

## **CHEM161L GENERAL CHEMISTRY LABORATORY I**

1 credit (CRN 60050)

Thursday 1:00 PM to 3:45 PM

`Imiloa 111 & 131

**INSTRUCTOR:** Martine Bissonnette  
**OFFICE:** `Imiloa 119  
**EMAIL:** martineb@hawaii.edu  
**OFFICE HOURS:** Tuesday/Thursday 9:30-10:00 am & Thursday 11:30 -1:00 pm  
Other times/days - by appointment  
**EFFECTIVE DATE:** Spring 2019

### **WINDWARD COMMUNITY COLLEGE MISSION STATEMENT**

*Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai'i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide O'ahu's Ko'olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.*

### **CATALOG DESCRIPTION**

Laboratory experiments illustrating fundamental principles of chemistry. (2 hrs 45 mins lab)

Pre-Requisite(s): Credit for or registration in CHEM 161.

### **STUDENT LEARNING OUTCOMES**

Upon completion of the course, the student will be able to:

1. Apply laboratory safety procedures and respond to hazards.
2. Use molecular and crystal models, perform common laboratory techniques competently and computer-based experiments to verify chemistry laws on stoichiometry, thermochemistry, behavior of gases and liquids.
3. Apply and articulate the scientific method by preparing lab reports using the standard scientific format. Express in writing core chemistry principles, results of experiments and do critical thinking by synthesizing conclusions based on observations and data.
4. Make and record precise measurements, calculate results using significant figures, standard deviations and identify sources of error in laboratory experiments.
5. Use computer competently, word-processing, spreadsheet and graphing.
6. Prepare chemical solutions, perform dilutions, calculate solution concentrations and generate a calibration curve.

## LEARNING RESOURCES

1. Internet access and Lualima website.
2. Chemistry 161L Electronic Manual (cost \$15), *mynotebook.labarchives.com*. Details on how to sign-up will be provided prior to the first lab.
3. CHEM 161 class notes
4. Scientific calculator, safety goggles, lab coat (or long sleeve shirt/pants), and closed-toed shoes.

## COURSE TASKS

Each session will consist of a pre-lab session and a laboratory experiment.

Pre-lab sessions will be held in `Imiloa 111. The underlying principles of the day's experiment will be described along with experimental procedures, use of special lab equipment when applicable, and safety procedures. Demonstrations will be given when needed. Your instructor will answer any questions and provide additional guidance as needed. You must have completed the pre-lab assignment and pre-lab activity BEFORE this session and must show your work at the beginning of class. If you not attend the pre-lab session, you will not be allowed to perform the experiment.

Laboratory experiments will be performed in `Imiloa 131. You will follow the instructions provided during the pre-lab session and set up the required equipment, carry out the procedure, record your observations and data, and perform the necessary calculations. The last 10 minutes of class will be allocated to cleaning your workspace and equipment and putting everything away in its place.

The laboratory worksheets or laboratory reports will be due at the **beginning** of the following pre-lab session. Memory has a way of fading and you should try to work on the report as soon as possible after completing the experiment, while all the information is fresh in your mind.

## ASSESSMENT TASKS AND GRADING

**Grading:** The Final Grade will be based upon a possible total of 600 points.

1. **10 Experiment Worksheets (20 points each) – 200 points**
2. **3 Formal Lab Reports (50 points each) – 150 points**
3. **12 Pre-lab Assignments (5 points each) – 60 points**
4. **Special Activities (30 points) – 30 points**
5. **2 Exams (80 points each) – 160 points**

**Students can check their grades and examination scores on Lualima gradebook at anytime.** The gradebook is usually updated on Sundays. The following scale will be used to determine final grades:

A: 90 - 100 %; B: 80 – 89 %; C: 70 - 79 %; D: 60 - 69 %; F: below 60 %

Grades of I, W, CR, CN are described in the current college catalog. The last day for withdrawals (W, CR, CN) is **March 25, 2019**, after that date, the instructor will sign withdrawals only in cases of extreme or unusual circumstances, such as 1) a certified medical reason, or 2) a death in the immediate family. Grade-related excuses are unacceptable. **Students who no longer attend class and who DO NOT OFFICIALLY WITHDRAW from the course will receive "F" grades.**

Students must present the "Request for Incomplete" form to their instructor prior to the last day of instruction. "I" grades will be given only to students who are achieving passing grades and are very close to completing the course. Only serious reasons will be accepted (listed under the withdrawal policy).

## Additional Information

### Recipe for success:

- Prepare before each class – read the experiment, complete the pre-lab assignment.
- Check Laulima homepage between Sunday evening and Thursday morning for any update/important information.
- Read your emails, email will be the main communication tool outside of class
- Show up on time! Important background and safety information will be shared at the beginning of class and you may be denied participation to the lab experiment or lose 10% of the report grade.
- Bring your lab manual and scientific calculator to every class.
- Follow all safety rules!

