CHEM 100 Chemistry in Society

3 Credits
CRN 63298 (online)
CRN 63372 (online)

INSTRUCTOR: Leticia Colmenares, Ph.D.
OFFICE Imiloa 116
E-MAIL: leticia@hawaii.edu
OFFICE HOURS: MTW 10:00-11 am (Imiloa 116)
RF 1:00-2:00 pm (online)
TELEPHONE: 236-9120
EFFECTIVE DATE: Spring 2010

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College is committed to excellence in the liberal arts and career development: we support and challenge individuals to develop skills, fulfill their potential, enrich their lives, and become contributing, culturally aware members of our community.

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.
**GRADING**

Grades will be based on 10 (best out of 13) chapter **quizzes, 8 assignments, 2 midterm exams, 1 research paper, and a final exam.**

- Quizzes (10) (best out of 13)-------------------------- 100 points
- Assignments (8)------------------------------------- 40 points
- Research Paper (1)---------------------------------- 80 points
- Midterm Exams (2)-----------------------------------180 points
- Final Exam -----------------------------------------200 points
- Total --------------------------------------------600 points

**IMPORTANT:** To pass the course (with at least a ‘C’ grade) you should score at least 60% in the final cumulative exam. The final exam will be made up of 100-multiple-choice questions. It will be a proctored paper and pencil exam at the Testing Center in your campus.

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

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 22, 2010.

**COURSE TASKS**

- Weekly quizzes (online)
- Midterm Exams (online)
- Assignments
- Research Paper
- Final Exam (paper-and-pencil at the Testing Center)

**LEARNING RESOURCES**

1. Instructor Lecture Notes (available at WCC Bookstore)-required
2. Textbook: *Chemistry in Changing Times* by Hill and Kolb, 2010-required
4. Course Website: [http://laulima.hawaii.edu](http://laulima.hawaii.edu)
5. Math Review Appendix A-7 to A-9
6. Peer Tutoring in Chemistry (Imiloa 112)- coordinated by Instructor-schedule will be posted at [http://www.windward.hawaii.edu/chemistry_tutors/](http://www.windward.hawaii.edu/chemistry_tutors/)
7. Calculator & Periodic Chart
8. Use Discussion Board in Laulima to ask questions.
9. Office online hours (RF 1-2 PM) or face-to-face consultation (upon request)
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.

1. 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 six hours a week to this course.

2. Please check the Course Calendar and study the reading assignment in your lecture notes. 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. Focus on the objectives of each chapter. Read the notes and textbook with the objectives in mind.

3. Every week there is an assessment scheduled. Practice for the assessment by doing the worksheet, learning checks, self-assessments and practice test. It is important to work through each problem with pencil and paper and active thinking. Please study each of the examples in your lecture notes. Please cover the answers and treat each example as if this problem was in your quiz or exam.

4. 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, and for that, I will give you extra credit.

5. Some topics are not easy to understand. Hence, animations, videos and interactive websites are included in the chapter notes for you to access and view. I have also developed some audiotapes and movies, which are downloadable under Modules. At the same time, your textbook also has a collection of virtual tutorials in Chemplace.

6. Please take the practice quiz before the actual quiz. It is important that you feel a certain level of confidence before taking the actual test. It does not work to just look at the question and answer to learn. Hence, I strongly encourage that you take the practice quiz at least twice. I will give you an extra credit point if you score 80% or higher in a practice quiz. There will be a total of 15 practice quizzes and midterms.

7. Individual face-to-face tutoring are available at Imiloa 112 and also through TRIO. Students are encouraged to use tutoring from the very beginning of the semester before running into difficulty. Open tutor hours at Imiloa 112 are viewable at http://windward.hawaii.edu/chemistry_tutors/
8. You should plan to spend at least 6 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
- an hour viewing online video lectures and websites
- an hour doing self-assessments, learning checks and worksheets
- a half hour taking and reviewing practice quiz
- a half hour preparing and taking the actual quiz

9. Have a notebook. Take notes when watching videos, tutorials, animations, self-assessment tests and any other resource. If you don't write your notes, you will forget this when you reach the final exam.

10. Back up all your submissions.

**POLICIES**

1. **Online Quizzes/Midterms.** Online quizzes and midterms are accessed in Laulima Tasks, Tests and Surveys. A chapter quiz consisting of ten multiple-choice questions will be given every Thursday. The quiz will be made available for 48 hrs starting from Thursday 1 PM to Saturday at 1 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.

