



AP Chemistry Course Description:

PREREQUISITES: Students should have successfully completed a general high school chemistry course and Algebra II with a grade of B or higher.

Course Overview The AP Chemistry course provides students with a college-level foundation to support future advanced course work in chemistry. Students cultivate their understanding of chemistry through inquiry-based investigations, as they explore topics such as: atomic structure, intermolecular forces and bonding, chemical reactions, kinetics, thermodynamics, and equilibrium.

AP Chemistry Course Content The key concepts and related content that define the AP Chemistry course and exam are organized around underlying principles called the Big Ideas. They encompass core scientific principles, theories, and processes that cut across traditional boundaries and provide a broad way of thinking about the particulate nature of matter underlying the observations students make about the physical world. The following are Big Ideas:

- The chemical elements are the building blocks of matter, which can be understood in terms of the arrangements of atoms.
 - Chemical and physical properties of materials can be explained by the structure and the arrangement of atoms, ions, or molecules and the forces between them.
 - Changes in matter involve the rearrangement and/or reorganization of atoms and/or the transfer of electrons.
 - Rates of chemical reactions are determined by details of the molecular collisions.
 - The laws of thermodynamics describe the essential role of energy and explain and predict the direction of changes in matter.
 - Bonds or attractions that can be formed can be broken. These two processes are in constant competition, sensitive to initial conditions and external forces or changes.
- Students establish lines of evidence and use them to develop and refine testable explanations and predictions of natural phenomena. Focusing on these disciplinary practices enables teachers to use the principles of scientific inquiry to promote a more engaging and rigorous experience for AP Chemistry students. Such practices require that students:
- Use representations and models to communicate scientific phenomena and solve scientific problems;
 - Use mathematics appropriately;
 - Engage in scientific questioning to extend thinking or to guide investigations within the context of the AP course;
 - Plan and implement data collection strategies in relation to a particular scientific question;
 - Perform data analysis and evaluation of evidence;
 - Work with scientific explanations and theories; and
 - Connect and relate knowledge across various scales, concepts, and representations in and across domains.

Textbook: General Chemistry, Ebbing and Gammon, 8th Edition, Houghton Mifflin Co. 2008.

High Bluff Academy is accredited by the Western Association of Schools and Colleges (WASC). The above course is approved by the University of California system (A-G) and the National Collegiate Athletic Association (NCAA).