Chem 100L Chemistry in Society Laboratory
1 credit (CRN 62371)
(online)

INSTRUCTOR: Leticia Colmenares, Ph.D.
OFFICE: Imiloa 116
E-MAIL: Leticia@hawaii.edu
OFFICE HOURS: MWF 9:30-10:30 am, WF 12:30-1:30 pm
TELEPHONE: 236-9120
EFFECTIVE DATE: Fall 2009

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.

ABOUT YOUR INSTRUCTOR

Leticia (‘Letty’) Colmenares is an associate professor in the Department of Natural Science at WCC. She was born and raised in the Philippines and had taught chemistry there for twelve years prior to coming to the US. She is the only ‘full-time’ tenured faculty in chemistry at WCC. She had taught at WCC for ten years. She obtained her PhD in Chemistry at the University of Hawaii in Manoa. She has published extensively on vision chemistry and F-NMR spectroscopy. Her other research interests are in antioxidants, skin erythemas and water quality.

CATALOG DESCRIPTION

Experiments in everyday chemistry. (3 hrs. lab.)

Prerequisites: Credit or registration in CHEM 100.
WCC: DY

STUDENT LEARNING OUTCOMES

1. Identify/locate laboratory safety equipment and apply laboratory safety procedures.
2. Construct molecular models to determine molecular shape and properties.
3. Assemble apparatus to perform common laboratory techniques to verify fundamental chemistry principles in everyday life.
4. Make and record accurate observations and precise quantitative measurements.
5. Synthesize conclusions based on observations and data in a formal laboratory report.
6. Identify sources of error in laboratory experiments.
PURPOSE OF THE LABORATORY COURSE

The chemistry laboratory allows the student to understand some of the concepts discussed in the lecture more thoroughly. In the laboratory you will be involved with the processes of scientific inquiry. It is the only way for the student to learn the techniques that are so important in chemistry and applied sciences. The student will discover that doing quality work in the laboratory requires a great deal of patience and care.

LEARNING RESOURCES

Required Kit: CK-WCC-1 (ordering instruction mailed to students)
Course Website: http://laulima.hawaii.edu (use UH email account login and password)
Laboratory activities edited by L.U. Colmenares (distributed in website).

Other Requirements: Scientific Calculator
Internet Access

COURSE TASKS

• Scavenger Hunt & Syllabus Quiz
• Lab Safety & Techniques Quiz
• Activity Reports (10)
• Midterm Exam
• Final Exam

GRADING

<table>
<thead>
<tr>
<th></th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Activity Reports</td>
<td>70%</td>
</tr>
<tr>
<td>Lab Safety &amp; Techniques Quiz</td>
<td>5%</td>
</tr>
<tr>
<td>Midterm + Final Exam</td>
<td>25%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

1. Course grades will be assigned as follows:
   A  100-90%
   B  89-80%
   C  79-70%
   D  69-60%
   F  below 60%

The other grades I, W, Cr, NC to be assigned are described in the current college catalog. The NC grade will be assigned only as part of the Cr/NC option except in very unusual circumstances. Those circumstances must be discussed with the instructor.

2. There will be 10 hands-on activities, starting on week#3. Each of these requires a report. Your goal is to learn how to carry out the procedures, make accurate observations, calculations and interpretations. And, you need to be able to communicate all these in writing.
3. Each written report is submitted at the due date. Two (2) of these reports must be written in *formal laboratory report* format. A handout and sample formal report will be provided to guide you.

4. On week #2, you will be given an online quiz on lab safety and techniques. This will be open notes but with a time limit. You need to read the handout thoroughly before taking the quiz.

5. There will be one midterm (week #9) and one final exam (week #15). The midterm will cover material in the first half of the semester (from “Scientific Method” to “Moles & Chemical Accounting”) and the final will cover the rest of the activities. Both exams are online. Both are closed notes and closed books (with time limit).

6. Each activity (and exam) will vary in points. Hence, the activity grade will be marked in raw score/total points and in percent (%). The % will be used to calculate final grade.

**TIPS ON HOW TO SUCCEED IN THIS COURSE**

1. Please download, print and read the entire syllabus including the Course Calendar as soon as possible.

2. Please order your lab kit as soon as possible. It should arrive on Sep 7 at the latest.

3. Take the online orientation quiz.

4. Please download, print and read the week's activity (.pdf) and report (.doc) under ‘Modules.’

5. The activity handout contains a brief introduction, objectives, safety precautions, equipment/materials, and experimental instructions. You should read the safety precautions first, and then the entire handout.

6. Make a habit of posting the muddiest point in the activity on the Discussion Board. Anyone who gives a substantive answer will be awarded one (1) extra credit point.

7. The pre-lab exercise (found on the first page of the week's report.doc) should be completed prior to the laboratory work. Gather all equipment and materials needed for the activity.

8. Follow the directions in the *Experimental Instructions* precisely. Don’t take short cuts nor fake results as these are readily spotted. Please do not skip read (this is the most common mistake).

9. **Activity reports.** Record your observations and measurements accurately. Complete the tables, do the required calculations, and then answer all the questions in the report form.

