CHE 155L General Chemistry II Laboratory

Section B — T 8:00 – 10:50 AM — Science Wing, Plant Hall 107

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Office Hours: Dr. Wilson will be available 11:00 AM – 12:00 PM Monday through Friday, 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). Pre- or corequisite: 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:

- Gain knowledge essential to a broad understanding of chemistry, including:
  - Stoichiometry of chemical reactions
  - Chemical equilibria, including those involving acids and bases
  - Thermodynamics
  - Kinetics
  - Chemical reactivity and properties of organic and inorganic compounds
  - Precision, accuracy, and related statistics
- Develop and practice critical thinking and problem solving skills.
- 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.

Spartan Ready Competencies: The University of Tampa is committed to preparing students to become successful individuals with an advanced understanding of their field of study, the interdisciplinary workplace, how to be effective leaders and engaged citizens who contribute to society. Through co-curricular programs, students develop high demand competencies that are relevant for today's workforce. These make up the Pillars of Spartan Readiness which are supported by life skills education and training to be a professional. (http://www.ut.edu/spartanready/)

- *Critical thinking*: The ability to envision and employ analysis, interpretation and reason using information and data through cognitive processes. Examples include analytical thinking, problem solving, decision making, understanding qualitative data, understanding quantitative data, and reading comprehension.
- *Interpersonal Abilities*: The ability to develop personal insight in order to engage with others and create meaningful relationships, which will lead to effective collaboration. Examples include civility, building trust, overcoming personal conflict and differences, dealing with difficult people, building good work relationships, social skills etiquette, learning to compromise, and handling difficult conversations.
- *Organization*: The ability to effectively and efficiently manage and/or systematize resources, time and individuals to accomplish goals and tasks. Examples include time management, project management, prioritizing, strategic planning, attention to detail, multi-tasking, coordination, and dealing with the unexpected.

- *Teamwork*: The ability to successfully build, lead, manage, motivate and work with others. Examples include delegation, leadership, following, conflict resolution, accountability, and cooperation.

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: If you are to miss class on school business or due to illness, inform your instructor as soon as possible. Documentation is required for an excused absence from a lab. It may be possible to make up an excused absence with another lab section during the week, but this must be coordinated by the lab instructors; students may *not* take their request directly to the instructor of the section they wish to attend. Students are still responsible for understanding the concepts related to a lab from which they were absent.

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. 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.

Labs: Each lab is worth 100 points, divided among the following three parts:

- The pre-lab quiz. (10 points)
- The lab report, which is generally the *copy* of the lab notebook recording, although may also include printed graphs and/or completed worksheets. (90 points)

Exams: There will be three written exams, each worth 120 points, given during 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.

Grading: A total of 1260 points are possible in the course. Letter grades will be assigned as follows:

A	1260 – 1134 points	100.0 – 90.0%
AB	1133 – 1071 points	89.9 – 85.0%
B	1070 – 1008 points	84.9 – 80.0%
BC	1007 – 945 points	79.9 – 75.0%
C	944 – 882 points	74.9 – 70.0%
D	881 – 756 points	69.9 – 60.0%
F	755 – 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 either of them as prerequisites. Permission to retake the course during the fall or spring semester after having earned a letter grade in or having officially withdrawn from the course can only be granted by the department chair.

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

January 21	*No Class*
January 28	Introduction, Safety Rules
February 4	Preparation of Nickel(II) Coordination Compounds (Lab 11)
February 11	Synthesis of Aspirin (Lab 12)
February 18	Molar Mass Determination by Colligative Properties (Lab 13)
February 25	**Exam 1**
March 3	Kinetics of the Reaction of Phenolphthalein with NaOH (Lab 14)
March 10	*No Class*
March 17	Spectrophotometric Determination of an Equilibrium Constant (Lab 15)
March 24	pH Experiments (Lab 16)
March 31	**Exam 2**
April 7	Molar Solubility – Common Ion Effect (Lab 17)
April 14	Thermodynamics of the Dissolution of Borax (Lab 18)
April 21	Galvanic Cells (Lab 19)
April 28	**Exam 3**

Additional Resources: 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.

Disclosures: The University of Tampa syllabus disclosures may be found on this course's Blackboard site.