



AP Chemistry Exam Preparation

老师：徐亮

Time: 1:00pm-3:00pm Sunday

Course Overview: This course is structured around the six big ideas articulated in the AP chemistry curriculum framework provided by College Board. It will be extremely rigorous, requiring background in Pre-AP Chemistry, plus a high level of confidence and skills in mathematics. The goal of this course is to help students to improved their AP chemistry Exam scores significantly.

Course Objects

- ✓ Big Idea 1: Structure of Matter
The chemical elements are fundamental building materials of matter, and all matter can be understood in terms of arrangements of atoms. These atoms retain their identity in chemical reactions.
- ✓ Big Idea 2: Chemical and Physical Properties
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.
- ✓ Big Idea 3: Chemical Reactions
Changes in matter involve the rearrangement and/or reorganization of atoms and/or the transfer of electrons.
- ✓ Big Idea 4: Chemical Kinetics and Reaction Rates
Rates of chemical reactions are determined by details of the molecular collisions.
- ✓ Big Idea 5: Thermodynamics and Energy Transfers
The laws of thermodynamics describe the essential role of energy and explain and predict the direction of changes in matter.
- ✓ Big Idea 6: Chemical Equilibrium
Any bond or intermolecular attraction that can be formed can be broken. These two processes are in a dynamic competition, sensitive to initial conditions and external perturbations.

Target Student

Students who plan to take AP Chemistry Exam_

Required Prerequisites

Successful completion Honor/Pre-AP Chemistry_

Course Text & Resources

Cracking the AP Chemistry 2020 Edition by The Princeton Review. Newer editions are welcome

Honor Chemistry

Instructor: Liang Xu

Mrs. Xu • Advanced degrees from Perking University and Loyola University Chicago • Research experience in pharmaceutical field • Over 14 years teaching experience • Teaching all levels of chemistry courses, including IB Chemistry I(SL&HL), IB Chemistry II (SL&HL), Honor/Pre-AP Chemistry, AP Chemistry, The Integrated Physics and Chemistry (IPC)


Course Description

Chemistry is often referred to as the central science. It is a connecting link between many other disparate fields including physics, biology, geology, materials science, medicine, and some branches of engineering. Pre-AP is designed to introduce students to concepts and basic ideas of chemistry and prepare students for advanced courses such as AP chemistry and college science courses. This course involves the study of the composition, properties, and changes associated with matter. The content includes the classification and structure of matter, atomic theory, periodic table, bonding, chemical formulas, chemical reactions and balanced equations, behavior of gases, and physical changes.

Target Students

Students who plan take AP Chemistry in future Course Pre-requisites Must take Algebra II co-currently or higher. Successful completion of Biology.

**Required Textbook Modern Chemistry by Holt
Total Course Hours 2 h/week for 16 weeks**

A standard periodic table of elements, color-coded by groups. The table includes element symbols, atomic numbers, and names. It is presented in a grid format with columns and rows.

Course Objectives

By the end of this semester, the successful students will be able to

1. **Matter and Energy:** Students will be able to classify, identify, and describe different types of matter and how matter and energy can be change to different forms.
2. **Atomic Structure:** Students will be able to identify the parts of atoms, to explain how we know what an atom made of, and to describe what happens when atoms and their parts are changed through a chemical reaction.
3. **Electrons:** Students will be able to describe and identify the location of electrons in an atom and how the arrangement of electrons in an atom affects its chemical reactivity and properties.
4. **The Periodic Table:** Students will be able to explain how the periodic table was developed and how the organization of the periodic allows us to predict properties of elements.
5. **Bonding:** Students will be able to describe and differentiate between different types of intermolecular and intramolecular bonding and explain how the type of bonding affects a compound's properties. Students will be able to name different types of compounds based on the type of bonding.