

## ADVANCED CHEMISTRY I

### 2009-10 COURSE SYLLABUS

MRS. CHAPMAN

**Course Description:** Advanced Chemistry I emphasizes the application of chemical principles to real world situations as much as possible. It includes group-learning activities with an emphasis on mastery learning. Labs of the structured and unstructured discovery type are used, as is the use of multi-media teaching techniques. Content areas include Matter, Energy, Atoms and Moles, Periodic Table, Ionic and Covalent Compounds, Chemical Equations and Reactions, and Stoichiometry.

**Instructional Philosophy:** This course requires students to work individually and in small groups. It is my goal to provide students with a variety of activities that will challenge and interest them so that they may be successful participants in the real world. It is also important that I teach objectives that must be met at the Advanced Chemistry I level, so that students will gain a vast knowledge of the subject matter.

**Major Course Goals:** The student will demonstrate an understanding of the following concepts:

1. The process of scientific inquiry and investigations.
2. Describe matter and its properties.
3. Energy and its relationship with changes of matter.
4. The structure of atoms.
5. Use the periodic table to obtain information about the elements.
6. The formation of ionic and covalent bonds.
7. Unit conversions involving mass, moles, and Avogadro's number.
8. The classification and identification of chemical reactions.
9. Write a balanced chemical equation for a chemical reaction.
10. The concepts developed by the literacy and numeracy committees.

**Major Course Objectives/Benchmarks by Quarter:** Mastery of the course objectives is required with a minimum 70%.

#### First Quarter

1. Develop abilities in science including scientific inquiry and investigations.
2. Distinguish between physical and chemical changes in matter.
3. Identify and use SI units in measurements and calculations.
4. Apply the Law of Conservation of Energy to analyze changes in matter.
5. Convert between temperature scales.

#### Second Quarter

1. Describe the evidence for the existence of subatomic particles and describe their properties.
2. Calculate the number of protons, neutrons, and electrons of an element given its atomic mass and atomic number.
3. Develop an understanding of the periodic table.
4. Relate the valence electron configuration of an atom to its chemical reactivity.

### **Third Quarter**

1. Determine an atom's number of valence electrons.
2. Compare and contrast the types of chemical bonds.
3. Write chemical formulas for ionic compounds.
4. Name covalent compounds by using prefixes, roots, and suffixes.
5. Predict the shape of a molecule using VSEPR theory.

### **Fourth Quarter**

1. Determine the molar mass of a compound from its chemical formula.
2. Solve problems converting between mass, moles, and number of particles.
3. Write and interpret a balanced chemical equation for a chemical reaction.
4. Classify and identify the types of chemical reactions.
5. Predict the products formed during a chemical reaction.

### **Required/Recommended Reading:**

1. Students will be required to read their textbook.
2. Students will be required to read their laboratory and be prepared before class.
3. Students will be required to have appropriate reading material to read during all SSR times.
4. Students will read articles from scientific journals and magazines during the school year.
5. Students will participate in the literacy program by reading 300 pages of science related material.

**Major course projects and Instructional Activities:** Students will participate in the following projects and activities:

1. Students will participate in a variety of laboratory activities centered around the scientific method.
2. Students will participate in a variety of laboratory activities that will introduce them to the instruments and procedures used by laboratory technicians.
3. Students will participate in a variety of laboratory activities that will tie together our units of study.
4. Students will have a group project during the quarter that will be graded as a group and individual grades will also be given.

**Course Assessment Plan:** Students will be assessed in the following manner:

1. All students will be required to keep a portfolio of their work in a 1 inch 3-ringed binder to be assessed at the end of each quarter.
2. There will be a test and/or project at the completion of each unit of study. Test will consist of open ended constructive response questions, performance events, and objective questions.
3. Students will be required to complete homework as part of their grade.
4. A comprehensive quarter final will be given at the end of each quarter.
5. A comprehensive end of course exam will be given at the conclusion of the course.

**Classroom Expectations:**

1. Be on time and in your seat when the bell rings.
2. Be prepared at the beginning of class. Have your textbook, loose-leaf notebook paper, binder, homework, and a pen or pencil. On SSR days, you must have your reading material.
3. Be respectful of all people and property in the room.
4. Read and follow all directions, as given, the first time.
5. No gum, food, or drink in the room at any time.
6. No grooming (fixing hair, make-up, etc.)
7. Keep your feet on the floor and not on the chairs.
8. Keep book bags out of the aisles and purses on the floor during class.
9. The teacher, NOT THE BELL, dismisses the class.

All discipline problems will be handled as described in the student handbook. Be sure you know the consequences for your actions in this classroom.

**Supplies and Materials Needed:** Students should have the following materials for class:

1. Loose-leaf notebook paper
2. 1 inch, 3-ringed binder
3. Pen or pencil
4. Post-it notes
5. Scientific calculator

**Homework Policy and Grading Scale:** Please refer to the Student Handbook for the Homework Policy. The grading scale is as follows:

|         |        |         |       |
|---------|--------|---------|-------|
| A ..... | 100-95 | C ..... | 76-73 |
| A-..... | 94-90  | C-..... | 72-70 |
| B+..... | 89-87  | D+..... | 69-67 |
| B ..... | 86-83  | D ..... | 66-63 |
| B-..... | 82-80  | D-..... | 62-60 |
| C+..... | 79-77  | F.....  | 59-0  |

**Extra Help:** If you need any extra assistance I will be available before and after school.

**Time and Place to be Reached by Parent:** If you need to contact me for any reason please feel free to call and leave me a message at 431-2616 Ext. 4133. I can also be reached by email at [cchapman@centralr3.org](mailto:cchapman@centralr3.org). Homework assignments can be found online at [new.schoolnotes.com](http://new.schoolnotes.com).