### CHEM 100 Chemistry in Society

3 Credits  CRN 61082
TR 10:00-11:15 am, Imiloa 111

<table>
<thead>
<tr>
<th>INSTRUCTOR:</th>
<th>Leticia Colmenares, Ph.D.</th>
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<tbody>
<tr>
<td>OFFICE:</td>
<td>Imiloa 116</td>
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<tr>
<td>E-MAIL:</td>
<td><a href="mailto:leticia@hawaii.edu">leticia@hawaii.edu</a></td>
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<tr>
<td>OFFICE HOURS:</td>
<td>MW 10:30-11:30 pm, TR 11:30-12:30 am (or by appointment)</td>
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<tr>
<td>TELEPHONE:</td>
<td>236-9120</td>
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<td>EFFECTIVE DATE:</td>
<td>Spring 2016</td>
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**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.

Chem 100L (1-credit) laboratory course is available this semester. Registration is separate (CRN 61173). This satisfies DY requirement for AA degree.

**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
- Online quizzes
- Research Paper/Oral presentation
- Four Long Exams
- Cumulative Final Exam

**GRADING**

1. Grades will be based on the following:

   Scavenger Hunt ---------------------------------------- 10 points  
   Attendance & Daily Quizzes------------------------ 70 points  
   Assignments (11 best out of 12)---------------------- 110 points  
   Online review quizzes ----------------------------- 40 points  
   Research paper/PowerPoint ---------------------- 70 points  
   Midterm Exams (60 x 4) ----------------------------- 240 points  
   Final Exam ----------------------------------------- 120 points  
   Total ------------------------------------------ 660 points

   Course grades will be assigned as follows:

   594-660 total points = A  
   528-593 total points = B  
   462-527 total points = C  
   396-461 total points = D  
   below 396 = F

   **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 Mar 29, 2016.

   If you drop out from the course without any notice you will get ‘F’ grade. To avoid this, please be sure to withdraw officially (through MyUH) by Mar 29, 2016.

2. Attendance & Class Participation is checked every meeting.

3. **Quizzes.** There is a quiz in every class meeting (1-4 questions per quiz). Please
prepare a half sheet of paper for the quiz every meeting. If you’re absent, your score is zero. No special quizzes are allowed.

4. **Online midterm practice quizzes.** The quiz is available in Laulima to help you review and prepare for the in-class long exams. This is open notes, and is accessible one week before each long exam. If you don’t take the practice quiz by the closing date, your score is zero.

5. **Assignment.** You are expected to do the assignment found in Laulima Modules by the due date (see course schedule). Upload your individual work in *Laulima Assignments* weekly. Then, **discuss the assignment in your group (in Laulima Discussion) and post your group’s final assignment in Discussion** by the due date (announced in Laulima Discussion). Please remember when online to follow netiquette rules: [http://www.albion.com/netiquette/corerules.html](http://www.albion.com/netiquette/corerules.html)

   The assignment is worth 10 points (6 points based on group submission and 4 points based on individual submission). Only one submission (the first one in case of multiple submissions) per group is allowed in Discussion. All members who participate in the group discussion will receive the same group score for the group assignment. Each blank in the assignment corresponds to a one-word answer.

6. There will be **four long exams**, each of which will cover approximately one-fourth of the course. All exams 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 recommended to attend **supplemental instruction (SI) sessions** or tutoring during the semester. You will receive 0.5 extra credit points per session. The **face-to-face supplemental instruction** is available on Tue and Thurs in Imiloa 112 at 9 to 10 am. The **online supplemental instruction** is available at [http://tinyurl.com/WCC-Elluminate-Room-1](http://tinyurl.com/WCC-Elluminate-Room-1). The **OLA online tutoring**, [http://manoa.hawaii.edu/ola/](http://manoa.hawaii.edu/ola/) is available everyday except Saturdays and State holidays. Students should use tutoring from the very beginning of the semester before running into difficulty.

9. **Extra Credit.** You can earn up to 20 extra credit points.

**LEARNING RESOURCES**

1. Required: Instructor Lecture Notes **Spring 2015** (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. Chapter assignments (60% group-based, 40% individual)
7. Online practice quizzes in Assignments, Tests & Surveys (Laulima ATS)
8. Supplemental Instruction (to be announced later)
9. OLA (Online Learning Academy) open everyday except Saturday.
   http://manoa.hawaii.edu/ola/
11. Office consultation Hours. After every lecture class.

