OBJECTIVES

The objectives of the laboratory experience in the General Chemistry course are:

- To familiarize the student with basic laboratory apparatus and initiate the development of correct and safe laboratory techniques.
- To demonstrate the practical application of some of the chemical principles introduced in the lecture portion of the course.

To encourage the student to develop skill in observation, interpretation, application and presentation of scientific results.

GENERAL

Students will work in groups of three or four, assigned at the laboratory instructor’s discretion. There is no laboratory manual for this course. Materials outlining the exercise to be performed on a given day will be provided in the lab and typically will not involve prior preparation. In cases where such preparation is deemed appropriate, however, the student will find that doing so is a significant aid to learning, and data obtained or other observations made will be of higher quality which typically, in turn, results in a higher score.

Students who miss a laboratory will be expected to make up the work while another laboratory is in session. Make arrangements with your instructor to complete missed experiments as quickly as possible. If arrangement to make up work is not made within one week of the student’s return, a grade of zero will be awarded for that exercise. In the case of foreseeable absences such as athletic events, business or class related trips, etc., the student should arrange to make up the lab with another section doing the same experiment, possibly before the laboratory period in question is missed.

LABORATORY REPORTS

A laboratory report form will be provided for each exercise which is to be completed by the group’s recorder. All experimental observations are to be recorded in ink on this laboratory report form, or on a fresh sheet of paper, as the recorder prefers, in such a way that the result is legible. If a separate data sheet is used, it is to be submitted along with the properly completed report form provided. Extra report forms will be available if another is needed for some reason. The recorder is responsible for submitting this report for grading on behalf of the whole group.

Laboratory reports which have been completed properly and in which the group demonstrates a reasonable grasp of the content and significance of the experiment will be deemed satisfactory and receive the grade of S. Reports that are acceptable but contain deficiencies will receive the grade of S-. Those demonstrating superior effort and understanding will be awarded the grade of S+, and those which are particularly outstanding will receive the
grade O. The grade of U is assigned reports that are not acceptable. Such a report might be submitted by a group which has gone through the motions of performing an experiment, but fails to present a reasonable analysis of the data obtained or to demonstrate an understanding of its significance. No credit is awarded reports that are not submitted at all.

Under normal circumstances each student will receive the score awarded his or her group’s report. In cases where a student refuses to engage the exercise as a member of the group that student’s score may be modified at the discretion of the laboratory instructor. Note in particular that you can’t possibly contribute to the work of the group if you aren’t there when the work’s being done. Expect that arriving late for lab or leaving for any reason while the work is in progress will be rewarded appropriately.

Laboratory reports are to be turned in on the day the experiment is completed.

LABORATORY SCHEDULE

There are three laboratory sections this term and each will perform a given experiment contiguously with the others. The following schedule will be followed:

Tue. Jan 18 – Thur. Jan. 20   Limits of Detection
Tue. Jan. 25 – Thur Jan. 27   Anion Analysis
Tue. Feb. 1 – Thur. Feb. 3     LaChatlier’s Principle
Tue. Feb. 8 – Thur. Feb. 10    Blanket Cation Analysis
Tue. Feb. 15 – Thur. Feb. 17   Acid-base Equilibria and pH
Tue. Feb. 22 – Thur. Feb. 24   Group I Cation Analysis
Tue. Mar. 1 – Thur. Mar. 3     Begin Group II Cation Analysis
Spring Break
Tue. Mar. 15 – Thur. Mar. 17   Finish Group II
Tue. Mar. 29 – Thur. Mar. 31   Finish Group III
Tue. Apr. 5 – Thur. Apr. 7     Group IV Cation Analysis
Tue. Apr. 12 – Thur. Apr. 14   General Salt
Tue. Apr. 19 – Thur. Apr. 21   General Cation Mixture, check out
Tue. Apr. 26 – Thur. Apr. 28   Practical

All laboratory work to be considered in the computation of the laboratory grade, with the single exception of the Practical, is to be completed no later than Thursday, April 21, 2005.
LABORATORY SAFETY

Students are expected to conduct themselves in an intelligent and orderly manner at all times in the laboratory. Disregard for sensible safety measures will result in dismissal from the laboratory. In particular, the following points are to be observed:

- Students will perform only those experiments assigned or otherwise bearing the prior approval of the laboratory instructor.
- Safety goggles which protect the eyes from all directions are to be used at all times.
- Footwear must be affixed securely to the feet in such a way that the entire bottom of the foot is protected from the floor at all times. No bare or stocking feet or flip-flops.
- At no time shall any tightly corked or other sealed container be heated or placed near a flame.
- Eating, drinking and smoking are prohibited in the laboratory at all times. If necessary, these activities must be pursued outside the laboratory. No laboratory apparatus or glassware is ever to be used in connection therewith. At no time shall any food or drink be brought into the laboratory area.
- All pipetting is to be done with a mechanical suction device provided for that purpose. There is to be no pipetting by mouth.
- Each student is responsible for the cleanliness of his or her own area, including the adjacent sink. No solids are to be discarded into the sink. Use the trash can by the door. Glass or hard plastic refuse is to be deposited in the box provided for that purpose. Any hazardous materials, as identified in the lab handout or by the lab instructor, are to be disposed of in the special receptacles provided.
- If somebody near you is doing something dangerous or in a careless fashion, gently bring it to his or her attention. If the behavior persists, inform the instructor. This may make you unpopular but will reduce your chance of injury due to somebody else’s negligence.