

# Montclair High School

## Course Syllabus

**Department: Science**

**Course: Chemistry**

**Level: Academic**

**Credits: 5**

### Course Description:

This is a course designed to meet graduation requirements for laboratory science credit. It will provide students with an extensive overview of atomic structure, nomenclature, chemical reactions, the mole, gas laws, applications of chemistry to diverse careers and technological innovations, the periodic table (its development and organization), acid and base behavior as well as science-math integrated skills. Students enrolled in the course will spend time each week in a laboratory setting that will develop their skills in measurement, observation, documentation, critical thinking and hypothesis formation. Students will be expected to record their observations, draw conclusions, and interpret data. In addition to possessing strong study skills, students should be able to work collaboratively and independently on those projects that require deductive skills, computation, research and analysis. A basic knowledge of the metric system, unit-analysis, algebra and variable isolation, spatial sense, square roots, fractions, decimals, graph development and graph analysis is expected.

### Standards:

NGSS HS-PS1-1/2/3/4/5/6/7/8

### Anchor Text(s):

Text Title	Publisher/Author	Year/Edition	ISBN	Text Distribution
Modern Chemistry	Holt McDougal/ Mickey Sarquis; Jerry L. Sarquis, Ph.D.	2012	978-0-547-58663-2	Hard copy, PDF copy, & online text available <a href="#">Online text</a>

### Supplementary Materials:

Classroom workbook, educational videos including You-Tube demonstrations, internet activities, articles from journals, magazines and/or newspapers, etc.

### Units of Study:

- Measurement and Matter
- Atomic Structure
- The Periodic Table and Periodic Trends
- Nomenclature
- Chemical Reactions
- Chemical Kinetics
- The Mole
- Behavior of Gases & Gas Laws
- Acids and Bases

**Proficiencies:**

By the end of this course, students will:

- Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.
- Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.
- Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.
- Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the process of radioactive decay.

**Evaluation & Assessment:**

- Tests 35%
- Quizzes 20%
- Laboratory Work/Projects 30%
- Homework/Class Work 15%

Prior to beginning any lab activities, all students must have submitted a Safety Contract which has been duly signed by both the student and their parent/guardian. This contract will be kept on file by the teacher for the duration of the course.