### Schedule:

Week	Day	Date	Chapter/Event	Topic/Event
1	Thursday	10-Jan	Lab I	Laboratory Safety and Procedures
2	Thursday	17-Jan	Lab II	Scientific Measurements and Density
3	Thursday	24-Jan	Lab III	Separation of Mixtures
4	Thursday	31-Jan	Lab IV	<b>Conductivity of Solutions</b>
5	Thursday	7-Feb	Lab V	Determination of Chemical Formula
6	Thursday	14-Feb	Lab VI	Types of Chemical Reactions
7	Thursday	21-Feb	Lab VII	Beer's Law Investigation
8	Thursday	28-Feb	Mid-Term Exam	Good luck!
9	Thursday	7-Mar	Lab IX	Stoichiometry Experiment
10	Thursday	14-Mar	Lab VIII	<b>Titration of Acetic Acid Content in Vinegar</b>
11	Thursday	21-Mar	Spring Break	NO LAB
12	Monday	25-Mar	No lab	Last day to withdraw with a W grade
12	Thursday	28-Mar	Lab XIII	Pressure-Volume and Pressure-Temperature
13	Thursday	4-Apr	Lab X	<b>Calorimetry and Hess Law</b>
14	Thursday	11-Apr	Lab XI	Periodic Trends
15	Thursday	18-Apr	Lab XII	Lewis Formula and Molecular Shapes
16	Thursday	25-Apr	Final Exam	Good luck!

\* Experiments in bold require a formal lab report

### Class policies:

#### a. Pre-lab Assignments

Each experiment will have an associated pre-lab assignment available via your electronic lab manual. Allow about two hours to complete the pre-lab. This pre-lab **MUST** be completed before coming to the pre-lab session.

#### b. Experiment Worksheets

In your manual, every experiment includes worksheets that contain data tables which will be used to record data and observations during the experiment, and post-lab questions that must be answered (show your work and all calculations). The worksheets must be completed by the beginning of the following session. You may submit the worksheet up to one week after the due date but there will be a **30%**

penalty. A two week delay will incur a **50%** penalty. Longer delays will result in a grade of **0%** unless pre-approved by the instructor (on a case by case basis).

### c. Formal Lab Reports

Three of the experiments (highlighted in bold in the above schedule) will require formal reports. The report must include the worksheets showing your raw lab results. We will discuss the format and content during the pre-lab session of each experiment and you will be provided with a sample of a formal report. Tips on writing formal lab reports are given as an appendix in the lab manual.

Just like the worksheets, formal lab reports must be turned in at the beginning of the following lab session. The same penalties as listed in section b. above will be applied for late submittals.

### d. Special Activities

There will be special activities during the semester. These will include pop quizzes or attending presentations. Specifics will be discussed at a later date. When attending a presentation, a worksheet or report may be required to earn credit.

### e. Exams

There will be two exams, each covering about half of the course. Each exam will last 120 minutes and will be open book. There will be not be a cumulative final exam.

### f. Lab Safety

We will be working with potentially hazardous chemicals. You must wear your safety goggles/glasses **at all times** when in the laboratory – not just when performing experiments. Glasses must be worn to cover your eyes – not on your forehead/head. IF I have to remind you more once, you may be asked to leave the laboratory and will earn a zero for that experiment. You must wear closed-toed shoes to protect your feet from chemicals or objects that may fall to the ground. No sandals, slippers or any footwear that does not completely cover the foot will be allowed in the lab. No shoes – no lab experiment → grade = 0. A lab coat is recommended but long pants and long-sleeved tops should be worn, preferably made of natural materials as synthetic materials can easily catch on fire and stick to your skin. If you are wearing a short-sleeve top, shorts, or any garment that exposes legs/arms, you must wear a long lab coat over your clothes. The lab coats should be long enough to provide protection from chemicals.

No food, no drinks (including water bottles) allowed at any time during the lab. It is easy to contaminate your food and drinks, and minute amounts can be very harmful when ingested. You must wash your hands thoroughly with soap and water after completing an experiment (even if you wore gloves) and before consuming any food/drinks.

Treat chemicals with respect, keep your work area clean and wipe up any spills. Return reagents to their proper place, replace lids on bottles, and dispose of all chemicals according to the directions provided in the experimental procedure. You are responsible for your safety and the safety of others and should report ALL unsafe situations or incidents to the instructor.

### g. Laboratory Procedures

There will be **no make-ups allowed** if you miss a lab session, you will receive a score of zero.

You will be working in pairs to perform the experiments and are expected to work in a cooperative manner. You must be focused and try to absorb as much information and knowledge as possible. These experiments are designed to reinforce the classroom material and you can only gain by being engaged in this process.

When recording data, write down the precision/units of the instrument used (for example, if the balance weights to four decimal places, you would record a reading at 10.4567 grams). If recording data on paper, never erase the original data, if you make a mistake, neatly draw a line across it and write the correct data below/above/next to it.

