Chem. 151 Elementary Survey of Chemistry
3 credits
T/TH 8:30-9:45

INSTRUCTOR: Bernadine Reeves
OFFICE: Imiloa 130

OFFICE HOURS: 1:00 to 2:00 on Monday
TELEPHONE: 236-9116 EMAIL: br2@hawaii.edu

EFFECTIVE DATE: Fall 2012

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

Provides the student with an adequate background in the fundamentals of chemistry. Covers the basic language and quantitative relationships of chemistry, including atomic structure, chemical bonding, structure-property relationships, and chemical reactions. Prerequisite to CHEM 152 for majors in medical technology and nursing and other allied health and science-related fields, or can be taken as a preparatory course for CHEM 161. (3 hours lecture)

Pre-Requisite(s): Credit for MATH 24 or higher and grade of “C” or better in ENG 21 or placement in ENG 22 or higher.

Activities Required at Scheduled Times Other than Class Times

A Supplemental Instructor will be available for this class. Every student should spend at least two hours with the supplemental instructor before each of the Midterms and the Final Exam

STUDENT LEARNING OUTCOMES

• Predict properties of chemical elements based on their atomic structure and their location in the Periodic Table.
• Name chemical compounds, balance chemical and nuclear reactions.
• Predict properties of chemical compounds based on chemical bonding, molecular shapes, and polarity.
• Calculate mass relationships in chemical reactions and the quantity of matter in gaseous chemicals and chemical solutions.
• Predict the products of common chemical reactions.
• The Student Learning outcomes (1-5) will be determined by homework and class work as well as by quizzes and tests.
• Apply knowledge of chemical concepts to a current environmental, health, industrial, or technological issue or condition by writing a short research paper.
• These will be evaluated by a rubric which will be published on Laulima.

COURSE TASKS
Class attendance, participation, homework, daily quizzes, midterm exams, research paper/PowerPoint/Service-Learning Option, and 3 recitation classes with a Supplemental Instructor and the final exam.

ASSESSMENT TASKS AND GRADING
1. Grades will be based on in-class participation, research paper, quizzes, long exams, and a final exam.
   Attendance & Participation -----5 % of total grade
   Homework--------------------------5% of total grade
   Quizzes(daily and on-line)---------------15 % of total grade
   Long Exams (3) -----------------40 % of total grade
   Final Exam -------------------25 % of total grade
   Paper, (1) ----------------------10 % of total grade or Service-Learning Project or
   PowerPoint Presentation
   Total-------------------------------100 %

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

   Curving might be employed if deemed necessary.

   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. In-class participation during lecture and inquiry-based learning activities will be graded on a daily basis. Scoring:
   • On time and participates in class activities ---- 1 points
   • Absent------------------------------- 0 points

3. Homework will be assigned from the text or the lecture notes and collected at the end of each chapter.
   • On time--------------------- 10 points

4. Quizzes. A short quiz based on the homework problems will be given during each class. A longer quiz will be given on line for each chapter on Laulima. If you are absent for a quiz, please email me for a time to make it up.
   • On time------------------- 10 points possible
   • Late --- 2 points less than score
5. There will be **three long exams**, each of which will cover approximately one-third of the course. Long exams will last approximately 35 minutes.

6. The **final exam** will **cover all topics** (cumulative) from the beginning with special emphasis on topics covered after the third midterm exam. The final exam will be approx. 2 hrs. The dates of these evaluations are given in the Course Schedule (see last page).

7. In order to evaluate the ability to relate chemical concepts/theories to current issues on environmental, health, and technological problems/issues or real-life applications, a literature **research paper** or PowerPoint presentation will be required. In this short paper or presentation, a strong connection between theory and application should be emphasized. The report should be at least 4 **pages** long, double space with **at least 5 references** (web and library sources). The PowerPoint should be at least 10 slides with at least 5 references. Deadline is on Wednesday, November 23. Rubrics will be posted on Laulima.

**Service Learning Option:**

In place of the Term Paper on Chemistry in Everyday Life, students have an option to do a Service-Learning Project that relates to Chemistry. This will be worth 10% of the grade for the class.

