CHEM V01BL: General Chemistry I Lab (CRN: 39410)
Spring 2019

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Office: SCI-330, **Phone:** (805) 289.6242; **Grades**: on Canvas
Class Meetings: TR 2:30pm-5:20pm in SCI-218
Office Hours: MW 12:45pm-2:15pm, TR 8am-8:30am, 5:20-5:50pm, or by appointment
Please feel free to stop by my office at any time as I am more than happy to help whenever I can. Let me know if you wish to set up an appointment for additional help. I am also very available via e-mail and text, even during off hours, so please contact me whenever you have questions or concerns!

Free peer tutoring and computer access is available at the LRC and BEACH.

Course Description: The laboratory provides the student with experience in applying the principles developed in General Chemistry II lecture, including experiments in kinetics, equilibrium, electrochemistry, thermochemistry, qualitative analysis, and organic chemistry

Required Textbooks: Lab Manual for Chemistry 1B
(purchase at the bookstore or print from www.chemistrylabmanual.com)
Scientific calculator (by the second class meeting)
Safety goggles or glasses to be worn <u>every</u> meeting

Prerequisites: CHEMV01AL with a grade of C or better and CHEM V01B or concurrent enrollment
Who should take this course? The laboratory provides the student with experience in applying the principles developed in (CHEMV01B) General Chemistry II lecture. Quantitative experiments that illustrate the fundamental laws of chemistry are emphasized. It is meant to teach students common chemistry laboratory techniques and data analysis skills. You should anticipate attending <u>every</u> class meeting and spending <u>8-10 hours</u> outside of class to keep up with assignments and concepts.

By the end of this course, you should be able to…

1.) Understand laboratory procedures, safety, scientific method and lab notebook recording.
2.) Evaluate a chemical reaction system to determine how chemical equilibria will be altered by changes in temperature, concentration, or pressure by applying Le Chatelier's Principle.
3.) Experiment with rate dependence on temperature and calculate activation energy from experimental data analysis.
4.) Test common hydrocarbons and organic compounds to identify what functional groups are present.

See http://www.venturacollege.edu/faculty_staff/academic_resources/core_competencies/index.shtml

Course Objectives: After successful completion, the following can be demonstrated:

A. Apply the scientific method to chemistry problems, including developing, testing, and evaluating hypotheses.
B. Select, arrange, and assemble laboratory apparatus and safely perform common laboratory operations.
C. Design an experiment which can determine a reaction rate's dependence on temperature,

as well as the activation energy of the reaction.

D. Design an experiment to determine the order of reactions.
E. Synthesize the basics of nanotechnology and new materials.
F. Evaluate a chemical reaction system to determine how chemical equilibria will be altered by changes in temperature, concentration, or pressure by applying LeChatelier's principle.
G. Estimate equilibrium constants, concentrations, and solubility by experimental data analysis.
H. Analyze a solution to determine what common anions or cations are present.
I. Evaluate the thermodynamics of a chemical reaction to determine its energy change and spontanaiety.
J. Calculate voltages for various electrochemical cells using the Nernst equation.
K. Analyze the properties of organic compounds and identify what functional groups are present.
L. Produce a well-written chemistry laboratory report including an abstract, introduction, experimental procedure, data sheets, data analysis, error analysis, and conclusion.

Attendance Policy: Attendance at every class meeting is mandatory. The course material must be performed during class time on the scheduled date; therefore, **there are no make-up labs**. Tardy students who miss the experiment instruction will not be allowed to perform the experiment that week. Expect to attend every class meeting for the entire assigned time; all experiments are designed to go the full three hours.

Equipment Policy: You are responsible for returning the equipment in your locker at the end of the semester and anything else checked-out of the stockroom at the lab period in the same condition you received it. After the check-in period, any damaged or unreturned equipment will be charged to your student account. All students are accountable for keeping equipment in the lab and the lab space clean and in good working condition every lab.

A Note on Safety: Although all experiments have been tested and the laboratory equipped and managed for your safety, accidents can and do happen due to the danger inherent in experimentation. For your own safety, you should come to class prepared with pre-reading done in the appropriate attire and pay attention to all instructions, verbal and written, when in the laboratory. **Any accidents, no matter how small, must be reported to me immediately**.

Academic Integrity: Cheating or plagiarizing on any assignment, quiz, or exam is strictly prohibited and will result in an automatic zero. Though most experiments require sharing of equipment and data, simply copying another student's work is cheating and will be grounds for disciplinary action.

Grading Policy: Your grade in this course will be determined as follows:

A (100% - 90%), **B** (89% - 80%), **C** (79% - 70%), **D** (69% - 60%), **F** (59% -0%)

Pre-Lab Assignments (lowest dropped)	12%
Post-Lab Assignments (lowest dropped)	48%
Quizzes and Lab Final (lowest dropped)	40%

Late Work: All assignments must be turned in at the start of class on the due dates listed on the schedule. Anything turned in beyond that time will be considered late and subject to a 20%

penalty. Assignments except pre-labs will be accepted up to one week past the original due date; anything later will not be accepted. **There are no make-up labs**. If you miss an experiment, you may not make up the work and will receive an automatic zero for those assignments. This includes multiple day experiments.

Lab Notebook: You are responsible for the keeping of a carbonless copy lab notebook according to the provided guidelines. The copies will be turned in as your pre- and post-labs. The copies will remain in your notebook for your reference.

Pre-Lab Assignments: Found in your lab manual after the experiment text, pre-lab assignments must be completed before attending that lab meeting at the beginning of class. **No late pre-lab assignments will be accepted.** Answers to the included questions can be found in the preceding experiment text itself. **Your lowest pre-lab score will be dropped.**

Post-Lab Assignments: Found in your lab manual after the experiment text, post-lab assignments include data sheets which must be completed and signed off in class and post-lab assignments which are to be done after the experiment is completed. Often, they will include computer print-outs and additional pages for answers and calculations and your accuracy on any lab "unknowns" analyzed as well as general lab technique. They are due at the beginning of class when the next experiment begins. **Your lowest post-lab score will be dropped before final grades are determined.**

Quizzes: Quizzes will be given the first 10 minutes of class on the dates listed on the schedule. If you arrive late, you will not be allowed any extra time to complete the quiz. The questions will resemble those included on the previous experiment's post-lab assignment. You are required to have your own calculator for use on every quiz. **Your lowest quiz score will be dropped.**

Lab Final: Your lab final is cumulative. It will be a written examination consisting of questions seen previously on the in-class quizzes throughout the semester and will be worth two regular lab quizzes. It will be given on **Thursday, May 9th.**

Check-Out: If, for any reason, you drop the course before the end of the semester, you must contact me and arrange a check-out time. Otherwise, all students will check out of their drawers the last assigned class meeting. Students who do not check-out will be subject to a $15 fee to their student account.

Important Dates to Remember:

Jan. 18	Last day to drop with full refund
Jan. 25	Last day to drop without a "W"
Apr. 19	Last day to drop with a "W"
May 13-17	Final Exams