

**FAIRLEIGH DICKINSON UNIVERSITY**  
**SONS – CHEMISTRY (METROPOLITAN CAMPUS)**

**Course: CHEM 1203 GENERAL CHEMISTRY I LABORATORY**

**Number of Credits:** 1 credit

**Semester:** Fall 2008

**Prepared by:** Dr. Arthur Murphy

**Note:**

Since there are multiple sections of General Chemistry I Laboratory, this syllabus should be regarded as a generic syllabus. All laboratory sections perform the same experiments, but there may be Instructor specific differences with regard to certain policies such as grading procedures etc. During your first laboratory period, you will receive additional information regarding the exact policies being used.

**Course Description 2002-2004 Undergraduate Studies Bulletin:**

Practical applications of the fundamental laws, theories, and principles of chemistry through problem solving and laboratory experiments.

**Prerequisites:**

Elementary algebra

**Corequisites:**

CHEM 1201 General Chemistry I (Lecture)

**Required Textbook:**

General Chemistry Laboratory Manual by Dr. C. D. Devine

Third Edition - Summer 1998 (available at the University Bookstore)

Note: This same lab manual will also be used for General Chemistry II lab.

**Safety Procedures:**

During the first laboratory period, your instructor will explain the safety procedures and policies that are to be followed in this course. All students are expected to follow these procedures at all times. Appropriate laboratory attire is required. No student will be permitted into laboratories wearing shorts, halter-tops, open toed sandals, undershirts, tank tops or any other inappropriate attire. All students are to purchase a white laboratory coat which can be used for any Biology or Chemistry class which requires a lab for both non-majors or majors.

**Policies:**

During the first lab session, your instructor will explain the laboratory report format to be used, the policy regarding lab quizzes, and the general grading policy used for the course. Unless otherwise stated, laboratory reports are due one week after the completion of the experiment. Late lab reports will not be accepted. No make-ups of missed labs are allowed. Students are generally allowed only one legitimate excused absence from lab.

**Academic Integrity Policy:**

Each student must submit his or her own laboratory report. Copying of reports in full or in part is strictly forbidden and such cheating will be dealt with harshly. Also note that the sharing of computer files in full or in part is strictly forbidden too.

A copy of the current Fairleigh Dickinson University Academic Integrity Policy appears on the last page of this syllabus.

**Course objectives and outcomes:**

**Objective 1:** To promote proper laboratory practices and report preparation

*Outcome 1.1:* Know location of safety equipment, and be familiar with emergency procedures. Become aware of proper laboratory attire, and understand laboratory etiquette.

*Outcome 1.2:* Understand proper laboratory report format to be used, and grading criteria to be employed.

*Outcome 1.3:* Use Microcomputers to assist in report preparation.

*Outcome 1.4:* Learn about data limitations and experimental uncertainties.

**Objective 2:** Become proficient at handling chemicals and using laboratory equipment..

*Outcome 2.1:* Be trained in handling acids, bases, flammable and toxic substances.

*Outcome 2.2:* Be trained in proper use of balances, burets, eudiometers, Bunsen burners, pycnometers, various types of glassware, stands and clamps.

**Objective 3:** Reinforce material presented in the General Chemistry I lecture course.

*Outcome 3.1:* Perform experiments on temperature and density measurements.

*Outcome 3.2:* Perform experiments illustrating stoichiometry and chemical reactions.

*Outcome 3.3:* Perform experiments related to gas laws, thermochemical concepts, and molecular structure.

**General “Outcomes” Remarks:**

Students who successfully complete this course should have deepened their knowledge of the theoretical material discussed in General Chemistry I lecture. The topics discussed are all fundamental, and they should serve as a basis for future studies in biology, chemistry,

and other sciences. This course is a prerequisite for General Chemistry II laboratory

### Core Competencies

As part of FDU's "Writing Across the Curriculum" initiative, all students will be required to write formal laboratory reports. Standard English and standard grammar must be employed. Students should use computers (Word Processors, Spreadsheets, MathCad) as much as possible to prepare reports, graphs etc.

