

Canyon Crest Academy: AP Chemistry

Level of Difficulty	Estimated Homework	Recommended Prerequisites
<input type="checkbox"/> Moderate	90 minutes per day*	Recommended A in Biology
<input type="checkbox"/> Difficult	*This is a general guideline for planning and scheduling purposes. A student's ability level may affect actual preparation time needed.	AND
<input checked="" type="checkbox"/> Very Difficult		Recommended B or better in Honors Chemistry
		AND Successful completion or concurrent enrollment in Integrated Math 2

****Students should enroll in Honors Chemistry fall semester and AP Chemistry spring semester in the same school year.**

Course Description

This course assumes student have a solid foundational understanding of chemistry content. Advanced Placement Chemistry is a rigorous second year high school course and is designed to be the equivalent of a general college chemistry course. This course is especially geared towards students who are planning to pursue careers in the science.

Chemistry is the study of atoms and molecules and how they interact according to physical laws. It is applicable to everyday life and such connections will be demonstrated throughout the course. This course will focus understanding chemistry through the application of problem-solving skills learned in class to a host of different situations as well as preparation for the Advanced Placement Exam in May. Topics of discussion will be organized in the following manner:

The course will include the following big ideas:

1. The chemical elements are fundamental building materials of matter, all matter can be understood in terms of arrangements of atoms. These atoms retain their identity in chemical reactions.
2. Chemical and physical properties of materials can be explained by structure and the arrangement of atoms, ions, or molecules and the forces between them.
3. Changes in matter involve the rearrangement and/or reorganization of atoms and/or the transfer of electrons.
4. Rates of chemical reactions are determined by details of the molecular collisions.
5. The laws of thermodynamics describe the essential role of energy and explain and predict the direction of changes in matter.
6. Any bond or intermolecular attraction that be formed can be broken. These two processes are in a dynamic competition, sensitive to initial conditions and external perturbations.

The course also includes the following science practices:

1. The student can use representations and models to communicate scientific phenomena and solve scientific problems.
2. The student can use mathematics appropriately.
3. The student can engage in scientific questioning to extend thinking or guide investigations within the context of the AP course.
4. The student can plan and implement data collection strategies in relation to a particular scientific question (data can be collected from many different sources – investigations, scientific observations, the findings of others, historic reconstruction and/or archived data)
5. The student can perform data analysis and evaluation of evidence.
6. The student can work with scientific explanation and theories.

7. The student is able to content and relate knowledge across various scales, concepts and representation in and across domains.

Students will explore these topics through discussions, laboratory investigations, teacher demonstrations, and in-class assignments. This course aligns with the guidelines described by CollegeBoard.

Grading

Category	Term 1 Weight	Term 2 Weight
Homework	5%	5%
Laboratory	30%	60%
Quiz	25%	15%
Test	40%	20%

Individual teachers may make slight modifications on the weighted percentages. Weighted percentages will change at the quarter to emphasize the shift away from content and towards practical application after the AP exam.

Links

- CCA Science Homepage <http://teachers.sduhsd.net/ccscience>
- CollegeBoard <http://www.collegeboard.com>
- CollegeBoard Description <https://secure-media.collegeboard.org/digitalServices/pdf/ap/ap-chemistry-course-and-exam-description.pdf>
- Next Generation Science Standards <http://www.nextgenscience.org/>

Supplemental Information

- 10 credits
- Meets UC/CSU subject area “d” requirement
- Fulfills graduation requirement in physical science
- Weighted