Requirements: **Discuss your project with me before you begin the process. Students must complete the packet of materials available in the Service-Learning Office in Hale Na'auao, Room 132. This includes a Site Proposal Form, An Assumption of Risk, Release and Waiver, and a Site Supervisor Evaluation Form.**

In order to receive credit for the Service-Learning project the student must also

a) Participate in any training required to do the project be willing to follow any dress or behavioral codes established by the project supervisor.

b) Contribute 20 hours to the project.

c) Keep a journal each time you work and turn it for evaluation by the Classroom teacher. You must present 5 minute presentation to the class using PowerPoint or another method or include a one page evaluation of your project with your journal.

d) The journal evaluation or the PowerPoint should reflect how the Service-Learning Projects relates to Chemistry in Everyday Life. Pictures of what you did speak volumes.

e) Show the Site Supervisor Evaluation form to me.

f) Make sure all materials are handed in to the Service-Learning Office.

**LEARNING RESOURCES**

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<tbody>
<tr>
<td>Required Notes:</td>
<td>Chemistry 151 Lecture Notes by Colmenares (sold at Bookstore)</td>
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<tr>
<td>Course Website:</td>
<td><a href="http://laulima.hawaii.edu">http://laulima.hawaii.edu</a> (use UH email account login and password)</td>
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<tr>
<td>Other Requirements:</td>
<td>Scientific Calculator</td>
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<td>Internet access</td>
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**Additional Information**

Nothing is more important to your academic success than strong study skills. On average, you should spend about **seven hours per week** outside the classroom to study for this course.

1. Prepare for each class by **familiarizing** yourself with the **lecture slides** in the Lecture Notes and the **Concepts to Remember** in the textbook.

2. I will be using slides during the lecture that I will post on Laulima. I will highlight the most important concepts in the lecture by using different colors. They will be similar to the slides in the Lecture Notes. Take **notes** during the lecture. Bring your **calculator and Lecture Notes** at all times. Ask **questions** if you do not understand. Please contact me by email if you have questions or make an appointment to see me during office hours or sometime other than the posted office hours.

3. **Participate** in all the in-class Learning Checks and activities.

4. **Review** your notes soon after class. I will assign **Drills** in the Lecture Notes and the Practice Exercises and Questions in the textbook. The homework assignments will be posted on Laulima as well as in the syllabus.

5. There will be a short quiz at the beginning of each class based on the homework assignments and the lecture notes. Please ask me before class if you are having difficulties.

**You are expected to attend several review sessions with the Supplemental Instructor on important concepts. The approximate dates are posted on the last page of the syllabus. These extra tutoring sessions will help you to do well on your quizzes, tests, and the exam.**

6. Practice the following tests for review.
   1. **Chapter Drills** in the Lecture Notes
   2. **Exercises and problems** at the end of each chapter in the Textbook.
   3. **Practice exams** will be posted on Laulima **about two weeks before the midterms or the final**. These will cover the same material and be similar to your tests and exam.

**OTHER POLICIES**

1. The topics and exam schedule are found in the **Course Schedule** on the last page.

2. It is expected that you have the required mathematics skills for the course. To review the mathematics you need to apply in this course (i.e. exponential notations, significant figures, proportionality, percentages, metric system, solving equations, volume), go to [http://college.hmco.com/chemistry/gob/stoker/gob_chemistry/4e/resources/lessons.html](http://college.hmco.com/chemistry/gob/stoker/gob_chemistry/4e/resources/lessons.html)

4. Plagiarism will not be tolerated. Make sure you give credit to your sources and use quotation mark when you make a direct quote.

5. **Missed Quizzes.** If you are **absent**, the quiz you missed will be counted as **zero**. You may make up the quiz if email me about why you were absent and make arrangements to take the quiz. Your lowest two quiz grades will be dropped.

6. **Missed Midterm.** Only one missed **long exam** (with requisite doctor’s note, police report or obituary notice) can be made up, if you notify the instructor **in advance or on the day of the exam**. There will be **no make-up** for the **final** exam.

7. **Make-ups.** Exams and quizzes **cannot** be retaken to obtain better grades.

