CHEM162 GENERAL CHEMISTRY II

3 credits (CRN 63360)
Online Asynchronous

INSTRUCTOR: **Marc Bresler**
OFFICE: **Via Zoom (see below)**
EMAIL: **mbresler@hawaii.edu**
OFFICE HOURS: **By appointment**
EFFECTIVE DATE: **Fall 2022**

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 is suggested.

Prerequisites: A grade of "C" or better in CHEM 161, credit or concurrent registration in MATH 135, or instructor's consent. Co-requisite as required by discipline/degree: 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 reaction.

COURSE TASKS

We will be covering 9 chapters over the semester which means we will be going at a brisk pace. Everyone's background is different and some of you might have taken more chemistry classes but allow for at least **5-15 hours of work per week** in addition to lectures. Maybe more time for some of the more challenging chapters. 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 Laulima announcements.
- Participate in course activities. (i.e. flipgrid, chem 101 assignments, observing suggested videos and recorded lectures, Laulima discussion boards and weekly checkin tasks)
- Take notes and work through problems as they are presented in class and through suggested course text example problems.
- Review material, ask questions to your teacher, work with classmates (on discord or Laulima discussion boards)
- Zoom office hours link: https://hawaii.zoom.us/j/5803716362
- Submit all the work on time. At least attempt the work and submit incomplete if you are "stuck". If you a struggling with problems let me know right away via E-mail and I will post more tutorials or meet for additional help. Chemistry is a challenging subject and it is normal to need outside help.
- Do additional problems to prepare for exams (sourced from: clutch prep, kahn academy, libretext, chem101, sciencegeek.net, websites, instructor and more as announced via Laulima and/or E-mails).
- Do your best to keep up with material and contact me via E-mail as soon as you find yourself struggling. Avoid cram sessions and study in smaller bite size segments.
- ***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.**

ASSESSMENT TASKS AND GRADING

Grading: The Final Grade will be based upon 800 points (the lowest score out of 100 will be dropped).

1. **"Registration" Tasks and participation (100 points)**
2. **Worksheets and quizzes (100 points)**
3. **Homework and Chem101 (100 points)**
4. **Special topic inquiry share-outs with one page summary (2x 50 =100 points)**
5. **Mid-Term Exam #1 (100 points)**
6. **Mid-Term Exam #2 (100 points)**
7. **Mid-Term Exam #3 (100 points)**
8. **Final Exam (either 100 or 200 points depending on score in other categories)**

Extra credit: you may earn up to 25 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 Laulima 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, 2022** , 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, Microsoft office suite, or), and Laulima.
2. Required: Access to CHEM101, https://app.101edu.co/ - **use account from Chem161 if applicable.**
3. Required: Textbook - download free pdf from: https://openstax.org/details/books/chemistry **Cost $0**
4. Required: Scientific Calculator. (Recommend TI -30XIIS from CVS or Walmart for about 12$) (May also use desmos online)
5. Required: PowerPoint Slides and worksheets. (Will be posted on Laulima under **Resources**).
6. Highly Recommended: Tutoring at Trio (Pending COVID-19)
7. Highly Recommended: Study Hall (Pending COVID-19) and discussion boards on Laulima.

Additional Information

Schedule:

Day	Date	Chapter/ Event	Topic/Event
Monday	22-Aug	10	Liquids and Solids
Wednesday	24-Aug	10	Liquids and Solids
Friday	26-Aug	10 Quiz1	Liquids and Solids
Monday	29-Aug	10	Liquids and Solids
Wednesday	31-Aug	10/11	Liquids/Solids and Colloids
Friday	2-Sept	11 Quiz2	Solutions and Colloids
Monday	5-Sept	No Class	Labor Day
Wednesday	7-Sept	11	Solutions and Colloids
Friday	9-Sept	11 Quiz3	Solutions and Colloids
Monday	12-Sept	11	Solutions and Colloids
Wednesday	14-Sept	12	Kinetics
Friday	16-Sept	12 Quiz4	Kinetics
Monday	19-Sept	12	Kinetics
Wednesday	21-Sept	12	Kinetics
Friday	23-Sept	12 Quiz5	Kinetics
Monday	26-Sept	12	Kinetics
Wednesday	**28-Sept**	*Review*	Lecture
Friday	**30-Sept**	**Exam 1**	**Good luck!**
Monday	3-Oct	13	Fundamental Equilibrium Concepts
Wednesday	5-Oct	13	Fundamental Equilibrium Concepts
Friday	7-Oct	13 Quiz6	Fundamental Equilibrium Concepts
Monday	10-Oct	13	Fundamental Equilibrium Concepts
Wednesday	12-Oct	13	Fundamental Equilibrium Concepts

