Course Overview

High School | AP Chemistry - *Last Updated on April 4, 2025*

DESCRIPTION

K-12 Content Area | Mission & Philosophy Statement

- Young people are born investigators, with natural curiosities about the physical, biological, and social worlds they experience. Anchoring science learning in real-world phenomena connects curiosities to core conceptual understandings.
- Students actively construct understanding through inquiry, experimentation, and analysis to develop science and engineering practices such as asking questions, planning and carrying out investigations, and constructing explanations.
- Integration of crosscutting concepts such as patterns, cause and effect, and systems thinking promote interdisciplinary understanding and sense-making of the natural world.
- Science learning occurs alongside other disciplines to foster holistic understanding and application of knowledge.

Course Description

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

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 topics such as: atomic structure, intermolecular forces and bonding, chemical reactions, kinetics, thermodynamics, and equilibrium. Created by AP Chemistry Development Committee, the course curriculum is compatible with many Chemistry courses in colleges and universities. At the conclusion of the course, students are encouraged to sit for the AP Chemistry exam. There will be required summer work in the course and students must keep a formal lab report notebook.

STANDARDS

Pennsylvania - High School - Chemistry

3.1.C.A2. 3.1.C.A9. 3.2.C.A1.c 3.2.C.A1.a 3.2.C.A1.b 3.2.C.A1.d 3.2.C.A2.a

3.2.C.A2.c 3.2.C.A2.b 3.2.C.A2.d 3.2.C.A2.e 3.2.C.A2.f 3.2.C.A2.g 3.2.C.A2.h

3.2.C.A3.a 3.2.C.A4.a 3.2.C.A4.b 3.2.C.A4.c 3.2.C.A4.d 3.2.C.A4.e 3.2.C.B2.

3.2.C.B3.a 3.2.C.B3.b

Pennsylvania - Grade 12 - Science and Technology and Engineering

3.2.12.A6 3.2.12.A5 3.2.12.A4

College Board - AP Chemistry (2020)

APCHEM.MAR.1A APCHEM.MAR.1B APCHEM.QAM.2A APCHEM.QAM.2B APCHEM.QAM.2C

APCHEM.QAM.2D APCHEM.QAM.2E APCHEM.QAM.2F APCHEM.RDP.3A APCHEM.RDP.3B

APCHEM.RDP.3C APCHEM.MAN.4A APCHEM.MAN.4B APCHEM.MAN.4C APCHEM.MAN.4D

APCHEM.MRO.5A APCHEM.MRO.5B APCHEM.MRO.5C APCHEM.MRO.5D APCHEM.MRO.5E

APCHEM.MRO.5F APCHEM.ARG.6A APCHEM.ARG.6B APCHEM.ARG.6C APCHEM.ARG.6D

APCHEM.ARG.6E APCHEM.ARG.6F APCHEM.ARG.6G

COURSE OBJECTIVES

The objectives are the course are to meet the Pennsylvania State Standards in Science and Technology and the National Standards for AP Chemistry.

ASSESSMENT TYPES

The following assessment types will be used during the course:

- Curriculum Based Measures
- Formative Assessments
- Summative Assessments
- Performance Based Assessments

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SUGGESTED METHODS OF INSTRUCTION

A science program demands the use of a variety of instructional strategies to foster scientific thinking. Below is a list of suggested strategies for high-quality instruction

- Instructional components outlined in Framework for Teaching by Charlotte Danielson
- Hands-on learning
- Posing questions for investigation
- Cooperative learning and collaboration
- Inquiry, engineering, and design

RESOURCES

District Approved Program Resources	District Approved Supplemental Resources	District Approved Technology Resources
Electronic and Paper copy of Students/Teacher Textbook Decoste, D., Zumdahl, S., Zumdahl, S., (2018). *Chemistry.* Cengage Learning	• Teacher Created Resources • District approved supplemental resources and labs	