CHEM 100 Chemistry in Society
3 Credits  CRN 62104
MW 10:00-11:15 am, Imiloa 111

INSTRUCTOR: Leticia Colmenares, Ph.D.
OFFICE Imiloa 116
E-MAIL: leticia@hawaii.edu
OFFICE HOURS: M 11:30-12:30 pm, T 10:30-11:30 am
TELEPHONE: 236-9120
EFFECTIVE DATE: Fall 2014

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

Chemistry 100 provides a survey of basic concepts and applications of chemistry in the real world. This course is suitable for students who had little or no background in chemistry and serves to fulfill a general education physical science core course for the non-science major or as a preparatory course for Chem 151.

STUDENT LEARNING OUTCOMES

1. Describe the relationship between properties and structure of matter.
2. Name chemicals, balance chemical and nuclear equations.
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 composition of air and water.
6. Relate a specific chemical concept to a current environmental, health, industrial, or technological issue by writing a short research paper.

COURSE TASKS

• Attendance
• Daily quizzes
• Assignments /Homework
• Online quizzes
• Research Paper/Oral presentation
• Four long Exams
• Cumulative Final Exam
GRADING

1. Grades will be based on the following:

   Attendance & Class Participation ------------------ 10 points
   Daily Quizzes -------------------------------------- 60 points
   Assignments & Homework Sheets --------------------- 80 points
   Online quizzes ------------------------------------ 40 points
   Research paper/PowerPoint ------------------------- 60 points
   Midterm Exams (60 x 4) ----------------------------- 240 points
   Final Exam ----------------------------------------- 120 points
   Total --------------------------------------------- 600 points

Course grades will be assigned as follows:
   A 600-540 points
   B 539-480 points
   C 479-420 points
   D 419-360
   F below 360

N Grade: The 'N' grade indicates that the student has worked conscientiously, attended regularly, finished all work, fulfilled course responsibilities, and has made measurable progress but has not achieved the minimal student learning objectives and is not yet prepared to succeed at the next level. Or, the student has made consistent progress in the class but is unable to complete the class due to extenuating circumstances, such as major health, personal or family emergencies. Students requesting for N grade must provide a formal letter of request before the final examination with supporting evidences.

The other grades I, W, Cr, NC to be assigned are described in the current college catalog. These options must be discussed with the instructor. The deadline to change from A-F to Cr/NC/audit option (with Office of Admissions & Records) is on Oct 30, 2014.

If you drop out from the course without any notice you will get a 'F' grade. To avoid this, please be sure to withdraw officially (through MyUH) by Oct 30, 2014.

2. Attendance & Class Participation is checked every meeting.

3. Quizzes. There is a quiz in every class meeting. There are only 1-3 questions per quiz. Please prepare a half sheet of paper for the quiz every meeting. Each is 3 points each.

4. Online quizzes. There is an online quiz before every long exam. This will serve as a review to prepare you to take the in-class long exams.

5. Assignment & Worksheet: These are due at the start of every meeting. Each is worth 4 points. Late submissions will NOT be accepted.
6. There will be four long exams, each of which will cover approximately one-fourth of the course. All exams (including final exam) are closed notes and closed books. Each is worth 60 points.

7. The final exam will cover all topics (cumulative) 2 hrs. long. The dates of the assessments are given in the Course Schedule (see last page). Worth 120 points.

8. You are required to attend at least 5 supplemental instruction (SI) sessions during the semester. You will be deducted points for not meeting the minimum. You will get extra credit points for going beyond the minimum.

9. Extra Credit. You can earn up to 15 extra credit points.

**LEARNING RESOURCES**

1. Required: Instructor Lecture Notes Fall 2013 (spiral bound available at WCC Bookstore)
3. Calculator (required) & Periodic Chart
4. Course website: [https://laulima.hawaii.edu](https://laulima.hawaii.edu)
5. Multimedia (videos, animations, etc.) in Modules (Laulima)
6. Online quizzes in Tasks, Tests & Surveys (Laulima)
7. Supplemental Instruction Sessions

**HOW TO STUDY FOR THIS COURSE**

1. Please use the Course Schedule (found on the last page) throughout the semester. It contains the topics, reading requirements and due dates. You are responsible to MEET ALL DEADLINES as listed on the class schedule.

2. Prepare for each class by familiarizing yourself with the material in the Lecture Notes. Identify and define unfamiliar terms. Reading beforehand can help you to listen more actively in class and give an advanced indication of any difficulties that you can then clarify in the lecture. Make marginal notes on the slides.

3. Focus on the objectives of each chapter. Read the notes and textbook with the objectives in mind before coming to class.

