CHEMISTRY 060 Section 1

Course Outline Winter 2003

1. Instructor

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E 270
Office Hours as posted
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2 Intended Learning Outcomes

After successfully completing all components of this course students will be able to:

1. Identify a sample as an element, compound or mixture
2. Determine whether a transformation is chemical or physical
3. Convert numbers from scientific notation to normal notation
4. Express answers to calculations to the correct number of significant figures
5. Arrange a group of elements in order of increasing atomic radius or ionization energy
6. Write the electron configuration for an atom
7. Draw dot diagrams for molecules and ions
8. Name binary ionic compounds
9. Name binary covalent compounds
10. Write chemical equations
11. Balance chemical equations by inspection
12. Classify reactions
13. Calculate theoretical yield of products from grams or moles of reactants
14. Solve limiting reactant problems
15. Do mass and mole conversions
16. Determine molecular formulas
17. Assign oxidation states
18. Determine whether a reaction is an oxidation-reduction reaction or not
19. Determine energy changes in chemical reactions.

3. Required Materials

(a) Texts

Fundamentals of Chemistry, 4th ed., Ralph A. Burns, Prentice Hall
Chemistry 060 Lab Manual

(b) Safety Goggles These are essential in the lab

4. **Instruction**
   Classroom 4 hours, **Lab** 2 hours
   14 weeks

5. **Assessment**

   (a) Lab exercises
   (b) Written exams

6. **Grading system**

   Letter grades will be assigned, as in the A&S grading system

7. **Sequence of topics (subject to modification):**

   Introduction
   Matter and energy
   Measurements
   Elements, atoms, periodic table
   Atomic structure
   Names and formulas of inorganic compounds
   Periodic properties of elements
   Chemical bonds
   Chemical quantities
   Chemical reactions
   Stoichiometry: calculations based on chemical equations

8. **Prerequisites**
   Math 10 or assessment