10. Allot at least four hours a week to do online and home lab activities.
- an hour doing tutorials and reading assignment
- three hours doing the hands-on activity, writing and submitting the report online

11. Login at least twice a week, to participate in discussion, take the online quiz and to submit your activity report.

12. The activity report is due every Friday 11:55 pm. Late reports get automatic 50% deduction.

13. You are responsible to MEET ALL DEADLINES as listed on the class calendar. Please plan to submit all assignments in ample time. Please do not expect the instructor or your classmates to remind you about deadlines or guidelines.

14. Take notes when watching videos, tutorials, animations, self-assessment tests and any other resource. If you don’t write your notes, most likely you will forget this when you reach the final exam.

15. Keep a copy of all your submissions.

16. Individual and small group f2f tutoring are available through a grant funded by the Ifuku Family Foundation. Students are encouraged to use tutoring from the very beginning of the semester before running into difficulty. Open hours will be posted at http://windward.hawaii.edu/chemistry_Tutors/

17. Manage your time wisely. As soon as you are done with an activity report proceed to the next one as soon as possible. Start early before the due date to give ample time for discussion in case you do not understand certain steps.

OTHER POLICIES

1. The quizzes and exams are scheduled every Friday. The quiz will be made available for 36 hrs starting from Fri 12 noon to Saturday night at 11:55 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 test anytime within this period. You are expected to move on to the next Activity as soon as you are done with a test.

2. Late Work Policy: Work is due on the due dates. Late work gets an automatic 50% deduction.

3. Students may not work together and then turn in the same work. Students are to do assignments on their own. Students may not copy the work or answers of others students on quizzes, tests, or writing assignments. If there is evidence of cheating you will receive an F on that work and will be reported to the Dean for violating the Academic Honesty policy.

4. Follow net etiquette.

5. If you have any special learning needs, including hearing/visual impairment, please inform the instructor as soon as possible.
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 encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, lemke@hawaii.edu, or you may stop by Hale ‘Akoakoa 213 for more information.

COURSE CONTENT AND CALENDAR

- Labor Day, 9/7
- Last day for withdrawal, 10/27
- Veterans’ Day, 11/11
- Thanksgiving recess 11/26-11/27
- Last Day of instruction 12/10

<table>
<thead>
<tr>
<th>Week</th>
<th>Unit &amp; Topic</th>
<th>Assignment</th>
<th>Due Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Scavenger Hunt &amp; Syllabus</td>
<td>Read online orientation &amp; syllabus &amp; order lab kit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Take online orientation and syllabus quiz</td>
<td>Aug 28</td>
</tr>
<tr>
<td>Week 2</td>
<td>Lab Manual</td>
<td>Read Lab Manual (all 31 pages) Mail signed Lab Safety Reinforcement Agreement</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Take quiz on Lab Safety &amp; Techniques</td>
<td>Sep 4</td>
</tr>
<tr>
<td>Week 3</td>
<td>Scientific Method</td>
<td>Submit activity report</td>
<td>Sep 11</td>
</tr>
<tr>
<td>Week 4</td>
<td>Taking Measurements</td>
<td>Submit activity report</td>
<td>Sep 18</td>
</tr>
<tr>
<td>Week 5</td>
<td>Determining Density</td>
<td>Submit activity report</td>
<td>Sep 25</td>
</tr>
<tr>
<td>Week 6</td>
<td>Elements, Compounds &amp; Reactions</td>
<td>Submit activity report</td>
<td>Oct 2</td>
</tr>
<tr>
<td>Week</td>
<td>Topic</td>
<td>Activity</td>
<td>Date</td>
</tr>
<tr>
<td>-------</td>
<td>--------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>7</td>
<td>Moles &amp; Chemical Accounting</td>
<td>Submit activity report</td>
<td>Oct 9</td>
</tr>
<tr>
<td>8</td>
<td>Stoichiometry of a Precipitation Reaction</td>
<td>Submit activity report</td>
<td>Oct 16</td>
</tr>
<tr>
<td>9</td>
<td>Midterm exam</td>
<td>Take midterm exam</td>
<td>Oct 23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Read handout on formal report writing</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Chromatography of Food Dyes</td>
<td>Submit <em>formal lab report</em></td>
<td>Oct 30</td>
</tr>
<tr>
<td>11</td>
<td>Oxidation-Reduction Reactions</td>
<td>Submit activity report</td>
<td>Nov 6</td>
</tr>
<tr>
<td>12</td>
<td>Acids &amp; Bases</td>
<td>Submit activity report</td>
<td>Nov 13</td>
</tr>
<tr>
<td>13</td>
<td>Chemicals in Everyday Life: What are they and how do we know?</td>
<td>Submit <em>formal lab report</em></td>
<td>Nov 20</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>Thanksgiving holiday</td>
<td>Nov 27</td>
</tr>
<tr>
<td>15</td>
<td>Final exam</td>
<td>Take final exam</td>
<td>Dec 4</td>
</tr>
</tbody>
</table>