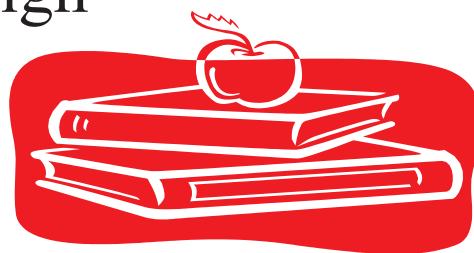


# Mackay Junior/Senior High School



## **COURSE:**

Date: 2011-2012

Teacher with contact information: **Mr. McClure**

**Room: 108**

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## **COURSE DESCRIPTION**

Chemistry is the study of matter and the changes it undergoes. This course is offered to 11<sup>th</sup> and 12<sup>th</sup> grade students. It is a college preparatory elective. It is fairly rigorous, with a strong math component. Prerequisites are a passing grade in Biology plus Geometry or concurrent enrollment.

Topics covered in this class include Atomic Theory, Periodicity, Bonding, Stoichiometry, Solution, Acids and Bases, Thermo chemistry, Kinetics and Equilibrium. Lab experiments are performed for every chapter so students can extend their lab skills and apply theory. Safety in the laboratory is emphasized and carefully monitored.

## **COMMON CORE / STATE CONTENT STANDARDS/VOCABULARY OBJECTIVES**

- |               |   |
|---------------|---|
| 11-12.C.1.1.1 | Use the periodic table to predict physical and chemical properties.   |
| 11-12.C.1.2.1 | Describe the historical development of the periodic table.  |
| 11-12.C.1.2.2 | Create and interpret graphs of data.  |
| 11-12.C.1.2.3 | Explain and interpret the key concepts of the kinetic molecular theory.                                     |
| 11-12.C.1.2.4 | Distinguish the common theories defining acids and bases.   |
| 11-12.C.1.3.1 | Identify, compare and contrast physical and chemical properties and changes and appropriate computations.   |
| 11-12.C.1.3.2 | Perform computations using scientific notation, the metric system and dimensional analysis.                 |
| 11-12.C.1.3.3 | Compute measurement uncertainty to include precision, accuracy and the rules for significant digits.        |
| 11-12.C.1.3.4 | Perform calculations related to the conversion of grams to moles to particles, atoms, molecules and volume. |

11-12.C.1.3.5	Analyze and solve reaction stoichiometry problems.
11-12.C.1.3.6	Express concentrations of solutions in various ways including molarity.
11-12.C.1.3.7	Interpret how the presence of solute particles affect the properties of a solution and be able to do calculations involving colligative properties.
11-12.C.1.3.8	Analyze quantitative relationships involved in acid/base chemistry including pH.
11-12.C.1.6.1	Demonstrate an understanding of the scientific method.
11-12.C.1.6.2	Select and use appropriate scientific equipment, materials and techniques.
11-12.C.1.7.1	Explain how a series of historically related and documented experiments led to the current model and structure of the atom.
11-12.C.1.8.1	Correctly write symbols, formulas and names for common elements, ions and compounds.
11-12.C.1.8.2	Communicate scientific investigations and information clearly.
11-12.C.2.1.1	Explain and understand how electrons are involved in the formation of chemical bonds using the octet rule and Lewis dot diagrams.
11-12.C.2.1.2	Predict the polarity of chemical bonds using electronegativity.
11-12.C.2.1.3	Predict physical properties of compounds based upon the attractive forces between atoms and molecules.
11-12.C.2.1.4	Distinguish and classify all matter into appropriate categories.
11-12.C.2.1.5	Explain the relationship and reactions of acids, bases, and salts.
11-12.C.2.1.6	Explain the role of dissociation and ionization in producing strong, weak, and nonelectrolytes.
11-12.C.2.2.1	Describe the Kinetic Molecular Theory as it applies to phases of matter.
11-12.C.2.3.1	Explain and calculate the changes in heat energy that occur during chemical reactions and phase changes.
11-12.C.2.3.2	Demonstrate the conservation of matter by balancing chemical equations.
11-12.C.2.3.3	Differentiate between exothermic and endothermic chemical reactions during chemical or physical changes.
11-12.C.2.4.1	Interpret the classic historical experiments that were used to identify the components of an atom and its structure.
11-12.C.2.4.2	Deduce the number of protons, neutrons and electrons for an atom or ion.
11-12.C.2.4.3	Describe the relationship between the structure of atoms and light absorption and emission.
11-12.C.2.4.4	Determine and illustrate electron arrangements of elements using electron configurations and orbital energy diagrams.
11-12.C.2.5.1	Illustrate the Law of Conservation of Mass and the Law of Definite Proportions.
11-12.C.2.5.2	Classify, write and balance chemical equations for common types of chemical reactions and predict the products.
11-12.C.2.5.3	Describe the factors that influence the rates of chemical reactions.
11-12.C.5.1.1	Demonstrate the ability to work safely and effectively in a chemistry laboratory.
11-12.C.5.2.1	Assess the role of chemistry in enabling technological advances

11-12.C.5.3.1

Evaluate the role of chemistry in energy and environmental issues.

**INSTRUCTIONAL MATERIALS**Holt, Rinehart and Winston's *Modern Chemistry*.**UNITS WITH INSTRUCTIONAL DATES**

Week	Lesson	Description
1	1.1-1.3	
2	Chapter 1 review, Chapter 1 test. 2.1-2.3	
3 (3days)	Chapter 2 review, Chapter 2 test, Lab	
4	3.1-3.3, Chapter 3 review, Chapter 3 test	
5	4.1-4.3, Lab	
6	Chapter 4 review, Chapter 4 test, 5.1-5.3	
7	Chapter 5 review, Chapter 5 test, 6.1-6.3	
8	6.4-6.5, Chapter 6 review, Chapter 6 test, Lab	
9	7.1-7.4 Lab	
10	Chapter 7 review, Chapter 7 test, 8.1-8.2	
11	8.3, Chapter 8 review, Chapter 8 test, Lab	
12	9.1-9.3 Lab	
13	Chapter 9 review, Chapter 9 test, 10.1-10.5	

14 (3days)	Chapter 10 review, Chapter 10 test, Lab	
15	11.1-11.4, Chapter 11 review	
16	Chapter 11 test, 12.1-12.3, Lab	
17	Chapter 12 review, Chapter 12 test, 13.1-13.2	
18 (2 days)	Chapter 13 review, Chapter 13 test	

### ASSESSMENTS / TESTS

The mastery model is employed in Chemistry, in which students who complete all the daily work on time, but who want to improve their test score, may retake tests, which are of equal difficulty to the original version of the test. Tests are multiple choice with a significant problem solving section.

### GRADING PROCEDURES

50% tests, 50% homework and labs. Homework

### CLASS RULES

Readiness, Respect, Responsibility.

### MISCELLANEOUS

Safety first. All students are made aware of chemical spill procedures, and locations of eyewash station, shower and fire extinguisher.