CHEM 100 Chemistry in Society
3 Credits
CRN 62150

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
Online Chat Laulima Thursday 8-9 pm
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

- Weekly quizzes (online)
- Weekly assignments (online)
- Discussion Board (online)
- Research Paper (online)
- Two Midterm Exams (TTC)
- Final Exam (TTC)
GRADING

Grades will be based on the following:

- Quizzes (10) (best out of 13)--------------------- 100 points
- Assignments (10)---------------------------------- 50 points
- Research Paper (1)------------------------------- 90 points
- Discussion Posts (2)----------------------------- 20 points
- Midterm Exams (2)--------------------------------- 220 points
- Final Exam -------------------------------------- 120 points
- Total ------------------------------------------- 600 points

IMPORTANT: The two midterm and final exams are proctored exams at the WCC Testing Center. If you are off-island or wish to take these exams at testing centers in other locations, please email me by the second week of classes.

Course grades will be assigned as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
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<tbody>
<tr>
<td>A</td>
<td>600-540</td>
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<tr>
<td>B</td>
<td>539-480</td>
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<td>C</td>
<td>479-420</td>
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<td>D</td>
<td>419-360</td>
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<td>F</td>
<td>below 360</td>
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**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, 2012.**

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, 2012.**

**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](https://laulima.hawaii.edu)
5. Multimedia (videos, animations, etc.) in Modules (*Laulima*)
6. Practice quizzes & exams in Tasks, Tests & Surveys (*Laulima*)
8. Face-2-face lectures in-class (@MW 10-1115 am, Imiloa 111)
9. Laulima Chat Room online hours (@Thursday 8-9 pm) for consultation

**HOW TO STUDY FOR THIS COURSE**

*Usually students take online courses with the assumption that it will be easier than face-to-face classes. Unfortunately this is NOT correct. Online courses actually require more discipline and individual effort on the part of the student. The focus is on YOU learning rather than the TEACHER lecturing. It is also very hard to catch up when you fall behind.*

1. Please pay attention to deadlines. **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. There is a quiz and an assignment due every week.

2. You are expected to **login the course website** at least every other day. The website is your classroom and not coming to the site is like skipping class. You are expected to spend at least eight hours a week for this course. Please schedule real-time hours for this course that you will routinely follow in real time, just like your work hours. Your online ‘attendance’ will be monitored using ‘Site Stats.’

3. Focus on the **objectives of each chapter**. Read the notes and textbook with the objectives in mind. If you do not have the printed lecture notes sold at the WCC Bookstore, please download, and print the notes by chapter found in Laulima Modules.

4. In addition to the **textbook and lecture notes, multimedia materials** are used to deliver course content in the course website. These 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 the course website.

5. **Have a notebook.** Take notes when reading the text and notes, 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 in the Discussion Forum if you do not understand.

6. **Weekly assessment.** Please study each of the examples in your lecture notes. Practice by doing the learning checks, self-assessments, and worksheets.

7. If you cannot solve the problem or answer the question, please post your question (as clearly as possible by citing the page number) in the Discussion forum. I will monitor the discussion postings very closely and provide answers as needed. However, I strongly encourage fellow students to answer the posted questions. In articulating the answer you yourself get a deeper understanding of the concepts, hence you will receive extra credit.
8. You MUST take the Laulima practice test in Tasks, Tests and Surveys at least twice before the actual quiz. It is important that you feel a certain level of confidence before taking the actual test.

9. If you have any problems, please do not hesitate to see your instructor for consultation. Online office hours at 8-9 pm will be held in the Chat Room every Thursday.

10. Free online tutoring is available http://manoa.hawaii.edu/ola/. Students should use tutoring from the very beginning of the semester before running into difficulty. Extra credit will be given.

11. You should plan to spend at least 9 hours per week on this course (remember, you’re not physically attending a class or spending time traveling to and from campus!). Here is how your time will be allocated during most weeks:

- three hours reading chapter notes and text reading, equivalent to attending classes face-to-face
- two hours viewing online video lectures, websites and doing assignment
- two hours doing self-assessments, learning checks, and worksheet
- an hour taking and reviewing practice quiz
- an hour preparing your summary index card and taking the actual quiz

12. Back up all your submissions.

POLICIES

1. Online weekly quizzes. A weekly quiz is accessed through Laulima Tasks, Tests and Surveys. Each chapter quiz consists of ten multiple-choice questions. The quiz will be available every week starting on Thursday. Each quiz will be made available for 50 hrs starting from Thursday 9 pm to Saturday at 11 pm, EXCEPT for Quiz #1 which will be available for 8 days to allow late-registrants to catch up with class work. All times are Hawaii Standard Time. You may take the quiz anytime within this period. You are expected to move on to the next chapter as soon as you are done with a quiz.

