

CHE 155L General Chemistry II Laboratory

Section A — F 8:30 – 11:20 AM — Science Wing, Plant Hall 108

Section E — F 11:30 AM – 2:20 PM — Science Wing, Plant Hall 108

Section I — F 2:30 – 5:20 PM — Science Wing, Plant Hall 108

Instructor: Dr. Matthew Wilson

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Office Hours: Dr. Wilson will be available 1:30 – 3:00 PM Monday through Thursday, and at other times by appointment.

Course Description: Laboratory experiments supplement lecture material presented in CHE 154.

Prerequisites: CHE 152 and CHE 153L (both with a grade of “C” or better), and current enrollment in or successful completion of CHE 154 (with a grade of “C” or better).

Learning Objectives: In addition to reinforcing certain CHE 154 lecture concepts, students in CHE 155L will:

- Develop the ability to study and learn independently.
- Develop and demonstrate competence in the use of scientific instrumentation, data collection and interpretation, and experimental design.
- Learn and implement best practices with regard to chemical safety.
- Develop and practice critical thinking and problem solving skills.
- Understand how electrochemistry relates to redox reactions.
- Identify valid scientific information and view critically unscientific information.

Required Materials: General Chemistry II: Laboratory Manual, duplicate page laboratory notebook (you may continue use of your CHE 153L laboratory notebook), a scientific calculator (a phone or other electronic device may *not* be substituted for a calculator), safety glasses (must have clear lenses which meet the OSHA Z87 specification), lab coat, and proper attire (in accordance with UT Chemistry Department rules).

Attendance: Attendance and participation in every class is mandatory. There are no lab make-ups or accommodations to attend another laboratory session during the week. If you are to miss class on school business or due to illness, inform your instructor as soon as possible.

Communication: Class announcements, course materials, and grades will be posted on Blackboard. Students are responsible for monitoring their UT email account and the course Blackboard site (<http://ut.blackboard.com>).

Laboratory Preparation: Students are required to read and be familiar with the week’s experiment *before* laboratory begins, including completing any associated pre-lab assignment. This habit will help in understanding the pre-lab lecture and in carrying out each experiment both safely and efficiently.

Pre-lab Lecture: It is imperative students be punctual and attend the pre-lab lecture. The lecture introduces the experiment, addresses important information necessary to complete the lab report, and discusses specific items regarding safety and chemical disposal methods.

Safety: Safety rules will be strictly enforced. Students must be familiar with these procedures and abide by them at all times. Safety is taken very seriously both for your own protection and that of others in the laboratory. Safety glasses, lab coat, clothing and shoes must be consistent with the safety policy outlined in the laboratory manual in order for a student to be permitted in the laboratory. The use of cell phones, iPods, or similar devices in the laboratory is prohibited. They should be turned off, including any vibrate feature before laboratory begins.

Lab Notebook: Each student must keep his or her own lab notebook. It is designed to be a permanent record of your experiment and should be legible and organized. *All* recording in the lab notebook must be in blue or black ink, with mistakes denoted by a single line drawn through the error and correct information written above, below, or next to the mistake. The original error must be legible through the strike-out; *no* white-out is to be used in the lab notebook. The first two pages of the lab notebook should be left blank to create a Table of Contents, to be updated as new experiments are recorded. Each experiment should start on a new page, beginning with the title of the experiment and the date performed. During the experiment, the lab notebook will be used to record a description of the experimental procedure followed and all data collected; the data sheet from the lab manual may serve as a template for data collection. Some of the data will later be transferred to the lab report pages and/or used in calculations, but they must first be recorded in the lab notebook as the experiment is performed. Data are *not* to be written on separate sheets or scraps of paper and then transcribed into the notebook at a later time. The lab notebook should include at least the following:

- The title and date of the experiment, with your full name and those of your lab partner(s).
- A description of the experimental procedure followed.
- *All* raw data collected during the experiment.
- *All* calculations pertaining to the experiment, with work shown.
- Any observations you found relevant and errors you may have made.

Exams: There will be two written exams, each worth 200 points, given during the semester, a mid-term and a final (which covers the experiments of the second part of the semester). These exams are open book/open note and may include questions regarding observations, procedures, techniques, and calculations similar to those completed during the semester. Keeping an organized lab notebook with all observations, calculations, and other notes well-documented will improve the likelihood of scoring well on the exams. There are no make-ups for exams.

Grading: Each lab is worth 100 points, divided among the following three submissions:

- The pre-lab assignment, due at the beginning of class. [20 points]
- The yellow copies of the procedure, data, and observations from the lab notebook, to be turned in before leaving class. [30 points]
- Any report sheets, post-lab assignment, yellow copy of calculations and results from the lab notebook, and graphs, due at the beginning of the following class. [50 points]

Late submissions will lose 10% for each week late, rounded up; submissions greater than two weeks late will *not* be accepted and will receive zero points.

A total of 1300 points are possible in the course. Letter grades will be assigned as follows:

A	1300 – 1170 points	100.0 – 90.0%
AB	1169 – 1105 points	89.9 – 85.0%
B	1104 – 1040 points	84.9 – 80.0%
BC	1039 – 975 points	79.9 – 75.0%
C	974 – 910 points	74.9 – 70.0%
D	909 – 780 points	69.9 – 60.0%
F	779 – 0 points	59.9 – 0.0%

This course and CHE 154 have separate grades; a student must make a grade of “C” or better in *both* courses to be eligible to take any chemistry class that requires them as prerequisites.

Schedule: The following is a tentative schedule for the semester:

September 2	Introduction, Safety Rules
September 9	Molar Mass of a Volatile Liquid (Lab 10)
September 16	Molar Mass Determination by Colligative Properties (Lab 11)
September 23	Synthesis of Aspirin (Lab 13)
September 30	Kinetics of the Reaction of Phenolphthalein with NaOH (Lab 12)
October 7	Review
October 14	Mid-term Exam
October 21	Spectrophotometric Determination of an Equilibrium Constant (Lab 14)
October 28	Preparation of Nickel(II) Coordination Compounds (Lab 15)
November 4	pH Experiments (Lab 16)
November 11	Molar Solubility – Common Ion Effect (Lab 17)
November 18	Thermodynamics of the Dissolution of Borax (Lab 18)
November 25	<i>No Class</i>
December 2	Review
December 9	Final Exam

Americans with Disabilities Act (ADA) Statement: If you have special needs because of any disability, please go to the Academic Success Center in North Walker Hall for information regarding registering as a student with a disability. You may also call 813.257.5757 or email disability.services@ut.edu. Please feel free to discuss this issue with me, in private, if you need more information.

Academic Integrity Policy: This class will follow UT’s Academic Integrity Policy (<http://ut.smartcatalogiq.com/en/current/catalog/Academic-Policies-and-Procedures/Academic-Integrity-Policy>).

Academic Disruption Policy: This class will follow UT’s Academic Disruption Policy (<http://ut.smartcatalogiq.com/en/current/catalog/Academic-Policies-and-Procedures/Disruption-of-the-Academic-Process>).

Emergency Preparedness: In case of any adverse condition or situation which could interrupt the schedule of classes, each student is asked to access <http://www.ut.edu> for information about the status of the campus and class meetings. In addition, please refer to <http://ut.blackboard.com> for announcements and other important information. You are responsible for accessing this information as needed.

Additional Resource: The Academic Center for Excellence (ACE, <http://www.ut.edu/ace/>) in the Academic Success Center offers tutoring in several subjects, including chemistry. This is available at no charge above your tuition.

Syllabus Modifications: The professor reserves the right to make changes to this syllabus as necessary.