Date:_____ Advanced Chemistry

Chapter 2 – Atoms, Molecules, and Ions (Syllabus)

Chemistry: The Central Science

1. Read entire chapter (pgs. 42-75) & take notes on Sections 2.1-2.8 (pgs. 42-73).

2. Terms in **bold print**: mass #, atomic #, isotopes, etc.

3. Assumptions of Dalton's atomic theory (1803-1807) and modifications

4. Review works of Democritus, Thomson, Millikan, Rutherford, Chadwick, Becquerel, and Marie & Pierre Curie

5. Isotopes and designations: ex.: ^{14}C or C-14

6. Characteristics of major subatomic particles: p, n, and e

7. Atomic mass (avg.):
   - ❖ Take "A Closer Look" (pg. 54): How does mass spectrometer work? How do you read a mass spectrum?
   - ❖ Be able to calculate atomic mass when given % abundances and masses.

8. Review P.T.

9. Empirical, molecular, and structural formulas

10. **Memorize** the "Common Ions" (handout) ("like" Tables 2.4 & 2.5).

11. Nomenclature of compounds
    a. Ionic compounds: (pgs. 65-69)
       1) Stock System (Roman numerals): ex.: Copper(I) = Cu^{+}, Copper(II) = Cu^{2+}
       2) "-ous" and "-ic": Traditional "older" system
       3) "-ate", "-ite", "hypo-", "per-"
    b. Acids: binary & ternary(tertiary) (pg. 69-70)
    c. Binary molecular substances (pg. 70-71)
    d. Alkanes, functional groups, and isomers (pg. 72-73)

12. Strategies For Success (How to Take a Test) (pg. 73): Nice tips you can use throughout this course.

13. You are responsible for ALL of the "Visualizing Concepts" & "Exercises" at the end of Ch. 2. Remember to start with the Focus Problems (given below) and then progress from there, ending with the "Additional Exercises".

    Chapter 2 Focus Problems:
    - Sections 2.1-2.4: #'s 13, 19, 29, 39
    - Sections 2.5-2.9: #'s 41, 45, 53, 55, 63, 65, 71, 75, 77, 83, 9
    - Additional Exercises: #'s 89, 98, 100, 105

14. **Test:** The Ch. 1-3 combined test will be in couple weeks.

❖ **NOTE:** *There is a lot of information you are to review on your own, so feel free to see me for individual help at any time! These beginning chapters set the foundation for the rest of the year.*