If you encounter a technical problem (e.g., the computer crashes, Laulima is down, etc.), please submit a Request Assistance form (at the bottom of each Laulima page) immediately from the computer that the problem occurred. Please indicate the course, which quiz, what kind of computer, which web browser, and what kind of internet connection was used. Please notify me by email immediately before the deadline has passed. Upon verification by Laulima, your quiz will be reset and you will be allowed a second attempt. However, please make sure that your Internet connection is a robust connection when taking online quizzes. Please do NOT take your quiz at the coffee shop or using wireless connection.

Make-up or retaking quizzes will NOT be allowed. Each quiz MUST be completed by the time and date set in the course schedule. If you fail to take a quiz, for whatever reason, your score for that quiz will be zero. The lowest three quiz scores will be
The quiz will be timed (10-20 min depending on the questions). Always have a calculator and a periodic chart when taking a quiz. You are allowed to use your own summary index card as cheat sheet. You may NOT open your Lecture Notes or textbook. The reason why the quiz is timed is to prevent cheating.

2. Each midterm exam will cover approximately 40% of the material of the course. The final exam will be cumulative covering ALL topics taken throughout the semester. **Check the course schedule for the dates.**

The two midterm and final exams will be made available for 3 days at the WCC Testing Center (TTC). For external testing sites, please arrange with the instructor as soon as possible.

**Important.** A picture ID is required and no cell phones will be allowed. The midterm and final exams are closed books and notes (no cheat sheet). Please bring your own calculator to the testing center. The proctored exams will be timed, 75 min for midterm and 2hrs for the final. The proctor at the testing site will input the password for the midterm and provide you with a periodic table.

Hours of operation may vary from campus to campus. At the WCC Testing Center, the hours are found in this link: http://windward.hawaii.edu/Testing_Center/index.php

After taking the exam, you must not tell anybody what is in the test, as this would fall under the guidelines of academic integrity. Any evidence of cheating will result in a score of zero for all parties involved, and this will be reported to the Vice Chancellor for disciplinary action.

3. **Assignments.** There are a total of ten assignments and two discussion posts (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 Sunday 11 pm of the week it is due (see course schedule -last page).

Assign #1- Scavenger Hunt & Syllabus Activity
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 - Give one example of a redox reaction in everyday life. Write the reactants and products and its application.  
Assign #11 – Discussion Post.#1 Chemistry in the News  
Assign #12 – Discussion Post#2 Chemistry in everyday life

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, Discussion, Assignment, and Chat Room.

5. Discussion Posts must be posted in Discussion (Laulima). Student interactions are required. You must comment on two other postings, and, respond to those about your post. Please be respectful to everyone all the time.
   Two discussion postings will be required (10 points @):  
   #1- Chemistry in the news  
   #2- Application of a chemical reaction in everyday life

   The rubrics for grading:  
   · Posting is focused, organized, and clearly conveys ideas to reader (3 points)  
   · Posting shows integrates concepts from the notes, text or multimedia (3 points)  
   · Well-developed, use own words and stimulates discussion (2 points)  
   · Interacted timely at least twice in a thoughtful and respectful way (2 points)

6. The research paper is a three-page (double space) paper of at least 750 words to make a connection between a chemistry concept and an application/issue 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 Modules.

Research paper topics need to be pre-approved by Mar 31, 2013 (by email). Topics like the Kreb’s cycle, Glycolysis, or Prebiotics, etc, (textbook topics in nutrition, biology and zoology, etc courses) and airbags, antacids and fuel cells (topics already tackled in assignments and sample paper) are NOT acceptable. Take advantage of Smarthinking.com tutor 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: 5886649 (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 (May 1, 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)

6. **Discussion Extra Credit.** Questions about the topic content should be posted on the "Discussion." If you give a correct response to your classmates’ question in the Discussion you will be awarded 0.5 to 1 extra credit points. Interactions promote deeper learning hence I encourage you all to participate in this forum. If you post your questions, others will be able to benefit from the answers. Please remember when online to follow netiquette rules. Avoid flaming. See [http://www.albion.com/netiquette/corerules.html](http://www.albion.com/netiquette/corerules.html)

7. **Other Extra Credit.** You can earn extra credit up to a maximum of 20 points.
- Correct response to classmates’ question in the Chat Room is 1 point each.
- Extra credit essays and short activities are also available in the Lecture Notes.
- Using the OLA online tutoring service.
- 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](http://www.wcc.hawaii.edu/chemistry_forum).

8. **Communicating with instructor.** Questions about the class procedures should be posted in the Chat Room. For other matters, please email the instructor using the Mailtool in Laulima. Please check your Hawaii.edu account for instructor response to your email. Please ALLOW 24 HOURS for responses to emails or messages. In emergencies, please call 236-9120.

