

Reading and Online Resources for Course Topics

Topic	Pages from <i>Chemistry Essentials for Dummies</i>	Links to Introductory Chemistry at the Open Textbook Library	Links to sections for texts from the Chemistry LibreTexts Library
What is chemistry?	5-15	<ul style="list-style-type: none"> • Some Basic Definitions • Chemistry as a Science 	<ul style="list-style-type: none"> • The Chemical World
Atoms and atomic structure	17-41	<ul style="list-style-type: none"> • Atomic Theory • Molecules and Chemical Nomenclature • Quantum Numbers for Electrons • Organization of Electrons in Atoms • Electronic Structure and the Periodic Table 	<ul style="list-style-type: none"> • Atoms and Elements • Electrons in Atoms and the Periodic Table
Bonding, Lewis Structures and Shapes	55-68, 69-86	<ul style="list-style-type: none"> • Lewis Electron Dot Diagrams • Electron Transfer: Ionic Bonds • Covalent Bonds • Other Aspects of Covalent Bonds • Violations of the Octet Rule • Molecular Shapes • Intermolecular Forces 	<ul style="list-style-type: none"> • Chemical Bonding • Liquids, Solids, and Intermolecular Forces
Thermodynamics and Chemical Energy	89-92	<ul style="list-style-type: none"> • Energy • Work and Heat • Enthalpy and Chemical Reactions 	<ul style="list-style-type: none"> • Matter and Energy
Stoichiometry and Chemical Accounting	98-100, 125-133	<ul style="list-style-type: none"> • The Chemical Equation • Stoichiometry • The Mole • The Mole in Chemical Reactions • Mole-Mass and Mass-Mass Calculations • Yields • Limiting Reagents 	<ul style="list-style-type: none"> • Quantities in Chemical Reactions
Chemical Reactions, Reaction Stoichiometry, Solubility	92-97	<ul style="list-style-type: none"> • Types of Chemical Reactions: Single- and Double-Displacement Reactions • Ionic Equations: A Closer Look • Composition, Decomposition, and Combustion Reactions • Neutralization Reactions • Oxidation-Reduction Reactions 	<ul style="list-style-type: none"> • Chemical Reactions

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Gases and Solutions	159-169, 135-137	<ul style="list-style-type: none"> • Kinetic Theory of Gases • Pressure • Gas Laws • Other Gas Laws • The Ideal Gas Law and Some Applications • Gas Mixtures • Some Definitions 	<ul style="list-style-type: none"> • Gases • Solutions
Quantitative Descriptions of Solutions and Solution Stoichiometry	138-144	<ul style="list-style-type: none"> • Quantitative Units of Concentration • Dilutions and Concentrations • Concentrations as Conversion Factors 	<ul style="list-style-type: none"> • Solutions
Organic and Polymer Chemistry		<ul style="list-style-type: none"> • Hydrocarbons • Branched Hydrocarbons • Alkyl Halides and Alcohols • Other Oxygen-Containing Functional Groups • Other Functional Groups • Polymers 	<ul style="list-style-type: none"> • Organic Chemistry • Polymerization - Addition Polymers • Polymerization - Condensation Polymers
Acids and Bases	145-156	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Acids and Bases
Biochemistry			<ul style="list-style-type: none"> • Biochemistry
Nuclear Chemistry	43-54	<ul style="list-style-type: none"> • Radioactivity • Half-Life • Units of Radioactivity • Uses of Radioactive Isotopes • Nuclear Energy 	<ul style="list-style-type: none"> • Radioactivity and Nuclear Chemistry