CHEM 1203: LAB: General Chemistry I
School of Natural Sciences
Fairleigh Dickinson University, T-H Campus

COURSE SYLLABI

General Information:

Fall 2008
Day/Time: Thu / 12:50PM - 3:50PM
Room: DH 5520
Prerequisite: Successful completion of General Chemistry I & II and the corresponding labs
Co requisite: General Chemistry I (CHEM 1201)
Instructor: Dr. I Kumar, Office DH 4408
Phone: 201-692-2340; e-mail: ikumar@fdlu.edu
Text: 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

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 attired 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, pychnometers, 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

<table>
<thead>
<tr>
<th>Week #</th>
<th>Dates</th>
<th>Tentative Laboratory Schedule M,T,W,Th, (Spring 2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Feb 12th</td>
<td>Exp. #3 Stoichiometry I. Decomposition of a hydrate.</td>
</tr>
<tr>
<td>4</td>
<td>Feb 19th</td>
<td>Exp. #4 Stoichiometry II. Mass Relationships</td>
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</tbody>
</table>
(version B unless your instructor states otherwise).

5  Feb 26th  Exp. #5 Reactions I. Displacement Reactions

6  March 5th  Exp. #11 Determination of a Solubility Curve.
7  March 12th  Exp. #6 Reactions II. Acid-Base Titrations

8  March 26th  Exp. #7 Gas Laws I: Simple Gas Laws

9  April 2nd  Exam I and Combined Gas Laws
10  April 9th  Exp. #13 Determination of a Molar Mass of a compound. Part A. The Dumas Method
11  April 16th  Exp. #9 Thermochemistry I: Specific Heat and Heat of Solution
12  April 23rd  Exp. #10 Thermochemistry II: Heats of Reaction and Hess's Law

13  April 30th  Exp. #12 Lewis Diagrams and Molecular Models
14  May 7th  Check-Out and Exam II
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.

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**Grading Policy:**

| Lab reports and Lab attendance: | 80% |
| Lab quiz # 1                  | 10% |
| Lab quiz # 2                  | 10% |

The resulting number grades will be converted to letter grades using the following scale:

90 or more points.........................A
87-89 points…………………………...A-
83-86 points…………………………...B+
80-82 points…………………………...B
77-79 points…………………………...B-
73-76 points…………………………...C+
70-72 points…………………………...C
67-69 points…………………………...C-
60-66 points…………………………...D
Below 60 points

General Chemistry Laboratory Report Format

• Title of experiment
• Name and date
• Lab Partner(s) Name(s)
• Abstract
  Briefly summarize the experiment including brief introduction, the objective and methods used. It must be in your own words; do not plagiarize the lab manual. Include a chemical equation for any reactions if completed. Consider this an “executive summary”. Mention only the key points.
• Results and Discussion
  Present all data clearly in tabular form and include any graphs. Show all calculations. For long, repetitive calculations include at least one representative calculation. Results draw from these data should also be presented in tabular form.

• Procedure
  If you have not modified the procedure appearing in the General Chemistry Laboratory, then just give reference to the lab procedure appearing in the lab manual. If you have made any modifications to the lab procedure, these modifications should be discussed in details.
• Conclusions
  • Draw your own conclusions. Did you accomplish the objectives? Include a critical analysis of your results (What was supposed to happen. What happened? Was this expected? Why or why not? What went wrong?)

• Safety Notes:
  Discuss the safety procedures followed while performing the experiment
• Questions
  Include answers to the questions from your lab instructor or from lab manual.