   There will be two midterms. Each of which will cover approximately one-third of the material of the course. Please see the course schedule on page 7. These will coincide with two of the quizzes.

   If you encounter a technical problem (e.g., the computer crashes, Laulima is down, etc.), please submit a Request Assistance form (on the left hand side of the Laulima login 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/midterm will be reset and you will be allowed a second attempt. However, please make sure that your Internet connection is a robust landline connection when taking online quizzes and midterm. Please do not take your quiz/midterm at the coffee shop or using wireless connection.

   **No makeup quizzes/midterms will be allowed. The three lowest quiz scores will be dropped.**

   The quizzes/midterms will be timed (10 to 20 min for quizzes and 50 min for midterms. Each quiz will have 10 questions while the midterm will have 40-45 questions. Each of
these will be opened weekly and should be completed by the time and date set in the course schedule. When the quiz/midterm date ends, the answers will automatically become available; hence you will not be allowed to take a late quiz/midterm. If you failed to take the quiz, this will be counted as zero. Please plan to take the quizzes and exams on the day that it becomes available, rather than on the last hour.

All quizzes and midterms are closed books and notes, and individual effort. You may not consult with any of your classmates while taking them. You are not allowed to tell a friend the type of questions on the quiz, the answers, or help a classmate in any way (e.g., by explaining how to solve the problem). This would fall under the guidelines of academic integrity and any evidence of cheating will result in a score of 0 for all parties involved. Also keep in mind that we are assessing your knowledge and understanding of the concepts - attempting to find the answers online through other resources is not in the spirit of academic honesty. An "F" will be assigned to students involved in cheating and will be reported to the Dean.

2. The final exam will be a paper-based exam to be sit-down written in-person at the WCC Testing Center or at other Exam Centers outside of WCC. It will be 2 hrs long and will include 100 multiple-choice questions. Picture ID is required and no cell phones, IPODS, or calculators will be allowed; all bags will be left in the back of the classroom. If you are located off the island of Oahu, please inform me early in the semester so that proper arrangements can be made with your campus representative.

3. Assignments. There are a total of eight assignments (see list below). Each is worth 5 points. If an assignment is submitted past the deadline, the maximum it will get is 3 points. The description of each is imbedded in the chapter notes. You have to read relevant information in the notes before working on the assignment. Each of this is due on Saturday midnight of the week it is due (see course schedule on page 7).

How to turn in assignment. The assignment should be saved in a WORD file .doc or .docx, but not in text files [.txt], labelled with your family name and assignment number and uploaded in Laulima "Assignments" (#2-#8 as attachments.)

#1- Scavenger hunt exercise and syllabus quiz (Chap 0)
#2 - Chapter #1 Risk Benefit Analysis & Desirability Quotient (Chap 1)
#3 - Scientific Method (Chap 1)
#4 – Methane (Chap 4)
#5 – Dihydrogen Monoxide: Why we need to study nomenclature. (Chap 4)
#6 – Balancing Equations of Reactions of the Atmosphere (Chap 5)
#7 - The Chemistry of Airbags  (Chap 6)
#8 – The Chemistry of Antacids (Chap 7)

The scavenger hunt assignment is mandatory. Please do this as soon as possible. It is very important that you become familiar with the tools on the website; in taking a quiz, downloading a presentation, posting a question and turning in an assignment.
4. **Extra Credit.** You can earn extra credit up to a **maximum of 20 points.** Attendance in chemistry forum is two points. The forum schedule will be posted at [http://www.wcc.hawaii.edu/chemistry_forum](http://www.wcc.hawaii.edu/chemistry_forum). If you give a correct response to your classmate’s muddiest point question in the Discussion you also get one point. If you score 80% or better in the practice quiz/exam you get one extra point. There are two extra credit papers in the last two chapters as well.

