

Reading and Online Resources for Course Topics

**Dr. Lamp has a few copies of *Chemistry Essentials for Dummies* that students may borrow as needed.

Topic	Links to <i>Introductory Chemistry</i> at the Open Textbook Library	Links to sections for texts from the Chemistry LibreTexts Library	Pages from <i>Chemistry Essentials for Dummies</i> **
What is chemistry?	• Some Basic Definitions • Chemistry as a Science	• The Chemical World	5-15
Atoms and atomic structure	• Atomic Theory • Molecules and Chemical Nomenclature • Quantum Numbers for Electrons • Organization of Electrons in Atoms • Electronic Structure and the Periodic Table	• Atoms and Elements • Electrons in Atoms and the Periodic Table	17-41
Bonding, Lewis Structures and Shapes	• Lewis Electron Dot Diagrams • Electron Transfer: Ionic Bonds • Covalent Bonds • Other Aspects of Covalent Bonds • Violations of the Octet Rule • Molecular Shapes • Intermolecular Forces • pHet simulation on molecular shapes	• Chemical Bonding • Liquids, Solids, and Intermolecular Forces	55-68, 69-86
Thermodynamics and Chemical Energy	• Energy • Work and Heat • Enthalpy and Chemical Reactions	• Matter and Energy	89-92
Stoichiometry and Chemical Accounting	• The Chemical Equation • Stoichiometry • The Mole • The Mole in Chemical Reactions • Mole-Mass and Mass-Mass Calculations • Yields • Limiting Reagents	• Quantities in Chemical Reactions	98-100, 125-133
Chemical Reactions, Reaction Stoichiometry, Solubility	• Types of Chemical Reactions: Single- and Double-Displacement Reactions • Ionic Equations: A Closer Look	• Chemical Reactions	92-97

	• Composition, Decomposition, and Combustion Reactions • Neutralization Reactions • Oxidation-Reduction Reactions		
Gases and Solutions	• Kinetic Theory of Gases • Pressure • Gas Laws • Other Gas Laws • The Ideal Gas Law and Some Applications • Gas Mixtures • Some Definitions	• Gases • Solutions	159-169, 135-137
Quantitative Descriptions of Solutions and Solution Stoichiometry	• Quantitative Units of Concentration • Dilutions and Concentrations • Concentrations as Conversion Factors	• Solutions	138-144
Organic and Polymer Chemistry	• Hydrocarbons • Branched Hydrocarbons • Alkyl Halides and Alcohols • Other Oxygen-Containing Functional Groups • Other Functional Groups • Polymers	• Organic Chemistry • Polymerization - Addition Polymers • Polymerization - Condensation Polymers	
Acids and Bases	• Arrhenius Acids and Bases • Brønsted-Lowry Acids and Bases • Acid-Base Titrations • Strong and Weak Acids and Bases and Their Salts • Autoionization of Water • The pH Scale • Buffers	• Acids and Bases	145-156
Biochemistry		• Biochemistry	
Nuclear Chemistry	• Radioactivity • Half-Life • Units of Radioactivity • Uses of Radioactive Isotopes	• Radioactivity and Nuclear Chemistry	43-54

	• Nuclear Energy		
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