Chemistry AP Unit 6 Outline: Acids and Bases and Solution Equilibria

Chapter 14: Acids and Bases

Classes	Topics	Suggested Reading	✓	Assignments	✓
1	Arrhenius Concept, Brønsted-Lowry Model, Hydronium Ion, Conjugate Acid, Conjugate Base, Conjugate Acid-Base Pair, Acid Dissociation Constant (K_a), Base Dissociation Constant (K_b), Strong Acid, Weak Acid, Diprotic Acid, Oxyacids, Organic Acids, Carboxyl Group, Monoprotic Acid, Relative Acid and Base Strength, Amphoteric Substance, Autoionization, pH and pOH Scales, pH = – log $[H_3O^+]$, pOH = – log $[OH^-]$, $K_w = [H_3O^+][OH^-]$, pH + pOH = 14	14.1: The Nature of Acids and Bases (pg. 654 to 656) 14.2: Acid Strength (pg. 657 to 662) 14.3: The pH Scale (pg. 662 to 665)		pg. 704 #29 to 32 pg. 704–705 #33 to 38 pg. 705 #39 to 46	
2	Major Species, Common Strong Acids, pH of Strong Acids, Using Approximation to calculate $[H_3O^+]$ of Weak Acids, pH of Weak Acids, Percent Dissociation (Ionization) = $\frac{[H_3O^+]}{[HA]} \times 100\%$, K_a and % Dissociation, Strong Bases, Slaked Line, Lime-soda Process, Weak Bases, pH of Strong and Weak Bases, $K_w = K_a \times K_b$, Using Approximation to calculate $[OH^-]$ of Weak Bases	14.4: Calculating the pH of Strong Acid Solutions (pg. 665 to 666) 14.5: Calculating the pH of Weak Acid Solutions (pg. 666 to 676) 14.6: Bases (pg. 676 to 682)		pg. 705 #47 to 52 pg. 705–706 #53 to 70 pg. 706–707 #71 to 92	
3	Polyprotic Acids, Triprotic Acid, pH of Polyprotic Acid, Characteristics of Weak Polyprotic Acids, Salt, Salt as Weak Bases, Salts that produces Acidic Solutions, Acid-Base Properties of Salts	14.7: Polyprotic Acids (pg. 682 to 687) 14.8: Acid-Base Properties of Salts (pg. 687 to 693)		pg. 707 #93 to 98 pg. 707 #99 to 112	
4	Molecular Structural Effect on Acid-Base Properties, Acidic and Basic Oxides, Properties of Acids-Base Oxides, Lewis Model of Acids and Bases, Lewis Acid, Lewis Base	14.9: The Effect of Structure on Acid-Base Properties (pg. 693 to 695) 14.10: Acid-Base Properties of Oxides (pg. 695 to 696) 14.11: The Lewis Acid-Base Model (pg. 696 to 699)		pg. 707 #113 to 116 pg. 707–708 #117 and 118 pg. 708 #119 to 124	
4	**Lab #12: Weak Acid (Aspirin) and Strong Base Titration (March 28, Friday) --- *after pH curve is taught***			**Lab Report #11 Due: April 16, Wednesday**	
5	**Chapter 14 Quiz (March 27, Thursday)**				

Chapter 15: Applications of Aqueous Equiliria

Classes	Topics	Suggested Reading	✓	Assignments	✓
1	Common Ion, Common Ion Effect, Buffered Solution, Calculations involving Buffered Solution	15.1: Solutions of Acids or Bases Containing a Common Ion (pg. 714 to 716) 15.2: Buffered Solutions (pg. 716 to 726)		pg. 774 #21, 23 to 27, 29 and 31 pg. 774–775 #33 to 38	
2	Buffering Capacity, Preparing a Buffer, pH (Titration) Curve, Equivalence Point, pH of Half-way to Equivalence Point = pK_a , millimol (mmol), Titrations between (Strong Acid with Strong Base, Weak Acid with Strong Base, Weak Base with Strong Acid), Acid-Base Indicators, Phenolphthalein, Bromothymol Blue, End Point and Color Change	15.3: Buffering Capacity (pg. 726 to 729) 15.4: Titrations and pH Curve (pg. 729 to 744) 15.5: Acid-Base Indicators (pg. 744 to 751)		pg. 775 #39 to 50 pg. 775–776 #51 to 61 and 63 pg. 776–777 #65 to 72	
3	Solubility Product Constant (Solubility Product) K_{sp}, Relative Solubilities, Common Ion Effect, Solubility and Common Ions, pH and Solubility, Ion Product (Q), Determining Precipitation Conditions, Selective Precipitation, Qualitative Analysis (Selective Precipitation and Flame Tests), Complex Ion, Ligand, Formation (Stability Constant), Complex Ions and Solubility	15.6: Solubility Equilibria and Solubility Product (pg. 751 to 760) 15.7: Precipitation and Qualitative Analysis (pg. 760 to 766) 15.8: Equilibria Involving Complex Ions (pg. 767 to 772)		pg. 777–778 #73 to 90 pg. 778 #91 to 96 pg. 778–779 #97 to 106	
4	**Lab #13: Qualitative Analysis (April 16, Wednesday)**			**Lab Report #13 Due: April 16, Wednesday**	
5	**Unit 6 Test (April 16, Wednesday)**				