

Course Title/Grade Level

Advanced Placement Chemistry/ 11th Grade

Course Overview

AP Chemistry is similar to freshman college chemistry and is designed to prepare students for the AP Chemistry test. Successful performance on the test can earn college credits for the student. It is highly recommended that students are proficient in algebra when choosing this course because AP Chemistry is a math-based science course. Laboratory work will be a large and important part of this course, as there are 16 mandated labs by AP. Topics in this course include atomic structure and properties, molecular and ionic compound structures and properties, intermolecular forces and properties, chemical reactions, kinetics, thermodynamics, equilibrium, acids and bases, and applications of thermodynamics.

Course Materials

Holt, Rinehart and Winston Modern Chemistry by Davis, Frey, Sarquis, Sarquis 2009

Pearson, Prentice Hall Chemistry: The Central Science 11th edition by Brown, LeMay, Burstein, Murphy

AP Classroom website for Instructional videos, and practice questions.

- Supplemental materials such as labs, notes, study guides, readings, et cetera will be provided.

Grading and Evaluation Procedures

Grades will be composed of tests, quizzes, laboratory reports, homework, and projects. Grades will be assigned for completion, correctness, and effort. Grading is based on a point system. Your final grade will be the points you have earned divided by the total points possible for the course. The number of points depends on difficulty and length of assignment. Homework and lab reports turned in late will be given partial credit at a penalty of ***one letter grade per day for each day late!***

Assignments

Homework/Classwork will be assigned on a regular basis. Some assignments will be graded on correctness and completeness and others on just completeness. I prefer to give you time in class to begin your assignments so that I can check your understanding before you leave. If you are diligent, it is often possible to finish assignments in class. Any assignment given will be due the next day unless you are told differently.

Academic Integrity

All students are expected to abide by the school's Academic Integrity Policy. This means no copying, cheating, or plagiarizing. Anyone violating this will receive a zero on the assignment and detention. During an exam, even looking at another person's test is considered cheating. Do not let other students copy your work, as you will both receive a zero. Collaboration on homework or lab reports will occur, but all work should be your own. During testing, your phones will be placed under your desks and cannot be touched until you turn in the test.

<u>Course Outline</u>	<u>PA State Standards</u>	<u>Timeline (days)</u>
Unit 1 (Ch 1-3): Safety, Matter, Measurement/ Calculations, Atomic Theory	3.1.P.A9 3.2.C.A1 3.2.C.A2 3.2.C.A5	6
Unit 2 (Ch 4-6) Arrangement of electrons, Periodic Law, Chemical Bonding	3.2.C.A2 3.2.12.A2 3.2.P.B5 3.2.C.A1 3.2.C.A1 3.2.C.A2 3.2.12.A5	6
Unit 3 (Ch 7-10): Chemical Formulas, Chemical Reactions, Stoichiometry, States of Matter	3.2.C.A2 3.2.C.A4 3.2.12.A.1 3.2.12.B3 3.2.10.A3 3.2.C.A3	7
Unit 4 (Ch 11-15): Gas Laws, Solutions, Acids and Bases	3.2.C.A2 3.2.12.A1 3.2.12.A4 3.2.C.A4 3.2.C.A3 3.2.12.A3	7
Unit 5 Atomic structure and properties	3.2.C.A1 3.2.C.A2 3.2.P.B5	7
Unit 6 Molecular and ionic compound structures and properties	3.2.C.A2 3.2.12.A5	7
Unit 7 Intermolecular forces and properties	3.2.C.A2 3.2.12.A5 3.2.10.A3	8
Unit 8 Chemical reactions	3.2.C.A4 3.2.12.A4	8
Unit 9 Kinetics	3.2.C.A2 3.2.C.A3 3.1.C.A2 3.1.12.A7	7
Unit 10 Thermodynamics	3.2.C.A2	7

		3.2.C.B3 3.2.12.B3 3.2.10.B3	
Unit 11	Equilibrium	3.2.C.A4 3.2.12.A4 3.2.12.A5	8
Unit 12	Acids and bases	3.2.C.A4 3.2.12.A4 3.2.12.A5	8
Unit 13	Applications of thermodynamics	3.2.C.A2 3.2.C.A4 3.2.12.A4 3.2.C.B2 3.2.C.B3 3.2.12.B3	7
Unit 14	AP Review	All Standards	10

** Note: the following standards are identical and are covered in all units 3.1.P.A6, 3.3.P.A8

Link to Science Standards for Pennsylvania

<https://www.pdesas.org/Standard/View>

Laboratory and Safety

Each topic above has one or more labs or activities associated with it. These hands-on lab experiences help the students to connect theory to real-life, making chemistry more real and applicable.

Students are expected to behave with proper decorum in laboratory. If any special safety precautions are required for lab, they will be announced several days in advance. Students who do not follow the safety procedures will be asked to sit out of lab and complete it on their own time. Rules that should always be followed:

- **NEVER have a classmate hold your lab paperwork.** Their absence does not excuse you from having your lab materials.
- Except when advised, each student will turn in his or her own individual lab report.

Lab Experiments

2 days	Spectroscope	Unit 1
2 days	Types of Chemical Bonds	Unit 2
2 days	Chromatography	Unit 3

2 days	Gravimetric Analysis of a Carbonate	Unit 3
2 days	Analysis of Ions (Inquiry)	Unit 3
2 days	Molar Volume of a Gas (Inquiry)	Unit 3
2 days	Chemical and Physical Changes	Unit 4
2 days	Kinetics	Unit 5
2 days	Calorimetry	Unit 6
2 days	Le Chatelier's	Unit 7
2 days	Strong Acid Base Titration	Unit 8
2 days	Concentration of Acetic Acid	Unit 8
2 days	Properties of a Buffer	Unit 8
2 days	Electrochemical Cell (Inquiry)	Unit 9