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. Supplemental instruction is available before every class in Imiloa 112. Students should use tutoring from the very beginning of the semester before running into difficulty. This is a good place to get tips on how to solve your homework and review for quizzes and exams.

5. 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.

6. Be on time. A quiz is given at every class meeting.

7. Participate in all the course activities including group activities. Always treat everyone in class with respect.

8. Review your notes soon after class. This is a good time to edit your notes, find and fill in missing points. Be sure to summarize the main point of the lecture in a few sentences. Do assigned practice problems and drills.

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

10. If you have any problems, please do not hesitate to see your instructor for consultation. The best time is after 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 are available in Laulima Modules. These include voice-over powerPoints, videos, animations, audio recordings, movies and interactive websites, and, are organized by chapter.

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.** There are a total of 12 assignments (see course schedule). Each homework assignment is downloadable from Laulima Modules. The lowest assignment score will be dropped.

**How to submit individual assignment.** The individual assignment should be saved in .doc or .docx or .pdf but NOT in .txt or .wps. or .pages IMPORTANT. If you are using a word-processing software other than Microsoft word, please convert your submission to .pdf so I can open it and grade it. Label the file with your family name and assignment number and upload in Laulima “Assignments” as attachment. The due date of the individual assignment will be announced in Laulima. Each individual assignment is worth 4 points. Your score will be zero if you don’t submit your individual assignment by the due date.

**How to submit group assignment.** After the individual assignments are turned in, all members in a group are expected to discuss the assignment with each other in Laulima Discussion. The group final answers must be posted in Discussion 2 days after the
individual assignments are due. All members who participated will get the same group score. If you don’t participate in the group discussion, your score will be zero. Each group assignment is worth 6 points. Each group must have only one group submission in Discussion. In case there are multiple submissions, only the first one will be recognized. Instructor feedback to each group assignment will be posted in Discussion.

4. The scavenger hunt assignment is mandatory. Please do this as soon as possible. It is very important that you become familiar with the tools in the course website: Assignments, Tests & Surveys, Gradebook, Modules, Discussion, Assignment, and Chat Room. Please download it from Laulima Modules, answer it, save it and upload in Assignments.

5. 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 research paper and a handout “tips on how to search for references” are downloadable in Laulima Modules. You must read the provided sample to avoid making a mistake of writing an essay instead of a research paper.

Research paper topics need to be pre-approved by Mar 22, 2016 (by email). Topics like the Kreb’s cycle, Glycolysis, or Probiotics, etc, (textbook topics in nutrition, biology, zoology and other courses) and airbags and antacids (already included in extra credit) are NOT acceptable.

Submit the draft and final paper in http: turnitin.com. This is free of charge and this helps prevent plagiarism. If this is your first time using this website, please create an account and register. Course ID: 11416325 and Password: Colmenares

Instructor will give feedback if paper was submitted one week before due date (Apr 26, 2016). Paper may be revised and resubmitted on or before the deadline (May 3, 2016).

The research paper grade will be based on the following rubrics:

- contains title and purpose/application pertaining to chemistry (10 points)
- correctly explains at least one chemistry concept in detail (10 points)
- discusses at least one application or current issue in detail (10 points)
- effectively connects the chemistry concept to application/issue (10 points)
- information is well-organized and technically sound and coherent (10 points)
- well-organized and body has correct length (at least 750 words) (5 points)
- no errors in spelling, grammar and use of English (5 points)
- citations (in-text) are included (5 points)
- reference list (at the end) contains at least five reliable sources (5 points)
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 20 points.
   - Attendance in SI sessions (0.5 point for 1-hr session)
   - Extra credit essays uploaded in Laulima Assignments
   - 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.