4. Have a notebook. Take notes during lecture, and, also when watching videos, tutorials, and animations. Ask questions, if you do not understand. Bring the Instructor Notes (and calculator) to class at all times.

5. Be on time. A quiz is given at every class meeting.
6. **Participate** in all the course **activities** including group activities. Always treat everyone in class with respect.

7. **Review** your notes soon after class. Attend the **supplemental instruction** sessions held **before and after** the lecture in the classroom. This is a good place to edit your notes, find and fill in missing points, and get tips on how to solve your homework and review for quizzes and exams. Be sure to summarize the main point of the lecture in a few sentences. Do assigned practice problems and drills.

8. Test yourself by doing the **Lecture Notes** worksheet, learning checks, self-assessments and **Laulima practice test in Tasks, Tests and Surveys**.

9. **Supplemental instruction is available after class.** Students should use tutoring from the very beginning of the semester before running into difficulty.

10. If you have any problems, please do not hesitate to **see your instructor for consultation.** The best time is **before class in the office**.

11. You should plan to spend at least 6 hours outside class time per week on this course:

   - 2-3 hours reading chapter notes and watching multimedia in Laulima Modules
   - 1-2 hours supplemental instruction
   - 2 hours doing self-assessments, learning checks, worksheets and assignment
   - 1 hour taking online quiz in Laulima Tasks, Tests and Surveys.

12. The **multimedia materials** available in the Laulima course website include voice-over powerPoints, videos, animations, audio recordings, movies and interactive websites that are organized by chapter. All the downloadable files and links are found under **Modules in Laulima**.

13. Back up all your submissions (assignments and research paper).

**POLICIES**

1. **Daily quizzes.** The quiz will be **timed** (5 to 10 min). Missed quizzes will be counted as zero. No make up for missed quizzes.

2. **Long exams and the final** exam are **closed books and notes** (no cheat sheet). The final exam will be cumulative covering ALL topics taken throughout the semester and will take about 2 hrs long. **Check the course schedule**.
3. Only one missed exam (with requisite doctor’s note, police report or obituary note) can be made up if you notify (email) the instructor before or on the day of the exam. There will be no make-up for the final exam.

4. Exams and quizzes cannot be retaken to obtain better grades.

5. **Assignments.** Each assignment is described in the Lecture Notes. Please follow the detailed instructions. It is expected that you understand the concept and extend this by applying it to other applications not covered in the text by doing an online research. Please do not write your assignment just based on its title.

Assign #2 - Risk Benefit Analysis & DQ (Ch1 p.3)
Assign #3 – Redi’s Hypothesis (Ch1 p.5)
Assign #4 – Chemicals in Tobacco (Ch4 p.26)
Assign #5 - Balancing Reactions (Ch5 p.7)
Assign #6 – Practice mass-mass conversion (Ch5 p.24)
Assign #8 – What is the chemistry of airbags? (Ch6 p.18)
Assign #9 – What are the different types of antacids? (Ch7 p.16)
Assign #10 - Give one example of a redox reaction in everyday life. Write the reactants and products and its application.

6. **Homework Sheets.** These will be distributed in class.

7. The **research paper** is a three-page (double space) paper of at least 750 words to make a connection between a chemistry concept covered in the course and an application in everyday life. This will be made based on textbook readings and online resources. A sample paper and a handout “tips on how to search for references” are downloadable in Laulima Modules.

Research paper topics need to be pre-approved by **Oct 29, 2014 (by email).** Topics like the Kreb’s cycle, Glycolysis, or Prebiotics, etc, (textbook topics in nutrition, biology and zoology, etc courses) and airbags and antacids (already included in assignments) are **NOT acceptable.**

Instructor will give feedback if paper is submitted (hard copy) AT LEAST one week before due date. The final due date is on **Dec 8, 2014.**

The research paper grade will be based on the following rubrics:
- contains title and purpose/application pertaining to chemistry (1 point)
- explains at least one chemistry concept in detail (1 point)
- discusses the connection between a chemistry concept to application (1 point)
- information is well-organized and technically sound and coherent (1 point)
- body has correct length (at least 750 words), no errors in spelling, grammar and use of English (1 point)
- citations are included (0.5 point)
- reference list of at least five reliable sources is included (0.5 point)
7. An "F" will be assigned to students involved in cheating (in quizzes, homework, research paper, midterms or final) and will be reported to the Vice Chancellor for Student Services.

8. **Extra Credit.** You can earn extra credit up to a maximum of 15 points.
   - Attendance in SI sessions (0.5 point for any session in excess of requisite 5 sessions.
   - Attendance in chemistry forum is 4 points each. The dates of the chemistry forum will be posted at [http://www.wcc.hawaii.edu/chemistry_forum](http://www.wcc.hawaii.edu/chemistry_forum).

