

## CHEM162 GENERAL CHEMISTRY II

3 credits (CRN 63360)

Asynchronous

**INSTRUCTOR:** Marc R. Bresler  
**OFFICE:** via zoom @ <https://hawaii.zoom.us/j/5803716362>  
**EMAIL:** [mbresler@hawaii.edu](mailto:mbresler@hawaii.edu)  
**OFFICE HOURS:** Tues. 1:30-3:30 and Thurs. 3:00-6:00  
(or by appointment)  
**EFFECTIVE DATE:** Fall 2023

### 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

Second course of a two-course sequence designed to meet the one-year General Chemistry requirement for pre-med, science and engineering majors.

Topics include thermochemistry, kinetics, acid-base equilibrium, solubility equilibrium and electrochemistry. Emphasis will be placed on problem-solving. Concurrent registration in CHEM 162L may be required.

Prerequisites: A grade of "C" or better in CHEM 161, credit or concurrent registration in MATH 135, or instructor's consent. Co-requisite: Concurrent registration in CHEM 162L.

### STUDENT LEARNING OUTCOMES

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

1. Predict properties (boiling point, melting point, osmotic pressure, vapor pressure) of solutions based on concentrations.
2. Determine reaction rate law and calculate rate constants and half-life based on experimental data.
3. Calculate the equilibrium concentration of chemicals in solution involved in precipitation, acid-base and redox reactions.
4. Predict spontaneous reactions based on enthalpy and entropy considerations.
5. Determine the electrochemical potential of redox reactions.

## COURSE TASKS

Everyone's background is different and some of you might have taken more chemistry classes but study time daily in addition to lectures. Some of the more challenging chapters may require more time (such as kinetics and equilibrium). This includes reading the textbook, reviewing notes, and working on assignments. Here is the recipe for success:

- Check in daily (M-F) for announcements and updates on E-mail and Lualaba announcements.
- Log into aktiv chemistry every day. (M-F)
- Read/skim the material chapters to help familiarize yourself with the topics before watching videos.
- Take notes and work through problems as they are presented in online content.
- Communicate and interact on flipgrid and/or discussion boards.
- Review material, ask questions to your teacher, work with classmates (study groups are recommended). If you have a question it is likely a classmate has the same question so please do not hesitate to ask questions in class and via E-mail as they come up during homework, reading and studying.
- Submit work on time and with written work.\*
- Do additional problems to prepare for exams (sourced from: libretext, chem101, sciencegeek.net, websites, instructor).
- DO NOT PROCRASTINATE and cram the night before the exam – the outcome is rarely good!
- **\*Quiz and Exams must have “written” work submitted via dropbox for credit otherwise a score of zero will be posted. You may use a cell phone camera, scan your work or use a tablet for electronic work. Please make sure questions are clearly labeled, units are included and it is legible. Work should show entire process and how you arrived at your answer not just the final step of the process. It is important to see how you think and arrive at your answers.**

## ASSESSMENT TASKS AND GRADING

**Grading:** The Final Grade will be based upon 900 points. Final will replace lowest exam in event the score is greater.

1. Quizzes (200 points)
2. Homework and Aktiv Chemistry (100 points)
3. Participation incl. Flipgrid intro, slide brainstorm etc. (100 pts)
4. Mid-Term Exam #1 (100 points)
5. Mid-Term Exam #2 (100 points)
6. Mid-Term Exam #3 (100 points)
7. Presentation on topic of choice (100 points)
8. Final Exam (either 100 or 200 points depending on score in other categories)

*Extra credit: you may earn up to 50 extra points doing extra credit work which will be made available throughout the semester.*

**The final exam will be cumulative.**

**Students can check their grades and examination scores on Lualaba 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 **October 31, 2023**, 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 such as those listed under the withdraw policy, will be accepted.

## LEARNING RESOURCES

1. Required: Internet access (with adequate software including Adobe Reader), and Laulima.
2. Required: Camera and microphone for presentation production and office hours.
3. Required: Access to AktivChemistry, <https://aktiv.com/chemistry/> - **use the same account as last semester (if applicable). Cost about 27\$.**

If you are starting the course without a previous Aktiv chemistry account register with the code:  
MYYJVT

4. Required: Textbook - download free pdf from: <https://openstax.org/details/books/chemistry>  
**Cost \$0**
5. Required: Zoom access for office hours: <https://hawaii.zoom.us/j/5803716362>
6. Required: Scientific Calculator. Programmable calculators and cell phone calculators will NOT be allowed during exams!! Recommended: Texas Instruments TI-30XIIS Scientific Calculator
7. Required: PowerPoint Slides and worksheets. (Will be posted on Laulima under **Resources**).
8. Highly Recommended: Tutoring at Trio and/or via tutor.com.

