**CHEM 100 Chemistry in Society**  
3 Credits  CRN 62359  
MW 10:00-11:15 am, Imiloa 111

**INSTRUCTOR:** Leticia Colmenares, Ph.D.  
**OFFICE:** Imiloa 116  
**E-MAIL:** leticia@hawaii.edu  
**OFFICE HOURS:** W 9-10 am, R 10:30-11:30 am, R 8-9 pm (online)  
**TELEPHONE:** 236-9120  
**EFFECTIVE DATE:** Spring 2013

**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 (submit online)  
- Research Paper (submit in turnitin.com)  
- 4 Long Exams  
- Final Exam
GRADING

1. Grades will be based on the following:
   - Attendance & Quizzes------------------------------------------ 100 points
   - Assignment----------------------------------------------------- 50 points
   - Research-------------------------------------------------------- 90 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 grade option is on **March 21, 2013.**

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 by **March 21, 2013.**

2. **Assignment:** There is a homework due every week to be submitted online in Laulima Assignments. Please see ‘Policies’ for details.

3. **Attendance & 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.

4. 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.

5. 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).

6. You are required to attend at least **8 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.
LEARNING RESOURCES

1. Instructor Lecture Notes 2013 (spiral bound available at WCC Bookstore)-required
3. Calculator (required) & Periodic Chart
4. Course website: https://laulima.hawaii.edu
5. Multimedia (videos, animations, etc.) in Modules (Laulima)
6. Practice quizzes & exams in Tasks, Tests & Surveys (Laulima)
7. Supplemental Instruction Sessions (Leader: Zach)
8. Paper anti-plagiarism and feedback tool Http://Turnitin.com

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. Please come to class everyday. Bring the Instructor Notes (and calculator) to class. Be on time. A quiz is given at every class meeting.

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. If you don’t write your notes, you will forget the material when you reach the final exam. Ask questions, if you do not understand.

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

6. Review your notes soon after class. Do assigned practice problems and drills.

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

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

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

10. You should plan to spend at least 6 hours outside class time per week on this course:
• 2-3 hours reading chapter notes and text (including multimedia in Laulima Modules)
• 1-2 hours supplemental instruction
• 1-2 hour doing self-assessments, learning checks, worksheets and assignment
• one hour taking practice quiz in Laulima Tasks, Tests and Surveys.

11. 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.

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

POLICIES

1. **Daily quizzes (4 points each)**. 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/Homework**. There are a total of ten assignments (see list below). Each assignment is described in the Lecture notes as well as in the assignment template posted in Laulima Modules. 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.

   **How to turn in assignment.** The assignment should be saved in any of the file formats: .doc or .docx or .pdf but **NOT** in .txt or .wps. **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.
Each assignment will be graded based on its grading rubric described in the instructions (5 points). If an assignment is submitted past the deadline, a penalty will be implemented. Each of this is due on Wednesday 10 am (see course schedule -last page).

Assign #1 - Scavenger Hunt in Laulima
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 - Reactions of the Atmosphere (Ch5 p.7)
Assign #6 – Practice mass-mass conversion (Ch5 p.24)
Assign #7 – Vitamin A & E (Ch6 p.13)
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 – Chemistry in the News

The scavenger hunt assignment (Assign #1) is mandatory. Please do this as soon as possible. It is very important that you become familiar with the tools in the course website: Tasks, Tests & Surveys, Gradebook, Modules, Assignment, and Chat Room.

6. 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 Apr 3, 2013 (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. Take advantage of Smarthinking.com to help you select a paper topic. Login to Smarthinking.com from MyUH.

Turn in your research paper at http://turnitin.com. Please view the online tutorial (10 min) and then create a login for Class ID: 5886644 (password: chemistry). Generate the originality report and then submit your paper. Instructor will give feedback if paper was submitted one week before due date. Paper may be revised and resubmitted on the deadline (Apr 29, 2013).

The paper grade will be based on the following rubrics:
• contains title and purpose (1 point)
• explains at least one chemistry concept in detail (1 point)
• discusses at least one application or current issue in detail (1 point)
• connects the chemistry concept to application (1 point)
• information is technically sound and coherent (1 point)
• well-organized and body has correct length (at least 750 words) (1 point)
• no errors in spelling, grammar and use of English (1 point)
• citations are included (1 point)
• reference list of at least five reliable sources is included (1 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 Dean.

