

## Advanced Placement®\*\* Chemistry

### COURSE DESCRIPTION:

Advanced Placement Chemistry is equivalent to a full-year introductory college course in general Chemistry. Student will learn fundamental analytical skills to logically assess chemical problems proficiently. Through fascinating and elaborative lessons, students will develop the skills necessary to arrive at conclusions based on informed judgment and present evidence in clear and persuasive essays.

**PREREQUISITES:** None

**COURSE LENGTH:** Two semesters

**REQUIRED TEXT:** In order to be successful in this course, you will need to purchase a chemistry textbook. You need to purchase the following book:  
***Chemistry: The Molecular Nature of Matter and Change***, by Silberberg

**REQUIRED LAB:** AP Chemistry Lab Kit

### COURSE OUTLINE:

#### Semester 1

- An Introduction to Chemistry
- The Components of Matter
- Stoichiometry of Formulas and Equations
- The Major Classes of Chemical Reactions
- Gases and the Kinetic-Molecular Theory
- Thermochemistry: Energy Flow and Chemical Change
- Quantum Theory and the Nature of Light
- Electron Configuration and Chemical Periodicity
- Models of Chemical Bonding
- The Shapes of Molecules
- Theories of Covalent Bonding

#### Semester 2

- Intermolecular Forces: Liquids, Solids, and Phase Changes
- The Properties of Mixtures: Solutions and Colloids
- Periodic Patterns in the Main-Group Elements
- Organic Compounds and the Atomic Properties of Carbon
- Kinetics: Rates and Mechanisms of Chemical Reactions
- Equilibrium: The Extent of Chemical Reactions
- Oxidation and Reduction Reactions
- Thermodynamics: Entropy, Free Energy, and the Directions of Chemical Reactions

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