**Schedule:**

Week	Date	Chapter / Event	Topic/Event	Important Dates
1	21-Aug	10.1&10.2	Intermolecular forces. Liquids and Solids Surface Tension	Quiz1 (Background Survey) <b>Flipgrid Introduction</b>
2	28-Aug	10.3	Liquids and Solids Phase change and vapor pressure.	<b>(last day late registration)</b>
	30-Aug	10.3, 10.4/11	Clausius-Clap. eq. Phase Change Diagrams	Quiz 2
3	4 - Sept	10.5/10.6	Solid State Chemistry (xtal structures)	
	6-Sept	11	Solutions Colloids Molality&Conc.Units Solutions	<b>(part. Verif./ withdraw without W)</b>
4	11- Sept	12	Kinetics	<b>Flipgrid Topic Brainstorm</b>
	13- Sept	12	Kinetics (**Last day to withdraw without W)	Quiz 3 Aktiv
5	18- Sept	12	Kinetics	
	20- Sept	12	Kinetics	
6	25- Sept	Review	Review	
	27 - Sept	Exam 1	Exam 1 Goodluck!	
7	2-Oct	13	Fundamental Equilibrium Concepts	<b>Flipgrid Slides Review</b>
	4- Oct	13	Fundamental Equilibrium Concepts	
8	9- Oct	13	Fundamental Equilibrium Concepts	Quiz 4
	11- Oct	14	Acid-Base Equilibria	
9	16- Oct	14	Acid-Base Equilibria	Quiz 5
	18- Oct	14/15	Precipitation/Other Reactions	
10	23-Oct	Exam 2	Good luck!	<b>Formal Presentation Post</b>
	25-Oct	15	Equilibria of Other Reaction Classes	Quiz 6
11	30-Oct	15/16	Thermodynamics	<b>Last day Cr/NC or withdraw W (Oct 31)</b>
	1- Nov	16	Thermodynamics	Quiz 7
12	6- Nov	16	Thermodynamics	
	8- Nov	Review	Review	
13	13- Nov	Exam 3	<b>Good luck!</b>	Exam 3
	15- Nov	17	Electrochemistry	
14	20- Nov	17	Electrochemistry	Quiz 8
	22- Nov	Thanksgiving Week	Enjoy Break	Enjoy Tryptophan!
15	27- Nov	17	Electrochemistry	
	29- Nov	21	Nuclear chemistry	Quiz 9
16	4 – Dec		Nuclear chemistry	
	6 - Dec		Final Exam	Exam 4 (Opens 8:00A.M.)

**Class policies:****a. Math skills and basic concepts**

This course relies heavily on math including algebra, logarithms, graphing. If you feel you need to review these concepts, let me know immediately and I will suggest tools to help you. It is assumed that you have mastered the concepts of significant figures, unit conversions, calculating molar mass, balancing equations, etc... It is up to you to review these concepts as they will be reviewed only briefly in class and will be the basis for more advanced problem solving. I am happy to create more videos to support you if you need more content and time to review so please let me know right away.

**b. Aktiv Chemistry & Homework**

The assignments will be available on the aktiv chemistry website. The deadline is set on the projected date, 10% per day will be deducted for late submissions, capped to 30% - better late than never.

**c. Quizzes**

Quizzes will be given throughout the term. Please pay attention to the announcements and regularly check Laulima for Quiz open and close dates. Quizzes without work will not receive credit. Work posted after the quiz solutions will not receive credit so it is important you post your work when you complete your quiz on Laulima. Please clearly label quizzes with quiz number and your name.

**d. Mid-term Exams**

All exams are closed-book exams and will consist of a combination of quantitative calculations, multiple choice, matching and short-answer questions. You are allowed to prepare a one sheet of notes for each exam (front and back). Make sure to save each study sheet and when the final arrives you will have a nice set of notes for the cumulative content. Each mid-term exam will be opened on aktiv chemistry (In Fridays) and typically will be available for the weekend. No make up exams will be given.

Comprehensive and complete written work must be posted in dropbox for credit on exams and quizzes.

**e. Final Exam**

The exam will consist of multiple choice questions and quantitative answers and cover all topics presented in the course (i.e. cumulative). The final exam will be opened Dec 8<sup>th</sup> and must be completed by Dec 11<sup>th</sup>. Late exams and exams without work posted in Laulima will result in a zero.

Written work must be posted after you complete your final for credit on your final exam. **Please post in your dropbox clearly labeled with the content and your name.**

**f. Extra credit**

Additional activities such as recording presentations on flipgrid will earn extra credit (up to 10 points). Opportunities will be announced in class and on the Laulima Class Homepage.

**g. Special learning needs**

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

**h. Schedule**

The schedule is subject to change. Any changes to the course schedule will be announced in class and online. An announcement will be posted on Laulima and forwarded via email every weekend. You are responsible for checking your email regularly. As this is an online asynchronous course please make sure to log into the Laulima daily.

**i. Academic Honesty**

Working with others to study is encouraged but each student is responsible for presenting his/her own work at all times. Cheating on any assignment, quiz, or exam will earn you an F and the Department Head and Office of the Dean will be notified.

*The rules are:*

- Notes are allowed for exams, however, it is expected that work is done independently and no external online sources are used. – only pen, pencil, eraser and scientific calculator are allowed. I will provide required constants, and a periodic table.
- Make up exams will not be given, however, your lowest exam will be replaced with your final exam score if applicable. Once the exam commences please upload your written work promptly to your resources tab. Be sure to label your work clearly with the exam or quiz name and your name.

## **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, Windward CC has resources to support you. To speak with someone confidentially, contact Karla Silva-Park, Mental Health Counselor, at 808-235- 7468 or [karlas@hawaii.edu](mailto:karlas@hawaii.edu) 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 at 808-235-7393 or [wcctix@hawaii.edu](mailto:wcctix@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)