A general chemistry Libretexts Textmap organized around the textbook

Chemistry: The Central Science
by Brown, LeMay, Busten, Murphy, and Woodward

1. Chapter 1: Introduction: Matter and Measurement
   2. 1.1: The Study of Chemistry
   3. 1.2: Classification of Matter
   4. 1.3: Properties of Matter
   5. 1.4: Units of Measurement
   6. 1.5: Uncertainty in Measurement
   7. 1.6: Dimensional Analysis
   8. 1.E: Matter and Measurement (Exercises)
   9. 1.S: Matter and Measurement (Summary)

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1. Chapter 2: Atoms, Molecules, and Ions
   2. 2.1: The Atomic Theory of Matter
   3. 2.2: The Discovery of Atomic Structure
   4. 2.3: The Modern View of Atomic Structure
   5. 2.4: Atomic Mass
   6. 2.5: The Periodic Table
   7. 2.6: Molecules and Molecular Compounds
   8. 2.7: Ions and Ionic Compounds
   9. 2.8: Naming Inorganic Compounds
   10. 2.9: Some Simple Organic Compounds
   11. 2.E: Atoms, Molecules, and Ions (Exercises)
   12. 2.S: Atoms, Molecules, and Ions (Summary)

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1. Chapter 3: Stoichiometry: Chemical Formulas and Equations
   2. 3.1: Chemical Equations
   3. 3.2: Some Simple Patterns of Chemical Reactivity
   4. 3.3: Formula Masses
   5. 3.4: Avogadro's Number and the Mole
   6. 3.5: Empirical Formulas from Analysis
   7. 3.6: Quantitative Information from Balanced Equations
   8. 3.7: Limiting Reactants
   9. 3.E: Stoichiometry (Exercises)
10. 3.S: Stoichiometry (Summary)

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1. Chapter 4: Reactions in Aqueous Solution
2. 4.1: General Properties of Aqueous Solutions
3. 4.2: Precipitation Reactions
4. 4.3: Acid-Base Reactions
5. 4.4: Oxidation-Reduction Reactions
6. 4.5: Concentration of Solutions
7. 4.6: Solution Stoichiometry and Chemical Analysis
8. 4.E: Reactions in Aqueous Solution (Exercises)
9. 4.S: Reactions in Aqueous Solution (Summary)

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1. Chapter 5: Thermochemistry
2. 5.1: The Nature of Energy
3. 5.2: The First Law of Thermodynamics
4. 5.3: Enthalpy
5. 5.4: Enthalpy of Reaction
6. 5.5: Calorimetry
7. 5.6: Hess’s Law
8. 5.7: Enthalpies of Formation
9. 5.8: Foods and Fuels
10. 5.E: Thermochemistry (Exercises)
11. 5.S: Thermochemistry (Summary)

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1. Chapter 6: Electronic Structure of Atoms
2. 6.1: The Wave Nature of Light
3. 6.2: Quantized Energy and Photons
4. 6.3: Line Spectra and the Bohr Model
5. 6.4: The Wave Behavior of Matter
6. 6.5: Quantum Mechanics and Atomic Orbitals
7. 6.6: 3D Representation of Orbitals
8. 6.7: Many-Electron Atoms
9. 6.8: Electron Configurations
10. 6.9: Electron Configurations and the Periodic Table
11. 6.E: Electronic Structure of Atoms (Exercises)
12. 6.S: Electronic Structure of Atoms (Summary)
Chapter 7: Periodic Properties of the Elements

7.1: Development of the Periodic Table
7.2: Effective Nuclear Charge
7.3: Sizes of Atoms and Ions
7.4: Ionization Energy
7.5: Electron Affinities
7.6: Metals, Nonmetals, and Metalloids
7.7: Group Trends for the Active Metals
7.8: Group Trends for Selected Nonmetals
7.E: Periodic Properties of the Elements (Exercises)
7.S: Periodic Properties of the Elements (Summary)

Chapter 8: Basic Concepts of Chemical Bonding

8.1: Chemical Bonds, Lewis Symbols, and the Octet Rule
8.2: Ionic Bonding
8.3: Covalent Bonding
8.4: Bond Polarity and Electronegativity
8.5: Drawing Lewis Structures
8.6: Resonance Structures
8.7: Exceptions to the Octet Rule
8.8: Strength of Covalent Bonds
8.E: Basic Concepts of Chemical Bonding (Exercises)
8.S: Basic Concepts of Chemical Bonding (Summary)

