2015

CHEM 103-01 Environment and Energy Lab

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Instructor: Mr. James M. Dorn (dornj@xavier.edu)
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    Office Hours: Tues and Thurs 9:00-9:30; 11:30–12:30 and by appointment

Course Learning Objectives: 1) To introduce the student to good laboratory techniques in the performance of chemical experiments. 2) To familiarize the student with safety procedures in the performance of chemical experiments. 3) To demonstrate the application of the scientific method by observation of physical and chemical phenomena, data recording, performing calculations, and drawing conclusions based on the laboratory experiment. 4) To increase the communication skills of the student by synthesizing written laboratory reports based on their observations, data collection and handling, and conclusions.

Class Time and Text: Tues 9:30-11:20 Logan 102. Experiments will be posted on Canvas. It is the student’s responsibility to download and bring copies to class.

Special Needs: It is the responsibility of the student to inform the instructor at the beginning of the semester of any individual conditions, medical or otherwise, that may require special attention. Appropriate consideration will be given to these situations.

Attire and Lab Safety: Laboratory safety is very important. Safety glasses/goggles, long pants and fully covered feet (shoes or sneakers only) are required. Please tie back long hair. No food, drink, or gum is permitted in lab. Lab aprons are available, as are gloves.

Course Requirements:

Attendance: Students are required to perform all scheduled experiments. No student is permitted to do any experiment in the lab without supervision by a faculty member. If a student is absent, the grade for that experiment will be zero except if permission has been granted to make-up the experiment. Such permission will only be granted with proof of illness or proof of some other conflicting event (note from an appropriate university counselor). Notice of an illness or conflict must be made in person, by phone, or by email before the missed laboratory session.

Lab Reports: Each student will write a formal lab report for each experiment performed. The completed report is due at the end of the lab session when the experiment is performed. Each lab report is worth 50 points. The report consists of:
   1) Cover Page Using a word processor give the title of the experiment, name of the student, course number and section, name of lab partner(s), and the date on which the experiment was performed.
   2) Pre Lab Work Also using a word processor, the pre-lab consists of a statement of the purpose of the experiment and a brief description of the procedure. This will be checked by the instructor at the beginning of the lab session when the experiment is performed. The pre-lab also includes completion of the pre-lab questions found on Canvas.
   3) Laboratory Data Sheet Data taken during lab should be recorded in ink. If a mistake is made, one line should be drawn through the error and the correct information written next to it.
4) **Discussion Section** which should include conclusions that can be drawn from the experiment, possible sources of error in the experiment, and other statements, if appropriate, as to why the experiment did not yield the expected results.

5) **Exercises** from the lab experiments if applicable.

**Tests:** There will be two tests in Chem 103 with each being worth 100 points.

**Grade Determination:** (Based on % of Total Possible Points)

- A = 93-100%
- A- = 90 - 92%
- B+ = 87-89%
- B = 83-86%
- B- = 80-82%
- C+ = 77-79%
- C = 73 -76%
- C- = 70-72%
- D+ = 67-69%
- D = 63-66%
- D- = 60-62%
- F = <60%

Note: According to the Xavier University Catalog, a grade of “A” is earned for “EXCEPTIONAL” performance. This is also the agreed grading policy of the faculty in the Chemistry Dept..” For more information, go to the website [http://www.xu.edu/chemistry_dept/grade_policy.htm](http://www.xu.edu/chemistry_dept/grade_policy.htm)

**Academic Honesty:** Cheating on a test will result in a grade of “F” being given for the course. Students may appeal according to normal procedures stated in the University Catalog.

**Tentative Schedule**

**EXPERIMENT**

01/13  Check-In, Lab Safety & Recognizing Chemical Hazards Assignment due 1/20/15
01/20  Units of Measurement, The Metric System
01/27  Measurement of Density
02/03  Chromatography
02/10  Physical and Chemical Properties and Changes
02/17  Chemical Reactions
02/24  **Lab Test I (first 5 experiments and Safety and Chemical Hazards)**
03/03  **Spring Break, No Class**
03/10  Factors Affecting the Rates of Chemical Reactions
03/17  Flame Tests and Light From Atoms
03/24  Atmospheric Gases
03/31  **Easter Break: No Class**
04/07  Investigations of Hydrates
04/14  Determination of the Hardness of Water
04/21  Half Life Simulation
04/28  **Check-Out, Lab Test II (last 6 experiments)**