9. When in doubt, please ASK.

**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.

**COURSE CONTENT AND SCHEDULE**

Holidays: Spring Break Mar 25-29 (M-F)
Important Dates: **Last day for withdrawal**, CR/NC Mar 21 (R)
**Last day of instruction**, May 1 (W)
### Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Readings</th>
<th>Quiz Schedule*</th>
<th>Notes</th>
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<tbody>
<tr>
<td>1</td>
<td>Orientation &amp; Chemistry</td>
<td>Chap 1 &amp; 2 (Notes &amp; Text) Multimedia in Modules</td>
<td>Jan 10- Jan18 Assign#1 Scavenger Hunt &amp; Syllabus Quiz</td>
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<td>2</td>
<td>Atomic Structure</td>
<td>Chap 3 Notes &amp; Text Multimedia in Modules</td>
<td>Jan 17-Jan 19 Quiz #1-Chaps 1 &amp; 2 Jan 20 Assign#2 due</td>
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<td>3</td>
<td>Chemical Bonds</td>
<td>Chap 4 Notes &amp; Text Multimedia in Modules</td>
<td>Jan 24-Jan 26 Quiz #2-Chap 3 Jan 27 Assign#3 due</td>
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<td>4</td>
<td>Chemical Accounting I</td>
<td>Chap 5a Notes &amp; Text Multimedia in Modules</td>
<td>Jan 31-Feb 2 Quiz #3-Chap 4 Feb 3 Assign#4 due</td>
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<td>5</td>
<td>Chemical Accounting II</td>
<td>Chap 5b Notes &amp; Text Multimedia in Modules</td>
<td>Feb 7-Feb 9 Quiz #4-Chap 5a Feb 10 Assign#5 due</td>
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<td>6</td>
<td>Gases, Liquids, Solids</td>
<td>Review Chaps 1 – 5 fro Midterm Exam</td>
<td>Feb 14-Feb 16 Quiz #5-Chap 5b Feb 17 Assign#6 due</td>
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<td>7</td>
<td>Acids &amp; Bases</td>
<td>Chap 6 Notes &amp; Text Multimedia in Modules The Testing Center</td>
<td>Feb 20-22 (proctored) Midterm 1 Chaps 1-5 Feb 24 Assign#7 due</td>
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<td>Oxidation &amp; Reduction</td>
<td>Chap 7 Notes &amp; Text Multimedia in Modules</td>
<td>Feb 28-Mar 2 Quiz #6-Chap 6 Mar 3 Assign#8 due</td>
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<td>9</td>
<td>Organic Chemistry &amp; Polymers</td>
<td>Chap 8 Notes &amp; Text Multimedia in Modules</td>
<td>Mar 7-Mar 9 Quiz #7-Chap 7 Mar 10 Assign#9 due</td>
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<td>10</td>
<td>Nuclear Chemistry</td>
<td>Chap 9 &amp; 10 Notes &amp; Text Multimedia in Modules</td>
<td>Mar 14-Mar 16 Quiz #8-Chap 8 Mar 17 Assign#10 due</td>
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<td>11</td>
<td>Air</td>
<td>Chap 11 Notes &amp; Text Multimedia in Modules</td>
<td>Mar 21-Mar 23 Quiz #9 Chaps 9 &amp; 10 Mar 24 Discussion #1</td>
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<td>12</td>
<td>Spring Break</td>
<td>Research Paper Topic</td>
<td>Mar 31 (send by email)</td>
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<tr>
<td>13</td>
<td>Water</td>
<td>Review Chaps 6-11 Midterm Exam</td>
<td>Apr 4-Apr 6 Quiz #10-Chap 11 Nuclear Apr 7 Discussion #2</td>
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<td>14</td>
<td>Household Chemicals</td>
<td>Chap 13 &amp; 14 Notes &amp; Text Multimedia in Modules</td>
<td>Apr 10-Apr 12 (proctored) Midterm 2 Chaps 6-11</td>
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<td>Research</td>
<td>Chap 21Notes &amp; Text Multimedia in Modules</td>
<td>Apr 18-20 Quiz#11-Chap 13 Air Quiz#12-Chap14 H₂O</td>
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<td>16</td>
<td>Paper</td>
<td>Writing</td>
<td>Apr 25-27 Quiz 13-Chap 21 Household Chemicals</td>
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<td>Review for Final Exam</td>
<td>May 1-Research Paper Turnitin.com</td>
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<td>18</td>
<td>Cumulative Final Exam</td>
<td>The Testing Center</td>
<td>May 6-8 (paper-based) Final Exam</td>
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* Assignment/exam calendars may be changed due to institutional, weather or class problem