Chapter 9: Molecular Geometry and Bonding Theories

9.1: Molecular Shapes
9.2: The VSEPR Model
9.3: Molecular Shape and Molecular Polarity
9.4: Covalent Bonding and Orbital Overlap
9.5: Hybrid Orbitals
9.6: Multiple Bonds
9.7: Molecular Orbitals
9.8: Second-Row Diatomic Molecules
9.E: Exercises
9.S: Molecular Geometry and Bonding Theories (Summary)
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1. Chapter 10: Gases
   2. 10.1: Characteristics of Gases
   3. 10.2: Pressure
   4. 10.3: The Gas Laws
   5. 10.4: The Ideal Gas Equation
   6. 10.5: Further Applications of the Ideal-Gas Equations
      7. 10.6: Gas Mixtures and Partial Pressures
      8. 10.7: Kinetic-Molecular Theory
      9. 10.8: Molecular Effusion and Diffusion
   10. 10.9: Real Gases - Deviations from Ideal Behavior
   11. 10.E: Exercises
   12. 10.S: Gases (Summary)

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1. Chapter 11: Liquids and Intermolecular Forces
   2. 11.1: A Molecular Comparison of Gases, Liquids, and Solids
      3. 11.2: Intermolecular Forces
      4. 11.3: Some Properties of Liquids
         5. 11.4: Phase Changes
         6. 11.5: Vapor Pressure
         7. 11.6: Phase Diagrams
         8. 11.7: Structure of Solids
         9. 11.8: Bonding in Solids
   10. 11.E: Liquids and Intermolecular Forces (Exercises)
   11. 11.S: Liquids and Intermolecular Forces (Summary)

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1. Chapter 12: Solids and Modern Materials
   2. 12.1: Classes of Materials
   3. 12.2: Materials for Structure
   4. 12.3: Materials for Medicine
   5. 12.4: Materials for Electronics
   6. 12.5: Materials for Optics
   7. 12.6: Materials for Nanotechnology
   8. 12.E: Solids and Modern Materials (Exercises)

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1. Chapter 13: Properties of Solutions
   2. 13.1: The Solution Process
   3. 13.2: Saturated Solutions and Solubility
   4. 13.3: Factors Affecting Solubility
   5. 13.4: Ways of Expressing Concentration
   6. 13.5: Colligative Properties
   7. 13.6: Colloids
   8. 13.E: Properties of Solutions (Exercises)
   9. 13.S: Properties of Solutions (Summary)

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1. Chapter 14: Chemical Kinetics
   2. 14.1: Factors that Affect Reaction Rates
   3. 14.2: Reaction Rates
   4. 14.3: Concentration and Rates (Differential Rate Laws)
   5. 14.4: The Change of Concentration with Time (Integrated Rate Laws)
   6. 14.5: Temperature and Rate
   7. 14.6: Reaction Mechanisms
   8. 14.7: Catalysis
   9. 14.E: Exercises
   10. 14.S: Chemical Kinetics (Summary)

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1. Chapter 15: Chemical Equilibrium
   2. 15.1: The Concept of Equilibrium
   3. 15.2: The Equilibrium Constant
   4. 15.3: Interpreting & Working with Equilibrium Constants
   5. 15.4: Heterogeneous Equilibria
   6. 15.5: Calculating Equilibrium Constants
   7. 15.6: Applications of Equilibrium Constants
   8. 15.7: Le Châtelier's Principle
   9. 15.E: Exercises
   10. 15.S: Chemical Equilibrium (Summary)

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1. Chapter 16: Acid–Base Equilibria
   2. 16.1: Acids and Bases: A Brief Review
   3. 16.2: Brønsted–Lowry Acids and Bases
   4. 16.3: The Autoionization of Water
5. 19.4: Entropy Changes in Chemical Reactions
6. 19.5: Gibbs Free Energy
7. 19.6: Free Energy and Temperature
8. 19.7: Free Energy and the Equilibrium Constant
9. 19.E: Chemical Thermodynamics (Exercises)

10. Chapter 20: Electrochemistry
1. 20.1: Oxidation States & Redox Reactions
2. 20.2: Balanced Oxidation-Reduction Equations
3. 20.3: Voltaic Cells
4. 20.4: Cell Potential Under Standard Conditions
5. 20.5: Gibbs Energy and Redox Reactions
6. 20.6: Cell Potential Under Nonstandard Conditions
7. 20.7: Batteries and Fuel Cells
8. 20.8: Corrosion
9. 20.9: Electrolysis
11. 20.E: Electrochemistry (Exercises)

12. Chapter 21: Nuclear Chemistry
1. 21.1: Radioactivity
2. 21.2: Patterns of Nuclear Stability
3. 21.3: Nuclear Transmutations
4. 21.4: Rates of Radioactive Decay
6. 21.6: Energy Changes in Nuclear Reactions
7. 21.7: Nuclear Fission
8. 21.8: Nuclear Fusion
9. 21.9: Biological Effects of Radiation
10. 21.E: Exercises
11. 21.S: Nuclear Chemistry (Summary)

