HAROLD WASHINGTON COLLEGE
MASTER SYLLABUS – COLLEGE CREDIT COURSE

1. TITLE, NUMBER, AND CLASSIFICATION:

Name of Course Basic Chemical Calculations
Department Name Physical Science
Number Code 073
Course Number: 0100

2. COURSE TERM: 16 Week Semester

3. CREDIT AND CONTACT HOURS:

(i) credit hours 1 (ii) contact hours per week 1.5 (iii) types of activities

x Lecture/Discussion
Lab
Clinical/Work Experience
Other

4. PREREQUISITES - if none check here ; otherwise describe below:

Concurrent enrollment in Chemistry 121 required.

5. CATALOG DESCRIPTION - write below, as in current college catalog;

Arithmetical and algebraic operations as used in general chemical calculations, scientific notation, metric system of measurement and problem-solving techniques employed in general chemistry calculations. Writing assignments, as appropriate to the discipline, are part of the course. One lecture hour, 0.5 lab hour per week

6. STUDENTS FOR WHOM THE COURSE IS INTENDED:

a. Pre-nursing students
b. Students who are not eligible for Chemistry 201 – General Chemistry

7. COURSE OBJECTIVES:

Chemistry 100 serves as the time during the Chemistry 121 course for additional practice in the arithmetic skill necessary for the successful solution of the problems of the chemistry course. This will include whatever review is necessary in the areas of signed numbers, fractions, scientific notation, algebraic manipulations, percentage calculations, and graphing. As problems in stoichiometry and gas laws are encountered in Chemistry 121, these will also be practiced in Chemistry 100.

8. STUDENT LEARNING OUTCOMES

Upon completion of the course, the student will be able to:

1. Determine the number of significant figures in measured and calculated values and round accordingly.
2. Express numbers in scientific notation.
3. Convert between English and metric units and metric and metric units.
4. Calculate the molar mass of a compound or molecule.
5. Determine the empirical and molecular formula of compounds.
6. Use dimensional analysis to solve for mass, moles, or number of atoms/ions/compounds when one quantity is given.
7. Perform calculations involving gas laws.
8. Classify, complete, and balance chemical equations.
9. Use stoichiometry to solve for mass, moles, or volume when one quantity is given in a chemical equation.
10. Determine the limiting reactant in a chemical reaction.

9. TOPICAL COURSE OUTLINE:

1. Sign numbers, fractions, and percentage calculations
2. Scientific notation
3. Algebraic manipulations
4. Graphing
5. Problems in dimensional analysis
6. Stoichiometry problems
7. Calculations in gas laws

10. TEXTS AND MATERIALS USED: List of books and/or materials suggested for this course.

Burns, Fundamentals of Chemistry 4th Edition, Prentice-Hall Publishers, 2003.
Chapters 1 – 16

Calculator

11. AMOUNT OF WRITING REQUIRED:

Short answer essay questions on quizzes and exams.

12. METHODS OF EVALUATION: (Direct and indirect)

Same grade as Chemistry 121

13. AUTHORIZED SIGNATURE AND FILE DATE:

DEPARTMENT AND CAMPUS **Physical Science Department**
Harold Washington College

5/06