STUDY GUIDE: Acids-Bases and Salts Exam – *First Draft*

Applying Molarity Concepts:

- Stoichiometry with solutions – volume and Molarity given
- Calculate Molarity (given grams and volume or grams and density)
- Calculate Moles given volume and Molarity
- Dilution of solution calculation $M_1V_1 = M_2V_2$
- Titration calculation (See lab experience below)
- Find the concentration of a/an ion(s) given Molarity

Properties of solutions (applied):

- Conductivity – Electrolytes: Strong and Weak
- Strong acids and bases-definitions, identification and degree of dissociation-example reactions-be able to write the correct dissociation reaction for common strong acids and bases
- Weak acids and bases: definitions, identification and degree of dissociation-example reactions-be able to write the correct dissociation reaction for common weak acids and bases
- Molecular substances

Acids and Bases:

- Arrhenius definitions of Acids and Bases
- Bronsted-Lowry definitions of Acids and Bases
- Acids in solution: various representations
- pH and pOH
  - high vs. low ranges and what it means (acidic or basic, etc.)
  - Calculate pH and pOH from H^+ or OH^- concentration $pH = -\log[H^+]$ $pOH = -\log[OH^-]$
  - Calculate H^+ or OH^- utilizing K_w $[H^+][OH^-] = K_w$ and $[H^+]=10^{-pH}$ $[OH^-]=10^{-pOH}$
  - Relate pH to pOH on the acid-base scale $pH + pOH = 14$
  - Calculation of the resulting pH or pOH of a limiting reactant acid-base reaction
- Acid-Base Reactions: Neutralization
  - Write, balance and identify this type of reaction
  - Predict the *balanced* formula of the salt formed
- Buffers: Properties and Definition

Equilbrium Concepts:

- Writing the equilibrium expressions
- Weak v.s. strong acid-base reactions as they apply to equilibrium
- Calculating pH or pOH of a weak acid or base solution, given K_a or K_b and K_w $K_aK_b=K_w$

Laboratory Experiences: Titration Lab

- Review the lab for vocabulary, concepts and observations
- Titration Calculations: Molarity from data provided, Average Molarity, Percent Error