9. You have access to your scores and grades 24/7 in Laulima gradebook.

10. Please don't cause or tolerate distractions. Move or tactfully ask those making noise to be quiet.

11. Disruptive behavior, such as activated cell phones, text messaging, eating, sleeping, prolonged chattering, reading other materials not pertinent to class, making noise, etc. will not be tolerated. The instructor reserves the right to exclude students who take part in disruptive behavior from class, and will be reported to the Dean.

11. If you have any special learning needs, including hearing/visual impairment, please inform the instructor as soon as possible.

12. If you cannot come to my office, please email me for grade-related and personal questions, and check your hawaii.edu email account for the responses. Please ALLOW 24 HOURS for responses to emails or messages. You may also call at 236-9120.

**DISABILITIES ACCOMMODATION**

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 encourage to contact the Disability Specialist Counselor (and instructor) to discuss reasonable accommodations that will help you to succeed in this class. Ann Lemke can be reached at 235-7448 or lemke@hawaii.edu or you may stop by Hale 'Akoakoa 213 for more information. Also, inform your instructor ASAP.

**COURSE CONTENT AND SCHEDULE**

Holidays: Sep 1 (M), Nov 4 (T) Nov 11 (T), Nov 27 (R), Nov 28 (F)
Important Dates: **Last day for withdrawal**, CR/NC Oct 30 (R)
**Last day of instruction**, Dec 11 (R)
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Chapter</th>
<th>Quiz Schedule*</th>
<th>Learning Outcomes</th>
</tr>
</thead>
</table>
| 1    | Orientation & Chemistry | Chap 1 &2 | Aug 25  
Aug 27 Ass #2 | Scientific method, DQ, matter, classes, properties and changes. |
| 2    | Atomic Structure | Chap 3 | Sep 1 (holiday)  
| 3    | Chemical Bonds | Chap 4 | Sep 8 HWS#1  
Sep 10 HWS#2 | Name chemical compounds. Write chemical formulas. Ionic & covalent compounds. Polar and Nonpolar molecules. |
| 4    |                |         | Sep 15 Ass #4  
Sep 17 Exam 1 | Finish Up Chap 3, Review, and Exam, Start Chap 5 |
| 5    | Chemical Accounting I | Chap 5a Bring a calculator | Sep 22 Ass #5  
Sep 24 HWS#3 | Balance chemical equations. Solve using unit factor method. Solve for molar mass, moles, grams. |
| 6    | Chemical Accounting II | Chap 5b Bring a calculator  
Chap 6a | Sep 29 HWS#4  
Oct 1 HWS#5 | Solve problems involving mole ratios. Solution concentration. Like dissolves like. Describe the relationship between properties and structure of matter. IMF |
| 7    |                |         | Oct 6 Ass #6  
Oct 8 Exam 2 | Finish Up Solutions, Review, Exam, Start Ch 6 |
| 8    | Gases Acids & Bases | Chap 6  
Chap 7 | Oct 13  
Oct 15 HWS#6 | IMF. Gases. Acids & Bases |
| 9    | Acids & Bases Oxidation & Reduction | Chap 7 | Oct 20 Ass #8  
Oct 22 HWS#7 | Identify acid-base reactions and their applications to everyday lives. |
| 10   | Oxidation & Reduction | Chap 8  
due | Oct 27 Ass #9  
Oct 29 Paper/Presentation Topic & References | Identify redox reactions and their applications to everyday lives. |
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Assignment</th>
<th>Dates</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 11   |   |   | Nov 3 *Ass #10*  
Nov 5 *Exam 3*  
Finish Up, Review, Exam, Start Chap 9 |
| 12   | Organic Chemistry & Polymers | Chap 9 & 10 | Nov 10  
Nov 12 *HWS#8*  
| 13   | Nuclear Chemistry | Chap 11 | Nov 17 *HWS#9*  
Nov 19 *HWS#10*  
*Balance nuclear equations. Identify nuclear reactions and their applications to everyday lives.* |
| 14   | Air Water | Chap 13 Chap 14 | Nov 24 *HWS#11*  
Nov 26 *HWS#12*  
| 15   |   | Draft Paper due Dec 1 | Dec 1 *HWS #13*  
Dec 3 Exam 4  
Finish Up, Review, Exam, Start Chap 21 |
| 16   | Household Chemicals | Chap 21 | Dec 8 *Final Paper Due Dec 8*  
Dec 10 *HWS #14*  
*Explain the chemistry of household chemicals:* Soaps. Bleach. Cosmetics. Final Exam Review |
| 17   |   | 10:00-12:00 pm  
Dec 15, 2014 (M) Final Exam  
*Cumulative* |

*Assignment/exam calendars may be changed due to institutional, weather or class problems.*