, 62, 65, 67
7.3–7.4 The Atomic Spectrum of Hydrogen – Bohr model	69, 71, 73, 78, 186
7.5 The Quantum Mechanical Model of the Atom	
7.6 Quantum Numbers	81, 85
7.7 Orbital Shapes and Energies	87, 91
7.8 Electron Spin and the Pauli Principle	93
7.9 Polyelectronic Atoms	97, 103, 107, 111, 113
7.11 The Aufbau Principle and the Periodic Table	
7.12 Periodic Trends in Atomic Properties	119, 123, 133, 135

## Chapter 8: BONDING GENERAL CONCEPTS

5 LECTURES

Section	Suggested problems
8.1 Types of Chemical Bonds	
8.2 Electronegativity	33
8.3 Bond Polarity and Dipole Moments	35, 39, 45
8.4 Ions: Electron Configurations and Sizes	53, 55, 57, 59, 63
8.6 Partial Ionic Character of Covalent Bonds	
8.7 The Covalent Chemical Bond: A Model	
8.9 The Localized Electron Bonding Model	
8.10 Lewis Structures + simple polymers	93, 97
8.11 Exceptions to the Octet Rule	101
8.12 Resonance	115, 119
8.13 Molecular Structure: The VSEPR Model	133, 134, 135, 143, 145, 146, 147

## Chapter 9: COVALENT BONDING

3 LECTURES

Section	Suggested problems
9.1 Hybridization and the Localized Electron Model	27, 29, 31, 37, 39, 40, 41, 47, 48, 49, 53, 54, 55, 75

## Chapter 10: LIQUIDS AND SOLIDS

2 LECTURES

Section	Suggested problems
10.1 Intermolecular Forces	45, 49, 55, 56, 57, 58
10.9 Phase Diagrams	127, 129

## Chapter 6: THERMOCHEMISTRY

2 LECTURES

Section	Suggested problems
6.2 Enthalpy and Calorimetry	71, 73, 75
6.3 Hess's Law	83, 87, 89
6.4 Standard Enthalpies of Formation	91, 97, 99, 101, 103
8.8 Covalent Bond Energies and Chemical Reactions	Chap 8: 79, 81, 83, 85, 86