GENERAL CHEMISTRY II LABORATORY

Chem V01BL | CRN 59253 | Web-Enhanced

Instructor Information

Name: Howard Han

E-mail: hhan@vcccd.edu

Office Hours: MTWR 12:20 pm – 12:50 pm @ SCI-320
MTWR After 3:00 pm (appointment)

Contact Hours: Monday-Thursday, you can expect me to respond to email within 3 hours. Messages and submissions posted after 11 pm on Thursday may not reach the instructor until Monday of the following week.

Class Meetings

MTWR 8:30 am - 12:20 pm
@SCI-218

Course Units

2.0 Units

Prerequisites

CHEM V01AL with grade of C or better; and CHEM V01B with grade of C or better or concurrent enrollment

Class Information

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

Course Required Materials

- CHEMISTRY 1B LAB MANUAL. ($6 at VC bookstore or downloadable from Canvas page)
- Carbonless Copy Lab Notebook ($26 at the VC Store or digital template downloadable from Canvas)
- Small bottle of soap, a reusable towel, goggles (if you don't want to use the classroom set)
- Scanning device (a scanner or mobile device with camera and scanner app)
- Gloves – Pack of 10-20 Nitril.

On Campus resources:

Counseling	MESA	Library	Educational Assistant Center (EAC)	Extended Opportunity Programs and Services (EOPS)	Veteran's Affairs Office

Course Objectives

Upon successful completion of this course, the student will be able to demonstrate the following measurable skills and abilities:

A. Apply the scientific method to chemistry data and 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 Le Chatelier'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.
H. Evaluate the thermodynamics of a chemical reaction to determine its energy change and spontaneity.
I. Calculate voltages for various electrochemical cells using the Nernst equation.
J. 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.

Student Learning Outcomes

By the end of this class, you will be able to:

1. 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
2. Experiment with rate dependence on temperature and calculate activation energy from experimental data analysis.
3. Test common hydrocarbons and organic compounds to identify what functional groups are present.

Core Competencies for the class can be found at:
http://www.venturacollege.edu/sites/default/files/imported/assets/pdf/core_competencies/corecomps_chemistry.pdf

Course Format: Web-enhanced

1. **In-Person Classroom Experience:** Regular campus attendance is essential for hands-on experiments, discussions, and quizzes.
2. **Web-Enhanced Learning:** Use Canvas for digital materials, assignment submissions, and course updates.
3. **Communication and Support:** The instructor will communicate regularly via email and Canvas, providing instructions before the semester starts**.**

Classroom Policy

Attendance:

Due to the nature of a laboratory course requiring your presence and work to be done in class to collect data, run experiments, and analyze results, attendance at every class meeting is mandatory. Students who miss three or more class meetings will be dropped from the course. All experiments must be performed during class time on the scheduled date; there are no make-up labs for any reason. Lab lectures that go over the information in the experiment as well as safety considerations are given at the start of each class. Students that are tardy beyond 15 minutes late will be sent home and not be able to complete the lab. This includes missing one day of a multi-day experiment. These experiments are quite long, and science doesn't always go as planned, requiring extra repeated trials. Students who leave the lab early will not be able to make up any missed work. Always expect to attend every class meeting for the entire assigned time; all experiments are designed to go the full three hours.

Equipment Policy:

All students are accountable for keeping equipment in the lab and the lab space clean and in good working condition every lab as we share with the many other class sections that use the room. Any chemicals, equipment, or lab space not properly cleaned, returned, and/or handled with care will cause a deduction in your individual grade and that of the entire class. You are responsible for returning the equipment in your locker at the end of the semester and anything else checked-out from the classroom at the lab period in the same condition you received it. After the first meeting, any damaged or unreturned equipment will be charged to your student account. Please make sure you return all of your equipment that you used to your drawer at the end of every lab period. Any missing or returned dirty checked-out equipment will result in a deduction to your lab grade for that experiment.

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. That includes chemical spills, fires, electrical issues, fume inhalation, or anything else that looks suspicious, off, dangerous, or otherwise unexpected.

Academic Integrity:

Cheating on or plagiarizing any assignment or examination is a serious breach of the Student Code of Conduct, is strictly prohibited, and will result in a zero for that assignment and a report sent to the Behavioral Intervention Team and Student Services. Cheating includes, but is not limited to, talking and using notes, references, or prohibited electronic devices during exams or quizzes or any other advantage not available to all students in the class. Plagiarism is copying homework assignments from online resources, tutors, or other students. Cheating, however minor or major, is always unacceptable no matter the circumstances.

Locker Checkout

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.

Grading Policy

Throughout the semester, the grades for all assignments will be posted on Canvas so that the current progress can be tracked by students. The final letter grade will be assigned based on the final point total of each student. Final grades will be considered conclusive and will not be rounded.

Evaluation of Student Performance:

- **Lab Report** (50 pts each)
  - Pre-Lab Questions: 5 points
  - Notebook Setup: 15 points
    - Name: 2 points
    - Title of Experiment: 2 points
    - Names of Lab Partners: 2 points
    - Lab Purpose: 5 points
    - Procedure Summary: 4 points
  - Data Collection: 5 points
  - Sample Calculations: 5 points
  - Discussion/Conclusion: 10 points
  - Post-Lab Questions: 5 points
  - Participation: 5 pts
- **Other Assignments**
  - Lab Report Practice: 20 pts
  - Skill Builder Worksheet: 30 pts

Grade Scale:

- A: 90%-100%
- B: 80%-89%
- C: 70%-79%
- D: 60%-69%
- F: 59% or lower