13. Please review the FAQ's (Frequently Asked Questions).

14. If you notice any discrepancies, please be the first to notify the instructor.

**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 SCHEDUL**

**Important Dates:**
- Non-Instructional Days, Mar 22, Mar 24
- Last day for withdrawal and change grade option, Mar 29 (T)
- Last day of instruction, May 4 (W)
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Chapter</th>
<th>Quiz Schedule*</th>
<th>Learning Outcomes</th>
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<tr>
<td>1</td>
<td>Orientation &amp; Chemistry</td>
<td>Chap 1 &amp; 2</td>
<td>Jan 12 &amp; Jan 14</td>
<td>Scientific method, DQ, matter, classes, properties and changes.</td>
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<td>Scavenger Hunt &amp; Syllabus Quiz</td>
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<td>Ass #1 (Ch 1 &amp; 2)</td>
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<td>3</td>
<td>Chemical Bonds</td>
<td>Chap 4</td>
<td>Jan 26 &amp; Jan 28</td>
<td>Name chemical compounds. Write chemical formulas. Ionic &amp; covalent compounds. Polar and Nonpolar molecules.</td>
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<td>Ass #2 (Ch 3)</td>
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<td>4</td>
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<td>Exam 1</td>
<td>Feb 2 &amp; Feb 4</td>
<td>Finish Up Chap 3, Review, and Exam, Start Chap 5</td>
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<td>Chap 5a</td>
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<td>5</td>
<td>Chemical Accounting I</td>
<td>Ass #3 (Ch 4)</td>
<td>Feb 9 &amp; Feb 11</td>
<td>Balance chemical equations. Solve using unit factor method. Solve for molar mass, moles, grams.</td>
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<td>6</td>
<td>Chemical Accounting II</td>
<td>Ass #4 (Ch 5a)</td>
<td>Feb 16 &amp; Feb 18</td>
<td>Solve problems involving mole ratios. Solution concentration. Like dissolves like. Describe the relationship between properties and structure of matter. IMF</td>
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<td>Bring a calculator</td>
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<td>7</td>
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<td>Ass #5 (Ch 5b)</td>
<td>Feb 23 &amp; Feb 25</td>
<td>Finish Up Solutions, Review, Exam, Start Ch 6</td>
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<td>Exam 2</td>
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<td>8</td>
<td>Liquids, Solids &amp; Gases</td>
<td>Chap 6</td>
<td>Mar 1 &amp; Mar 3</td>
<td>IMF. Gases. Acids &amp; Bases</td>
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<td>Ass #6 (Ch 6)</td>
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<tr>
<td>9</td>
<td>Acids &amp; Bases</td>
<td>Chap 7</td>
<td>Mar 8 &amp; Mar 10</td>
<td>Identify acid-base reactions and their applications to everyday lives.</td>
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<td>Ass #7 (Ch 7)</td>
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<tr>
<td>10</td>
<td>Oxidation &amp; Reduction</td>
<td>Chap 8</td>
<td>Mar 15 &amp; Mar 17</td>
<td>Identify redox reactions and their applications to everyday lives.</td>
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<td>Ass #8 (Ch 8)</td>
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<td>Exam 3</td>
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<td>Week</td>
<td>Topic</td>
<td>Assignment/Exam</td>
<td>Dates</td>
<td>Notes</td>
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<td>11</td>
<td></td>
<td>Paper Topic due</td>
<td>Mar 22 Mar 24</td>
<td>Spring Break</td>
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<tr>
<td>13</td>
<td>Nuclear Chemistry</td>
<td>Chap 11 Ass#10 (Ch 11)</td>
<td>Apr 5 Apr 7</td>
<td>Balance nuclear equations. Identify nuclear reactions and their applications to everyday lives.</td>
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<tr>
<td>14</td>
<td>Air</td>
<td>Chap 13</td>
<td>Apr 12 Apr 14</td>
<td>Explain the composition of air. Oxygen cycle, Acid rain, Ozone.</td>
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<tr>
<td>15</td>
<td>Water Draft Paper due</td>
<td>Chap 14 Exam 4 Ass# 11 Ch 11,12</td>
<td>Apr 19 Apr 21</td>
<td>Explain the composition of water. Hard water. BOD. Water treatment</td>
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<td>17</td>
<td>Final Paper due</td>
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<td>May 3</td>
<td>Final Exam Review</td>
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<td>18</td>
<td>Cumulative Final Exam</td>
<td>10:00-12:00 pm</td>
<td>May 10, 2016 (Tuesday)</td>
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* Assignment/exam calendars may be changed due to institutional, weather or class problems.