5. **Discussion Postings.** Use the "Discussion" to pose questions on chemistry topics. Questions about the class procedures should be posted in the Chat Room. Please answer the questions from your fellow students or provide some insight to the best way to approach a difficult topic and earn extra credit. Interactions promote deeper learning hence I expect you all to participate in this forum. Please post all your questions, others will be able to benefit from the answers. When online, please follow netiquette rules. Avoid flaming. See [http://www.albion.com/netiquette/corerules.html](http://www.albion.com/netiquette/corerules.html)

6. The research paper is a two-to three page (double space) paper of 500-600 words to make a connection between a chemistry concept and an application in everyday life. This will be made based on textbook readings and online resources. A sample paper, FAQ's and tips on how to search for references will be provided. 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 (2 points)
- connects the concept to application (2 points)
- body has correct length (at least 500 words) (1 point)
- does not have spelling and grammar errors (1 point)
- citations are included (1 point)
- reference list of at least five reliable sources is included (1 point)

Please submit the research paper in the same way you submit your assignment.

7. Use “email” only for grade related and personal questions. Please ALLOW 24 HOURS for responses to emails or messages. In emergencies, you may also call at 236-9120. Please speak slowly and leave your name, your phone number and times when you can be reached.

**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**

- Last day for withdrawal, 3/22
- Spring recess 3/22-3/26
- Last Day of instruction 5/5

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<th>Week</th>
<th>Topic</th>
<th>Readings</th>
<th>Quiz Schedule*</th>
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<tr>
<td>1</td>
<td>Orientation &amp; Chemistry</td>
<td>Chap 1 &amp; 2 Notes &amp; Text pages</td>
<td>Jan 11-22 Scavenger Hunt &amp; Syllabus Quiz</td>
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<tr>
<td>2</td>
<td>Atomic Structure</td>
<td>Chap 3 Notes &amp; Text</td>
<td>Jan 21-28 Quiz #1-Chaps 1 &amp; 2 Assign#1 due</td>
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<td>3</td>
<td>Chemical Bonds</td>
<td>Chap 4 Notes &amp; Text</td>
<td>Jan 28-30 Quiz #2-Chap 3 Assign#2 due</td>
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<td>4</td>
<td>Chemical Accounting I</td>
<td>Chap 5a Notes &amp; Text</td>
<td>Feb 4-6 Quiz #3-Chap 4 Assign#3 due</td>
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<td>5</td>
<td>Chemical Accounting II</td>
<td>Chap 5b Notes &amp; Text</td>
<td>Feb 11-13 Quiz #4-Chap 5a Assign#4 due</td>
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<td>6</td>
<td>Gases, Liquids, Solids &amp; Intermolecular</td>
<td>Chap 6 Notes &amp; Text</td>
<td>Feb 18-20 Quiz #5-Chap 5b Assign#5 due</td>
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<td>7</td>
<td>Acids &amp; Bases</td>
<td>Chap 7 Notes &amp; Text</td>
<td>Feb 25-27 Quiz #6 Chap 6 &amp; Midterm 1 Chaps 1-6</td>
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<td>8</td>
<td>Oxidation &amp; Reduction</td>
<td>Chap 8 Notes &amp; Text</td>
<td>Mar 4-6 Quiz #7-Chap 7 Assign#6 due</td>
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<td>9</td>
<td>Organic Chemistry &amp; Polymers</td>
<td>Chap 9 &amp; 10 Notes &amp; Text</td>
<td>Mar 11-13 Quiz #8-Chap 8 Assign#7 due</td>
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<tr>
<td>10</td>
<td>Nuclear Chemistry</td>
<td>Chap 11 Notes &amp; Text</td>
<td>Mar 18-20 Quiz #9-Chaps 9 &amp; 10 Assign#8 due</td>
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<td>11</td>
<td>Air</td>
<td>Chap 13 Notes &amp; Text</td>
<td>Apr 1-3 Quiz #10 Chap 11 &amp; Midterm2 Chaps 7-11</td>
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<td>12</td>
<td>Water</td>
<td>Chap 14 Notes &amp; Text</td>
<td>Apr 8-10 Quiz #11-Chap 13 (Air)</td>
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<td>13</td>
<td>Household</td>
<td>Chap 21 Notes &amp; Text</td>
<td>Apr 15-17</td>
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**SPRING RECESS** Mar 22-26, 2010
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| **14** | **Research** | **Research Paper**<br>**Have topic approved**<br>**List of references**  
**Apr 22-24**  
**Quiz #13-Chap 21**  
**(Household Chemicals)** |
| **15** | **Writing** | **Apr 29**  
**Research Paper due**  
**Research Paper due** |
| **16** | **Review** | **May 6, 2010**  
**Practice Final Exam** |
| **17** | **WCC Testing Center** | **May 10, 2010**  
**Final Exam**  
**(cumulative)** |

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