### Teaching Methodologies/Activities

Laboratory experimentation is, by its nature, a hands-on activity requiring a structured approach to the exploration and analysis of various scientific problems. Students should learn to appreciate how meaningful answers are obtained to these problems. Laboratory experimentation requires that the student pay attention to detail, have the ability to carryout multi-step procedures so as to acquire meaningful data, and also have the ability to analyzed the experimental results by a variety of means. These are all important attributes in many fields.

Your instructor may also opt to supplement some of the experiments listed above with (a) video tapes illustrating various chemistry principles, (b) computer exercises, or (c) demonstrations.

### Course Outline

<b>Tentative Laboratory Schedule M,T,W,Th, (Fall 2008)</b>		
Week #	Dates	
1	Aug. 27 - Aug 29, Sept. 2., Sept.8	Check-in. Lab Safety. Safety film. Lab Report Format. Experiment Zero (both parts)
2	Sept. 3 - Sept. 5 Sept.9., Sept.15	Exp. #2 Part A. Calibration of Beaker markings. Part B. Calibration of a Graduated Cylinder. Part C. Measurement of the Density of a Solid. Part D. Measurement of the density of a liquid. Propagation of uncertainties..
3	Sept. 10 - Sept. 12 Sept. 16. Sept. 22	Exp. #3 Stoichiometry I. Decomposition of a hydrate.
4	Sept. 17 – Sept 19 Sept. 23. Sept. 29	Exp. #4 Stoichiometry II. Mass Relationships (version B unless your instructor states otherwise).
5	Sept. 24 – Sept. 26 Sept. 30, Oct. 6	Exp. #5 Reactions I. Displacement Reactions
6	Oct. 1 - Oct 3 Oct. 7. Oct. 13	Exp. #6 Reactions II. Acid-Base Titrations
7	Oct. 8 - Oct. 10  Oct 14. Oct. 20	Exp. #1 Temperature Measurements Exp. #7 Gas Laws I: Simple Gas Laws
8	Oct. 15 – Oct 17 Oct. 21. Oct. 27	Exp. #8 Gas Laws II (part A unless your instructors states otherwise).
9	Oct. 22 - Oct. 24	Exp. #13 Determination of a Molar Mass of a

10	Oct. 28. Nov. 3 Oct 29 – Oct. 31 Nov. 4 Nov. 10	compound. Part A. The Dumas Method Exp. #9 Thermochemistry I: Specific Heat and Heat of Solution
11	Nov. 5 - Nov. 7 Nov. 11. Nov. 17	Exp. #10 Thermochemistry II: Heats of Reaction and Hess's Law
12	Nov. 12 – Nov. 14 Nov. 18. Nov. 24	Exp. #11 Determination of a Solubility Curve.
13	Nov. 19 – Nov. 21 Nov. 25, Dec. 1	Exp #12 Molecular Models
14	Dec. 2 - Dec 5 Dec. 8	Check-Out

The last day for withdrawing from the course with a grade of "W" is October 28<sup>th</sup>.

## Academic Integrity

### "What is the University's Academic Integrity Policy?"

Students enrolled at FDU are expected to maintain the highest standards of academic honesty. Students have the responsibility to each other to make known the existence of academic dishonesty to their instructor and then, if necessary, the department chair, school director or academic dean of their College.

Course instructors have the added responsibility to state in advance in their syllabi any special policies and procedures concerning examinations and other academic exercises specific to their course. Students should request this information if not distributed by the instructor.

Academic dishonesty includes, but is not limited to, the following:

**Cheating** - Giving or receiving unauthorized assistance in any academic exercise or examination. Using or attempting to use any unauthorized materials, information or study aids in an examination or academic exercise.

**Plagiarism** - Representing the ideas or language of others as one's own.

**Falsification** - Falsifying or inventing any information, data or citation in an academic exercise.

**Multiple submission** - Submitting substantial portions of an academic exercise more than once for credit without the prior authorization and approval of the current professor.

**Complicity** - Facilitating any of the above actions or performing work that another student then presents as his or her assignment.

**Interference** - Interfering with the ability of a student to perform his or her assignments.

If a student is accused of any of the above infractions, there are sanctions which will be instituted. The Undergraduate Studies Bulletin outlines the procedure followed and the sanctions administered.

The FDU web site includes an **Academic Regulations** page. It is highly recommended that all students familiarize themselves with the specific regulations.