

# Acid-Base Chemistry Study Guide

## Chapters 15 and 16.1-16.4

### General Concepts

- Amphoteric
- General properties of acids and bases
- Polyprotic acids
- Hydronium
- Hydroxide
- Properties of strong vs. weak acids
  - Electronegativity
  - Bond Strength
- Properties of strong vs. weak bases
- Examples of (strong/weak) acids and bases
- Percent ionization
- Neutralization reaction
- Arrhenius definition
- Bronsted-Lowry definition
- Lewis definition
- Conjugate Acid-Base pairs and relative strengths
- Acid-base equilibrium
  - $K_a$
  - $K_b$
  - $K_w$
- Equilibrium constant expressions
- Auto-ionization
- Properties of an ideal buffer
- Buffer range
- Buffer capacity

### Suggested Figures to Review

- 15.1
- 15.2
- 15.3
- 15.4
- 15.5
- 15.6
- 15.7
- 15.8
- 15.9
- 15.10
- 15.11
- 15.12
- 15.13
- 15.14
- 16.1
- 16.2
- 16.3
- 16.4
- 16.5
- 16.6
- 16.7
- 16.8
- 16.9
- 16.11
- 16.12

### Calculations

- pH and pOH
- $pK_a$  and  $pK_b$
- Henderson-Hasselbalch equation
- Molarity
- ICE tables

### Laboratory Techniques

- Titration
- Indicator
- Equivalence point
- Half-equivalence point
- Endpoint
- Titration curve
- Designing a buffer