Before dismantling your experiment setup, you should do a quick calculation to see if the data makes

sense. Consult with your instructor to discuss possible causes of error and repeat the experiment if necessary. Do NOT make up data to try to match expected results, this is unethical and dishonest and will be obvious to your instructor. Instead, try to provide an explanation as to why the results were not as expected.

You must show your results to your instructor before leaving the laboratory, your instructor will verify if your results make sense and will dismiss you. **If you leave before checking with the instructor, a penalty will be applied to your worksheet/report.**

Allow about 10 minutes at the end of the session to clean up and put away all the equipment and glassware. Points will be deducted for inadequate clean-up or for not following waste disposal techniques and procedures.

#### **h. Laboratory behavior**

A high level of maturity and professionalism is expected in the lab. Distractions which will not be tolerated include: talking loud, audible cell phones, texting, social media use, making offensive remarks, eating in class, sleeping in class (!), packing and leaving class early (unless you have notified the teacher), and arriving late. You will be given ONE warning – if the behavior continues you will be asked to leave the class and marked absent.

#### **i. Special learning needs**

If you have special learning needs, inform your instructor at the beginning of the semester.

#### **j. Schedule**

Please note that the experiments will be conducted according to the numerical order listed in the lab manual and the schedule is subject to change. Any changes to the course schedule will be announced in class and on the home page of the Laulima site. You are responsible for verifying which experiment is conducted each week and for checking Laulima each Monday.

#### **k. Academic Honesty**

Although you will be working with a lab partner to perform the experiment and perform calculations, you must complete your own worksheets/lab report. You must submit your own work at all times. Cheating on an assignment, or exam will earn you an F and the Department Head and Office of the Dean will be notified.

*The rules are:*

- Produce and submit your own work. Although your data will be the same as your partner's, I expect the discussion to be your own. If I identify two reports as being the same source, both parties will receive a grade of zero.
- Absolutely no talking once the exams begin. If you have a question, raise your hand and I will come to you.
- Keep your eyes on your own paper. If I see you looking at other people's paper, I will assume you are cheating and will ask you to leave the class and you will receive an F.
- Only approved notes, pen, pencil, eraser and scientific calculator are allowed. Absolutely no smart phones. I will provide required formulas, constants, and a periodic table. I will tell you what will be provided before each exam.
- No listening to an audio device allowed.

### **Academic Integrity**

In cases of suspected or admitted academic dishonesty, the instructor involved shall attempt to discuss the matter with the student. The instructor may bring the matter to the attention of the departmental chairperson for consultation. The instructor may require the student to redo the assignment, give a failing

or reduced grade for the course, and/or refer the student to the Vice Chancellor for Student Affairs or designee through the Department Chair for possible college action under the Student Conduct Code. The Vice Chancellor for Student Affairs or designee shall pursue such cases to determine appropriate disciplinary actions if, after a preliminary investigation, it is his/her determination that probable cause exists to establish that an act of academic dishonesty took place.

### **UH Policy on email communication**

The electronic communications policy adopted in December 2005 establishes the University of Hawai'i Internet service as an official medium for communication among students, faculty, and staff. Every member of the system has a hawaii.edu address, and the associated username and password provide access to essential Web announcements and email. You are hereby informed of the need to regularly log in to UH email and Web services for announcements and personal mail. Failing to do so will mean missing critical information from academic and program advisors, instructors, registration and business office staff, classmates, student organizations, and others.

### **DISABILITIES ACCOMMODATION STATEMENT**

If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, [lemke@hawaii.edu](mailto:lemke@hawaii.edu), or you may stop by Hale 'Akoakoa 213 for more information.

### **TITLE IX**

Title IX prohibits discrimination on the basis of sex in education programs and activities that receive federal financial assistance. Specifically, Title IX prohibits sex discrimination; sexual harassment and gender-based harassment, including harassment based on actual or perceived sex, gender, sexual orientation, gender identity, or gender expression; sexual assault; sexual exploitation; domestic violence; dating violence; and stalking. For more information regarding your rights under Title IX, please visit: [https://windward.hawaii.edu/Title\\_IX/](https://windward.hawaii.edu/Title_IX/).

Windward Community College is committed to the pursuit of equal education. If you or someone you know has experienced sex discrimination or gender-based violence, WCC has resources to support you. To speak with someone confidentially, contact the Mental Health & Wellness Office at 808-235- 7393 or Kaahu Alo, Designated Confidential Advocate for Students, at 808-235-7354 or [kaahualo@hawaii.edu](mailto:kaahualo@hawaii.edu). To make a formal report, contact the Title IX Coordinator, Karla K. Silva-Park, at 808-235-7468 or [karlas@hawaii.edu](mailto:karlas@hawaii.edu).

### **ALTERNATE CONTACT INFORMATION**

If you are unable to contact the instructor, have questions that your instructor cannot answer, or for any other issues, please contact the Academic Affairs Office:

Location: Alakai 121  
Phone: 808-235-7422  
Email: [wccaa@hawaii.edu](mailto:wccaa@hawaii.edu)