

# ***Honors Chemistry - Topic IV Outline***

## **The Language of Chemistry**

### **I. Chemical Nomenclature**

- A. Inorganic Nomenclature pp.112-132; 349-350, 554-555; 213-220
  - 1. Types of formulas
    - a. binary ionic compounds type I and type II
    - b. binary molecular compounds
    - c. ionic compounds with polyatomic ions
  - 2. More Nomenclature
    - a. common name v. systematic name
    - b. stock system v. classical system
    - c. naming acids and bases
  - 3. Writing formulas: Oxidation numbers & polyatomic ions
- B. Percent Composition from Formulas
  - 1. Formula masses
  - 2. Calculations

### **II. The Mole Concept**

- A. Mole Amount Calculations pp. 206-208; 415-416; 222-229; 455-464
  - 1. Definitions
  - 2. Molar amounts of elements & compounds
  - 3. Molar volume of gases: STP & Avogadro's Hypothesis
- B. Empirical & Molecular Formulas
  - 1. From laboratory data
  - 2. From percent composition
- C. The Mole in Solutions
  - 1. Solution concentrations- mass percent
  - 2. Molarity & molality
  - 3. Dilutions

### **III. Chemical Reactions**

- A. Writing Chemical Equations pp. 142-156; 184-191; 165-180; 238-258
  - 1. Balancing equations
  - 2. Classifying chemical changes
  - 3. Predicting products of reactions
    - a. molecular equations
    - b. complete ionic equation
    - c. net ionic equations
- B. Stoichiometry
  - 1. Meaning of coefficients
  - 2. Types of problems
    - a. mass-mass
    - b. mass-volume
    - c. volume-volume
    - d. excess-limiting
    - e. percent yield