13. Chapter 22: Chemistry of the Nonmetals
2. 22.1: General Concepts: Periodic Trends and Reactions
3. 22.2: Hydrogen
4. 22.3: Group 18: Nobel Gases
5. 22.4: Group 17: The Halogens
6. 22.5: Oxygen
7. 22.6: The Other Group 16 Elements: S, Se, Te, and Po
8. 22.7: Nitrogen
9. 22.8: The Other Group 15 Elements: P, As, Sb, and Bi
10. 22.9: Carbon
11. 22.10: The Other Group 14 Elements: Si, Ge, Sn, and Pb
12. 22.11: Boron
13. 22.E: Chemistry of the Nonmetals (Exercises)
14. 22.S: Chemistry of the Nonmetals (Summary)

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1. Chapter 23: Metals and Metallurgy
2. 23.1: Occurrence and Distribution of Metals
   3. 23.2: Pyrometallurgy
   4. 23.3: Hydrometallurgy
   5. 23.4: Electrometallurgy
   6. 23.5: Metallic Bonding
   7. 23.6: Alloys
   8. 23.7: Transition Metals
9. 23.8: Chemistry of Selected Transition Metals
10. 23.E: Metals and Metallurgy (Exercises)

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1. Chapter 24: Chemistry of Coordination Chemistry
2. 24.1: Metal Complexes
3. 24.2: Ligands with more than one Donor Atom
4. 24.3: Nomenclature of Coordination Chemistry
5. 24.4: Isomerization
6. 24.5: Color and Magnetism
7. 24.6: Crystal Field Theory
8. 24.E: Chemistry of Coordination Chemistry (Exercises)

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1. Chapter 25: Chemistry of Life: Organic and Biological Chemistry
2. 25.1: General Characteristics of Organic Molecules
3. 25.2: Introduction to Hydrocarbons
4. 25.3: Alkanes
5. 25.4: Unsaturated Hydrocarbons
6. 25.5: Functional Groups
7. 25.6: Compounds with a Carbonyl Group
8. 25.7: Chirality in Organic Chemistry
9. 25.8: Introduction to Biochemistry
10. 25.9: Proteins
11. 25.10: Carbohydrates
12. 25.11: Nucleic Acids
13. 25.E: Organic and Biological Chemistry (Exercises)
14. 25.S: Organic and Biological Chemistry (Summary)

• Homework
1. 1.E: Matter and Measurement (Exercises)
2. 2.E: Atoms, Molecules, and Ions (Exercises)
3. 3.E: Stoichiometry (Exercises)
4. 4.E: Aqueous Reactions (Exercises)
5. 5.E: Thermochemistry (Exercises)
6. 6.E: Electronic Structure (Exercises)
7. 7.E: Periodic Trends (Exercises)
8. 8.E: Chemical Bonding Basics (Exercises)
9. 9.E: Bonding Theories (Exercises)
10. 10.E: Gases (Exercises)
11. 11.E: Liquids and Intermolecular Forces (Exercises)
13. 13.E: Properties of Solutions (Exercises)
15. 15.E: Chemical Equilibrium (Exercises)
16. 16.E: Acid–Base Equilibria (Exercises)
17. 17.E: Additional Aspects of Aqueous Equilibria (Exercises)
18. 18.E: Chemistry of the Environment (Exercises)
19. 19.E: Chemical Thermodynamics (Exercises)
20. 20.E: Electrochemistry (Exercises)
21. 21.E: Nuclear Chemistry (Exercises)
22. 22.E: Chemistry of the Nonmetals (Exercises)
23. 23.E: Metals and Metallurgy (Exercises)
24. 24.E: Chemistry of Coordination Chemistry (Exercises)
25. 25.E: Organic and Biological Chemistry (Exercises)

This Textmap is designed for the two-semester general chemistry course and has been developed to meet the scope and sequence of most general chemistry courses. The organization follows the textbook "Chemistry: the Central Science" by Brown et al., but the content differs in detail.
• 1: Introduction - Matter and Measurement

• 2: Atoms, Molecules, and Ions

• 3: Stoichiometry: Chemical Formulas and Equations
4: Reactions in Aqueous Solution

5: Thermochemistry

6: Electronic Structure of Atoms

7: Periodic Properties of the Elements
8: Basic Concepts of Chemical Bonding

9: Molecular Geometry and Bonding Theories

10: Gases

11: Liquids and Intermolecular Forces
16: Acid–Base Equilibria

17: Additional Aspects of Aqueous Equilibria

18: Chemistry of the Environment

19: Chemical Thermodynamics
20: Electrochemistry

21: Nuclear Chemistry

22: Chemistry of the Nonmetals

24: Chemistry of Coordination Chemistry
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