CHEMISTRY 113

LABORATORY SYLLABUS

FALL 2010

George Fairchild, Ph.D.
OFFICE: CHS 212
Phone: (610) 861-1595
gfairchild@moravian.edu

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

Albert H. Martin, Ph.D.
OFFICE: CHS 224
Phone: (610) 861-1433
martin@moravian.edu

O. Carl Salter, Ph.D.
OFFICE: CHS 228
Phone: (610) 861-7920
csalter@chem.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 motivate and/or 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 on the part of the student.

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 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 on or before the last day of lab on Friday, December 3, 2010.

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 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 group's recorder is responsible for submitting this report for grading on behalf of the group.

Assuming no deductions for tardiness or lack of engagement, 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 before the group leaves lab.

LABORATORY SCHEDULE

There are five laboratory sections this term (Tuesday, Wednesday, Thursday and Friday afternoons and Thursday night) and each will perform a given experiment contiguously with the others. The following schedule will be followed:

Tues. Sept. 7 – Fri. Sept. 10	ID based on Chemical Properties
Tues. Sept. 14 – Fri. Sept. 17	ID based on Physical Properties
Tues. Sept 21 – Fri. Sept. 24	Formula of a Chloride of Manganese
Tues. Sept. 28 – Fri. Oct. 1	The Activity Series
Tues. Oct.. 5 – Fri. Oct. 8	Experimental Uncertainty
Fall Break	
Wed. Oct. 13 – Tues. Oct. 19	ID of a Copper Compound, I
Wed. Oct. 20 – Tues. Oct. 26	ID of a Copper Compound, II
Wed. Oct. 27 – Tues. Nov. 2	The Acid-base Reaction
Wed. Nov. 3 – Tues. Nov. 9	Acid-base titration
Wed. Nov. 10 – Tues. Nov. 16	Redox Determination of Iron
Wed. Nov. 17 – Tues. Nov. 23	Molar Volume of Hydrogen
Tues. Nov. 30 – Fri. Dec 3	The Gas Constant, Check-out

All laboratory work to be considered in the computation of the laboratory grade is to be completed no later than Friday, December 3, 2010.

Students who wish to request accommodations in this class for a disability should contact the 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 attach securely to the feet and cover the toes are to be worn at all times in the laboratory. Bare feet, stocking feet, flip-flops, sandals and shoes that leave the toes exposed 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.