

COURSE TITLE: Honors Chemistry
COURSE LENGTH: 1 year
COURSE CREDIT: 1 credit

COURSE TYPE: elective
GRADE LEVEL: 11, 12
PREREQUISITE: B or higher in Biology,
Chemistry, or Physics

COURSE GOALS:

1. Students will interpret phase diagrams and determine the relationship between energy and change of state and will explain the properties of liquids and corresponding changes of state in terms of kinetic energy.
2. Students will define historical acid-base theories and will use pH scale to calculate hydronium ion concentration.
3. Students will discuss the process of titration and perform labs and calculations using titration data; explain the pH scale and use it for measuring solutions; and describe the process of hydrolysis and buffering.
4. Students will relate the laws of Boyle, Dalton, and Charles and perform calculations using these laws.
5. Students will state Avogadro's principle, define molar volume, and use the ideal gas equation to solve word problems.
6. Students will explain chemical nomenclature, write net-ionic equations, and identify salts.

COURSE CONTENT:

1. Solids, liquids, gases (structure and properties)
2. Solutions and colloids
3. Colligative properties
4. Oxidation and reduction
5. Reaction rates and chemical equilibrium
6. Organic chemistry
7. Biochemistry
8. Electrochemistry