

CHEM 100 – Chemistry and Society (Syllabus)

Fall 2023, Aug 21st – Dec 15th, Section 001, 3 Credits, Online-asynchronous, CRN 75049

Instructor: Dr. Jeff Romine

Office hours: 321A Bilger Hall Monday and Wednesday, 10:30 – 11:30 AM

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Course description: <https://manoa.hawaii.edu/chem/academics/courses/>

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. It is intended for non-science majors only.

Resources: Norton Smartworks (through IDAP). **Ebook:** Chemistry: The Science in Context 6th ed. (Gilbert, Kriss, Bretz, Foster) W.W. Norton: 978-0-393-69733-9 (free with Smartworks)

Homework (Online): Smartworks5 IDAP: (1-term access) Students will complete 13 homework assignments. Homework counts for 33% of the grade.

Lectures: This is an online-asynchronous course. Students will receive a link to view recorded lectures twice weekly (Tuesday and Thursday) via email. Lecture slides will be posted on the Laulima Resources page, allowing to students follow along. Exams and homework will be performed on Norton's online platform called Smartworks, which students can access through Laulima.

Course Content: CHEM 100 is a topical course touching on many areas, introducing everyday aspects of chemistry such as: the periodic table; chemical reactions; stoichiometry; organic chemistry; biomolecules; polymers; acids and bases; thermodynamics; kinetics; batteries, radioactivity, and gases. The objective is for students to gain a broad exposure to chemistry and be able to answer questions and solve problems, some of which involve equations.

Student Learning Outcomes:

1. Understand chemical and physical properties of matter and measurements.
2. Distinguish types of substances: household chemicals, polymers, and biomolecules.
3. Use the periodic table to balance chemical reactions (acid-base, redox, nuclear).
4. Understand the flow of heat (thermodynamics) and reaction rates (kinetics).
5. Become familiar with environmental, industrial, and/or chemical technologies.
6. Solve problems involving equations.

Student Responsibilities: Students must view the lectures, complete homework assignments, and take exams according to the following schedule:

- Exam 1** (100 pts) Thursday, Sept 14th, Lectures 1 – 6.
Exam 2 (100 pts) Thursday, Oct 12th, Lectures 7 – 12.
Exam 3 (100 pts) Thursday, Nov 9th, Lectures 13 – 18.
Exam 4 (100 pts) Tuesday, Dec 12th, Lectures 19 – 24.

Assessment and Grading:

Homework.....	200 points
Exam 1.....	100 points
Exam 2.....	100 points
Exam 3.....	100 points
Exam 4.....	100 points
Total -----	600 points

Course grade: Based on total points and 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

Academic Misconduct Students are expected to meet academic standards, conducting themselves maturely and respecting the academic community at UH. Academic Honesty Policy can be found at: <https://manoa.hawaii.edu/undergrad/mac/academic-actions/>

Disabilities: Students with conditions requiring test accommodations are to contact the KOKUA Program (the Office for Students with Disabilities). KOKUA can be reached at (808) 956-7511.

Anticipated Schedule:

Date	Lectures	Topics covered
8/21 - 9/14	1 – 6	Matter (atoms, molecules; states); periodic table; scientific notation; significant figures; atomic structure; molar mass.
9/15 - 10/12	7 – 12	Solutions, balancing reactions, stoichiometry; electron configuration; ionic & covalent bonds; Lewis structures.
10/13 – 11/9	13 – 18	Molecular shapes, atomic radii, organic molecules; polymers, glues; biomolecules, kinetics.
11/10 – 12/12	19 – 24	Acid and base chemistry solutions, thermochemistry; electrochemistry; nuclear chemistry (radioactivity); gases.