8. Extra Credit. You can earn extra credit up to a maximum of 20 points.
   • Extra credit essays
   • Extra credit chapter activities in SI
   • Attendance in SI sessions.
   • Attendance in chemistry forum is two points each. The dates of the chemistry forum will be posted at http://www.wcc.hawaii.edu/chemistry_forum.

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

10. 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: Jan 21 (M), Feb 18 (M), Mar 1 (F), Mar 25-29 (M-F)
Important Dates: Last day for withdrawal, CR/NC Mar 21(R)
   Last day of instruction, May 1 (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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</thead>
<tbody>
<tr>
<td>1</td>
<td>Orientation &amp; Chemistry</td>
<td>Chap 1 &amp; 2</td>
<td>Jan 7</td>
<td>Scientific method, DQ, matter, classes, properties and changes.</td>
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<td>Jan 9</td>
<td><em>Assign #1</em></td>
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<td>Jan 16</td>
<td>Periodic Table.</td>
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<td><em>Assign #2</em></td>
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<td>3</td>
<td>Chemical Bonds</td>
<td>Chap 4</td>
<td>Jan 21 holiday</td>
<td>Name chemical compounds. Write chemical formulas. Ionic &amp; covalent compounds. Polar and Nonpolar molecules.</td>
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<td>Jan 23</td>
<td>Assign #3</td>
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<td>4</td>
<td>Chemical Accounting I</td>
<td>Chap 5a</td>
<td>Jan 28</td>
<td>Balance chemical equations. Solve for molar mass, moles, grams.</td>
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<td>Bring a calculator</td>
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<td>Jan 30</td>
<td><em>Exam 1</em></td>
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<tr>
<td>5</td>
<td>Chemical Accounting II</td>
<td>Chap 5b</td>
<td>Feb 4</td>
<td>Solve problems involving mole ratios. Solve using unit factor method. Solution concentration.</td>
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<td>Bring a calculator</td>
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<td>Feb 6</td>
<td><em>Assign #4</em></td>
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<td>Feb 13</td>
<td><em>Assign #5</em></td>
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<td>7</td>
<td>Acids &amp; Bases</td>
<td>Chap 7</td>
<td>Feb 18 holiday</td>
<td>Identify acid-base reactions and their applications to everyday lives.</td>
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<td>Bring a calculator</td>
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<td>Feb 20</td>
<td><em>Assign #6</em></td>
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<tr>
<td>8</td>
<td>Oxidation &amp; Reduction</td>
<td>Chap 8</td>
<td>Feb 25</td>
<td>Identify redox reactions and their applications to everyday lives.</td>
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<td>Feb 27</td>
<td><em>Exam 2</em></td>
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<td>9</td>
<td>Organic Chemistry &amp; Polymers</td>
<td>Chap 9 &amp; 10</td>
<td>Mar 4</td>
<td>Carbon compounds: structures and names. Alkanes, Alkenes, Acids...</td>
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<td>Mar 6</td>
<td><em>Assign #7</em></td>
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<td>Mar 13</td>
<td><em>Assign #8</em></td>
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<td>11</td>
<td>Air</td>
<td>Chap 13</td>
<td>Mar 18</td>
<td>Balance nuclear equations. Identify nuclear reactions and their applications to everyday lives.</td>
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<td>Mar 20</td>
<td><em>Assign #9</em></td>
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<td>12</td>
<td>Water</td>
<td>Chap 14 Paper Topic</td>
<td>Apr 1</td>
<td>Explain the composition of air. Oxygen cycle, Nitrogen Cycle, Acid rain,</td>
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<td>Exam 3</td>
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<td>Apr 3</td>
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<td>Paper Topic Due</td>
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| 13 | Household Chemicals | Chap 21 | Apr 8  
|    |                |       | Apr 10  
|    |                |       | Assign#10  
|    |                |       | *Explain the composition of water.* Hard water.  
|    |                |       | BOD. Water treatment.                                                   |
| 14 | Research Paper | Apr 15  
|    |                | Apr 17 | *List of References due*  
|    |                |       | *Explain the chemistry of household chemicals.* Soaps. Bleach. Cosmetics. |
| 15 | Research Paper or Oral presentation | Apr 22  
|    |                | Apr 23 | *Exam 4*  
|    |                |       | Relate a specific chemical concept to a current environmental, health, industrial, or technological issue. |
| 16 | Final Exam Review | Apr 29  
|    |                | May 1   | *Turnitin.com Paper Due*  
|    |                |       | Apr 29  
| 17 | 10:00-12:00 pm | May 6, 2013 | *Cumulative Final Exam* |

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