

CHEMISTRY 114

LABORATORY SYLLABUS

SPRING 2009

David L. Langhus, Ph.D.	George Fairchild, Ph.D.
OFFICE: CHS 225	OFFICE: CHS 212
Phone: (610) 861-1434	Phone: (610) 861-1595
langhus@chem.moravian.edu	gfairchild@moravian.edu

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 class.
- 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.

ATTENDANCE

Each student is expected to take an active role in performing each of the lab exercises offered. In order to meet this requirement it is necessary that the student arrive for laboratory on time (12:45 PM) and remain engaged in the work until the group's recorder turns in the laboratory report or the scheduled lab period ends, whichever is earlier. If the student arrives late, leaves early, or appears disengaged from the effort of the group it is customary to reduce the student's score on that exercise relative to that received by the other members of the group. The amount of this reduction is at the discretion of the instructor and will depend upon the degree to which the student's absence or lack of engagement impacts the work of the group.

Students who miss a laboratory for any reason will be expected to make up the work while another laboratory section is in session within one week of the student's return to class. Make arrangements to complete missed experiments with the instructor of the lab in which you expect to do the work. If the work is not made up within one week of the student's return to class, a grade of zero will be awarded for that exercise. In the case of foreseeable absences such as athletic events, music performances, business or class related trips, etc., it's ordinarily to the student's benefit to arrange to make up the lab with another lab section doing the same experiment, possibly before the laboratory period in question is missed. In any case, all makeup

work must be completed and the student checked out on or before Friday, April 24, 2009 as after that date the lab will be prepared for the final lab experiment and no other work will be permitted.

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 group.

A basis of ten points will be awarded each report that is turned in. Up to ten additional points may be awarded based on the quality of the work done with reference to the scoring rubric for a given exercise. Consequently scores received on lab reports will typically range between 10 and 20. No credit is awarded reports that are not submitted at all.

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

LABORATORY SCHEDULE

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

Tues. Jan 27 – Fri. Jan. 30	Chemical Equilibrium
Tues. Feb. 3 – Fri. Feb. 6	Introduction to Spectrophotometry
Tues. Feb. 10 – Fri. Feb. 13	Kinetics
Tues. Feb. 17 – Fri. Feb. 20	Acid-base Equilibria and pH
Tues. Feb. 24 – Fri. Feb. 27	Anions
Mid term and Spring Break	
Tues. March 10 – Fri. March 13	Cations, Group I
Tues. March 17 – Fri. March 20	Cations, Group II Observations
Tues. March 24 – Fri. March 27	Cations, Group II Unknowns
Tues. March 31 – Fri. April 3	Cations, Group III
Tues. April 7 – Fri. April 10	No Lab
Tues. April 14 – Fri. April 17	General Cation
Tues. April 21 – Fri. April 24	General Salt, checkout
Tues. April 28 – Fri. May 1	Eight-bottle Problem

All laboratory work to be considered in the computation of the laboratory grade, with the single exception of the Eight-bottle Problem, is to be completed no later than Friday, April 24, 2009.

Students who wish to request accommodations in this class for a disability should contact Mr. Joe Kempfer, Assistant Director of Learning Services for Disability Support, 1307 Main Street (extension 1510). Accommodations cannot be provided until authorization is received from the office of Learning Services.

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.
- Each student must provide his or her own safety glasses which include side shields for protection from flying debris. Appropriate eyewear is available for sale in the College Bookstore, but you're welcome to obtain them elsewhere if you think you can find a better deal. Eye protection is to be worn over the eyes *at all times* when working in the laboratory.
- Shoes or other footwear that attaches securely to the feet is to be worn at all times in the laboratory. Bare feet, stocking feet, and flip-flops are inappropriate and an invitation to injury.
- Eating, drinking, smoking and applying cosmetics 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.
- 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 one of the trash cans. Broken glassware and other sharps are to be disposed of in the container indicated for such. Any hazardous materials, as identified in the lab handout or by the lab instructor, are to be disposed of in the special receptacles provided.
- To reduce clutter, all bookbags and other student possessions not needed to carry out the lab should be left in the back of the room.
- At no time shall any tightly corked or other sealed container be heated or placed near a source of heat.
- All pipetting is to be done with a mechanical suction device provided for that purpose. There is to be *no pipetting by mouth*.
- 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.