

AP Chemistry

College Board Standards

Course Description:

The AP Chemistry course provides students with a college-level foundation to support future advanced coursework in chemistry. Students cultivate their understanding of chemistry through inquiry-based investigations, as they explore content such as: atomic structure, intermolecular forces and bonding, chemical reactions, kinetics, thermodynamics, and equilibrium. The AP Chemistry course is designed to be the equivalent of the general chemistry course usually taken during the first collegiate year.

Scope and Sequence 2024-2025

Semester One	
August 14-December 19, 2024	
First 9 Weeks (40 Days) - August 14- October 11, 2024	
<i>Unit 1 Review Honors I</i>	
Classification of Matter	1.3, 4.4
Law of Proportions	1.4
Isotopes and Mass Spectrometry	1.2, 1.5, 3.13
Nomenclature	1.3
Separation Techniques	3.9
<i>Unit 2 Review Honors II</i>	
Mole Calculations	4.5
Percent Composition	1.3
Empirical and Molecular Formulas	1.3
Combustion Analysis	3.9
<i>Unit 3 Chemical Reactions</i>	
Chemical Reactions	4.1, 4.3, 4.7
Stoichiometry	4.5
Molarity and Ions	3.7
Net Ionic Reactions	4.2
<i>Unit 4 Behavior of Gases</i>	
Gas Laws	3.3

Ideal Gas Laws Mole Fractions and Partial Pressures KMT & Maxwell Boltzmann Curves Gas Stoichiometry and Non Ideal Behavior	3.4 1.4, 3.3 3.5 3.6, 4.4
Second 9 Weeks (42 Days) - October 14-December 19, 2024	
<i>Unit 5 Thermochemistry</i>	
Thermochemistry Introduction	6.1, 6.2 6.3
Enthalpy of Reactions	6.6, 6.7, 6.8, 6.9
Specific Heat	6.4
Heating & Cooling Curves	6.5
Calculating Heating/Cooling Curves	6.5
<i>Unit 6 Periodic Trends</i>	
Energy of Waves	3.11
Electron Configurations	1.5, 1.8, 2.3, 2.4
Periodic Trends I	1.7
Periodic Trends II	1.7
Photoelectron Spectroscopy	1.6, 3.12
<i>Unit 7 VSEPR</i>	
Bonding (Ionic, Covalent, Metallic)	2.1
VSEPR I	2.5
VSEPR II	2.7
Formal Charge/Hybridization	2.6, 2.7
Bond Energies	2.1
<i>Unit 8 IMFs</i>	
Playing with Water	2.2, 3.1
IMFs	3.1
IMFs of Solids	3.1, 3.2, 2.3, 2.4
Properties Affected by IMFs	3.1
<i>Unit 9 Solutions</i>	
Solutions Concentration and Polarity	3.7, 3.8
Molarity	3.10
Chromatography	3.9

Semester Two	
January 8-May 21, 2025	
Third 9 Weeks (40 Days) - January 8-March 7, 2025	
<i>Unit 10 Rate of Reactions</i>	
Enthalpy Curves & Maxwell Boltzmann Curves	5.5, 5.6, 5.7
Rate Laws & Order of Reactions (Graphs too)	5.8, 5.1, 5.2
Half-life	5.3
Reaction Mechanisms	5.4, 5.9, 5.10, 5.11
<i>Unit 11 Equilibrium</i>	
Equilibrium Constant	7.1
Solving Equilibrium Constant - R.I.C.E. Method	7.4, 7.5, 7.6, 7.7
LeChatelier's Principle	7.2, 7.8, 7.9
Q vs. K	7.3, 7.10
<i>Unit 12 Acids & Bases</i>	
Acids and Bases, Weak vs. Strong	8.1, 8.2, 8.6
pH and Ka Calculations	8.2, 8.5
Weak Acids Ka Calculations	8.3, 8.7
Bases and Kb Calculations	8.3, 8.7
pH of Salts	8.6
<i>Unit 13 Buffers</i>	
Buffers	8.8
Buffer Calculations	8.4
Henderson Hasselbalch Equation	8.9
Buffer Capacity and Preparation	8.10
Titrations	8.5
<i>Unit 14 K vs Q</i>	
Ksp Common Ion Effect	7.11, 7.12
Ksp Calculations	7.7
Ksp in Acid/Base Solutions	7.13
Qsp vs Ksp	7.3

Fourth 9 Weeks (46 Days) - March 18-May 21, 2025	
<i>Unit 15 Thermodynamics</i> Thermodynamics Entropy Gibbs Free Energy <i>Unit 16 Electrochemistry</i> Cell Potential & Free Energy Nonstandard E-cell & Electrolysis Electrochemical Cells Standard Reduction Potentials <i>AP Exam</i>	 9.1, 9.4 9.2 9.3, 9.5 9.8 9.9 9.10 9.7