

## KAP Chemistry 2008-09

**Instructor** – George Johnston

**Kenyon Lecture Course:** Chemistry 121, 123; ½ unit credit/lecture

**Kenyon Lab Course:** Chemistry 122, 124: ¼ unit credit/lab

**Course Description** – General chemistry is a course that covers many of the fundamental concepts and basic principles that are common to the different fields in chemistry. In this semester we will explore chemical reactivity and bonding through the development of the modern theory of quantum mechanics as it relates to the electron and through more in-depth examinations of chemistry applications such as the field of electrochemistry, etc.

**Textbook:** Chang, Chemistry 9<sup>th</sup> Ed.

### **Evaluation**

Exams & quizzes	40%
Final Exam	20%
Labs	30%
Project	10%

### -Tentative Schedule Semester I-

<b>Chapter</b>	<b>Ideas</b>
1,2,3	Intro & review of basics
4	Overview of reaction types
5	Gases
6	Thermochemistry
7,8	Quantum Theory, Periodic Relationships
24 (sect TBA)	Organic
9, 10	Bonding, MO Theory
11	Liquids, solids
12	Solutions
13	Kinetics

**-Tentative Schedule Semester II-**

<b>Chapter</b>	<b>Ideas</b>
14	Chemical Equilibrium
15	Acids and Bases
16	Acid-Base Equilibria
18	Entropy, Free Energy, and Equilibrium
19	Electrochemistry
22	Coordination Compounds

***Experiments***

Lab number	Description
1	Double and single displacement reactions
2	Alum Synthesis
3	Alum analysis
4	Analysis of antacid
5	Redox Analysis
6	IR Spectroscopy
7	NMR Spectroscopy
8	Dye Lab
9	Kinetics: Differential and Integrated Rate Laws
10	Determination of Acid Ionization Constant of a Weak Acid
11	Determination of a Equilibrium Constant of an Indicator
12	Finding the Mass Percent of Acetic Acid in Vinegar
13	Determining the Solubility Product of Calcium Hydroxide
14	Electrochemistry