Friday	14-Oct	14 Quiz7	Acid-Base Equilibria
Monday	17-Oct	14	Acid-Base Equilibria
Wednesday	19-Oct	14	Acid-Base Equilibria
Friday	21-Oct	*14 Quiz 8*	Acid-Base Equilibria
Monday	24-Oct	*14*	Acid-Base Equilibria
Wednesday	26-Oct	14	Acid-Base Equilibria
Friday	28-Oct	**Exam 2**	**Good luck!**
Monday	31-Oct	*Break Day*	Trick or treat
Wednesday	2-Nov	15	Equilibria of Other Reaction Classes
Friday	4-Nov	15 Quiz 9	Equilibria of Other Reaction Classes
Monday	7- Nov	16	Thermodynamics
Wednesday	9- Nov	16	Thermodynamics
Friday	11-Nov	*Holiday*	**Veteran's Day**
Monday	14- Nov	*16*	Thermodynamics
Wednesday	16- Nov	*16*	Thermodynamics
Friday	18-Nov	*16 Quiz 10*	Thermodynamics
Monday	21- Nov	Review	Lecture
Wednesday	23- Nov	**Exam 3**	**Good luck!**
Friday	25-Nov	*Holiday*	*Happy Thanksgiving Weekend*
Monday	28- Nov	17	Electrochemistry
Wednesday	30- Nov	17	Electrochemistry
Friday	2-Dec	17 Quiz 11	Electrochemistry
Monday	5-Dec	21	Nuclear chemistry
Wednesday	7- Dec	21/Review	Nuclear chemistry/Cumulative Review begin
Friday	9-Dec	Review Quiz 12	Cumulative
Monday	12- Dec	**Final Exam**	Good luck! Monday, Dec 12th

<u>Class policies</u>:

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 reviewed only briefly in class and will be the basis for more advanced problem solving.

b. Attendance, worksheets, and quizzes

We will meet twice a week – you are expected to attend every class. Excessive absences WILL detrimentally affect your grade. Short quizzes (closed book) will begiven regularly at the beginning of class – do not be late for class – there will be no make up for missed quizzes. Printed worksheets will be handed out frequently to provide additional problem practice.
Completed worksheets must be submitted at the beginning of the next class unless the instructor decides otherwise. The worksheets may not always be graded but answer sheets may be provided to verify your work. If you are unable to attend class, you should contact the instructor in advance to give notification of the absence and make necessary arrangements to make up work.

c. CHEM101 & Group Work

The assignments will be available on the CHEM101 website. The deadline is set on the projected date

that the material will be completed in class, 10% per day will be deducted for late submissions, capped to 30% - better late than never.

d. Mid-term Exams

All exams will consist of a combination of quantitative calculations, multiple choice, matching and short-answer questions. Each mid-term exam is administered over an entire class period. No exam makeups, however, you may replace your lowest exam score with your final.

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). This exam is administered over 2 hours during 'finals week'. The exam date and time is scheduled for Monday, December 12.

f. Extra credit

Additional activities such as attending chemistry forums, and participating to outreach chemistry projects will earn extra credit (up to 10 points). Opportunities will be announced in class and on the Laulima Class Homepage.

g. Classroom behavior

A high level of maturity and professionalism is expected in the class.

h. Special learning needs

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

i. 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.

j. 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.

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, or you may stop by Hale ʻAkoakoa 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/.

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 or Kaahu Alo, Designated Confidential Advocate for Students, at 808-235- 7354 or kaahualo@hawaii.edu. To make a formal report, contact the Title IX Coordinator at 808-235-7393 or 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