



UNIVERSITY of HAWAII®
WINDWARD
COMMUNITY COLLEGE

CHEM 100, Chemistry and Society

3 Credits, CRN 60019, TR 10:00 – 11:15 AM

(Online synchronous)

INSTRUCTOR: Dr. Jeff Romine
OFFICE: 321A Bilger, Manoa
OFFICE HOURS: Email for appointment
EMAIL: rominej@hawaii.edu
EFFECTIVE DATE: Fall / 2021

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 the Ko'olau region of O'ahu and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

CATALOG DISCRIPTION

Chemistry 100 offers an introduction to basic concepts and applications of chemistry in the real world. This course is suitable for students who have little background in chemistry and fulfills a general education physical science core course for the non-science major. It is preparatory for Chem 151.

STUDENT LEARNING OUTCOMES

As a result of taking this course, students can expect to attain the following outcomes:

1. Describe the relationship between properties and structure of matter.
2. Name chemicals and balance chemical reactions and nuclear equations.
3. Solve problems involving mole ratios.
4. Identify the types of chemical reactions (i.e. acid-base, redox, nuclear) and their applications to everyday lives.
5. Explain the chemistry of household chemicals, and the biomolecules of life.
6. Relate a specific chemical concept to a current environmental, health, industrial, or technological issue by writing/presenting a short research paper or PowerPoint (optional).

COURSE TASKS

- Attendance is very important.
- Four exams will be proctored by the course instructor. Exam dates are listed below.
- The final exam will primarily focus on recent material, and about 20% cumulative material.
- Research Paper is optional for students seeking to boost their grade. Topics must be approved by the instructor.

ASSESSMENT AND GRADING

Grades will be determined as follows:

Homework.....	20% (online)
Exam 1.....	20% (Zoom)
Exam 2.....	20% (Zoom)
Exam 3.....	20% (Zoom)
Exam 4.....	20% (Zoom)
Total -----	100%
Research paper.....	10% (optional)

Course grades will be based on your total points, assigned as follows:

(90-100% of cumulative total) =	A
(80-89% of cumulative total) =	B
(70-79% of cumulative total) =	C
(60-70% of cumulative total) =	D
(<60% of cumulative total) =	F

LEARNING RESOURCES

Chemistry: The Science in Context 6th edition. (Gilbert, Kriss, Bretz, Foster) W W Norton
eBook: 978-0-393-69733-9 (\$79.95) Smartworks5 IDAP: (\$31.75 net – 1-term access)

DISABILITIES ACCOMODATIONS

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 Accessibility Counselor to discuss reasonable accommodations that will help you succeed in this class. Roy Inouye can be reached at (808) 235-7448, royinouy@hawaii.edu, or you may stop by Hale Kāko‘o 106 for more information.

SEX DISCRIMINATION AND GENDER-BASED VIOLENCE RESOURCES (TITLE IX)

Windward Community College is committed to providing a learning, working, and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking.

If you or someone you know is experiencing any of these, WCC has staff and resources to support and assist you. To report an incident of sex discrimination or gender-based violence, as well as receive information and support, please contact one of the following:

Madoka (Doka) Kumagai, Confidential Advocate
 Phone: (808) 348-0663 (cellular)
 Phone: (808) 956-6084 (office)
 Email: kumagaim@hawaii.edu

Desrae Kahale, Mental Health Counselor & Confidential Resource
 Phone: (808) 235-7393
 Email: dkahale3@hawaii.edu
 Office: Hale Kāko‘o 101

Karla K. Silva-Park, Title IX Coordinator
 Phone: (808) 235-7468
 Email: karlas@hawaii.edu
 Office: Hale ‘Ākoakoa 220

As a member of the University faculty, I am required to immediately report any incident of sex discrimination or gender-based violence to the campus Title IX Coordinator. Although the Title IX Coordinator and I cannot guarantee confidentiality, you will still have options about how your case will be handled. My goal is to make sure you are aware of the range of options available to you and have access to the resources and support you need.

For more information regarding sex discrimination and gender-based violence, the University’s Title IX resources and the University’s Policy, Interim EP 1.204, go to manoa.hawaii.edu/titleix/

COURSE CONTENT

CHEM 100 will introduce students to many everyday concepts: chemical properties, the periodic table, balancing chemical reactions, stoichiometry, acids and bases, gas laws, thermodynamics, atomic structure, oxidation and reduction, electrochemistry, nuclear chemistry, organic chemistry, biochemistry.

COURSE SCHEDULE

Date	Topic	Chapter	Learning Outcomes
8/24	Introduction	Ch 1	Matter: properties and changes. Scientific method.
8/26	Chemical formulas		

8/31	The periodic table	Ch 2	Atomic structure. Periodic Table.
9/2	The periodic table		
9/7	Balancing Chemical reactions	Ch 3	Law of Definite Proportions, carbon cycle
9/9			
9/14	Stoichiometry	Ch 4	Solve for molar mass, moles, grams.
9/16	Stoichiometry		Limiting reagent, combustion
9/21	Exam 1		
9/23	Electron configuration	Ch 7	Ionic versus covalent bonds
9/28	Chemical bonds	Ch 8	Lewis structures, octet rule
9/30	Chemical bonds	Ch 8	Polar, nonpolar, dipoles
10/5	Organic Compounds	Ch 2, 6, 9	Molecules and their shapes
10/7	Polymers	Ch 12	Chain reactions, types
10/12	Acids & Bases	Ch 15	Acid and base reactions and equilibria
10/14	Acids & Bases	Ch 15	
10/19	pH and titration	Ch 16	Strong and weak acids and bases and their applications.
10/21	Exam 2		
10/26	Thermodynamics	Ch 17	Enthalpy and entropy, equilibria
10/28	Thermodynamics	Ch 17	
11/2	Electrochemistry	Ch 4	Batteries and redox reactions
11/4	Electrochemistry	Ch 18	
11/9	Electrochemistry	Ch 18	Batteries and redox reactions
11/11	No class		
11/16	Nuclear Chemistry	Ch 19	Nuclear equations, reactions, radioactivity and applications
11/18	Nuclear Chemistry	Ch 19	
11/23	Exam 3		
11/25	No class		
11/30	Biomolecules	Ch 20	Amino acids, proteins
12/2	Biomolecules	Ch 20	Carbohydrates, lipids
12/7	Biomolecules	Ch 20	Nucleic acids, transcription/translation
12/9	Elements of life	Ch 21	Mg, Ca, P, Cl, nitrogen cycle
12/14	Exam 4		