8. **Disruptive behavior** leads to loss of learning time. Examples are activated beepers and cell phones, checking/sending text messages, making offensive remarks, eating or drinking in the classroom, making noise, leaving class early, sleeping in class, prolonged chattering, reading other materials not relevant to this class, etc. If a student takes part in disruptive behavior, the instructor reserves the right to exclude immediately the student from that class meeting, and the student will be marked absent.

9. If you have any **special learning needs**, including hearing/visual impairment, please inform the instructor as soon as possible.

**DISABILITIES ACCOMMODATION STATEMENT**

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.

10. An "F" will be assigned to students **cheating** and will be reported to the Dean.

11. Any class announcement pertaining to changes in schedule will be made at least a week prior to the affected date. However, **you are responsible** for knowing these changes, whether or not you were in class for the announcement. If you were late or missed class please borrow notes from your classmate.

12. If you have any question or issue to discuss with me, the **best time** to see me is during office (Imiloa 111) hour at 12:30 to 1:30 PM on Monday. You may also email at any time and you will be answered within 24 hours. If you need to see me at any other time, please email me to set up an appointment.

13. More extensive applications of the chemistry concepts will be demonstrated through hands on activities in Chem. 151L. Concurrent registration in **Chem. 151L (1 credit) is strongly recommended.**
14. Extra Credit. You can receive ½ Percentage point extra credit for attending any of the Chemistry Forums and writing a summary paper. The schedule will be posted on the Bulletin Board across from Imiloa. Other opportunities will be posted on Laulima.

15. Check the schedule at http://windward.hawaii.edu/chemistry_forum/

You may earn ½ Percentage point of extra credit for every 2 hours of tutoring.
## COURSE CONTENT AND SCHEDULE

**Important Dates**
- Last day for withdrawal: 10/29 (M)
- Last day of instruction: 12/5 (W)
- Holidays: 11/6 (T), 11/22 (Th)

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<thead>
<tr>
<th>Chapter</th>
<th>Topic*</th>
<th>Date</th>
<th>Homework (Everything in Lecture Notes plus pages in textbook)</th>
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<tbody>
<tr>
<td>1</td>
<td>Basic Concepts about Matter</td>
<td>8/21</td>
<td>p. 16 #3, 9, 13, 21, 57, 59, 67, 77-86</td>
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<tr>
<td>2</td>
<td>Measurements in Chemistry</td>
<td>8/23</td>
<td>p. 46 #11, 27, 29, 39, 47, 49, 69, 98-107</td>
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<tr>
<td>3</td>
<td>Structure and Periodic Table</td>
<td>8/30</td>
<td>p. 77 #5, 7, 11, 21, 23, 35, 47, 49, 55, 61, 63, 85, and 95-104</td>
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<td><strong>Review for Test 1 with SI</strong></td>
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<td><strong>Test 1</strong></td>
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<td>5</td>
<td>Covalent Bonds and Molecular Geometry</td>
<td>10/2</td>
<td>p. 132 #1, 5, 7, 9, 11, 15, 17, 25, 27, 35, 37, 39, 49, 55, 59, 61, 65, 80-89</td>
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<td>6</td>
<td>Chemical Calculations</td>
<td>10/11</td>
<td>p. 157 #9, 11, 13, 17, 21, 25, 33, 37, 39, 41, 49, 51, 57, 59, and 72-81</td>
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<td><strong>Review with SI for test</strong></td>
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<td><strong>Test 2</strong></td>
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<td>7</td>
<td>Gases, Liquids and Solids</td>
<td>10/25</td>
<td>p. 188 #11, 13, 17, 19, 23, 25, 29, 31, 41, 45, 47, 49, 51, 53, 55, 61, 63, 65, and 81-90</td>
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<td><strong>Term Paper first draft due</strong></td>
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<td>8</td>
<td>Solutions</td>
<td>11/8</td>
<td>p. 218 #7, 15, 17, 19, 25, 27, 37, 39, 45, 47, 51, 63, 65, 69, 73, 75, 91-100</td>
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<td>9</td>
<td>Chemical Reactions</td>
<td>11/20</td>
<td>p. 286 #1, 3, 4, 5, 7, 9, 11, 31, 41, 43, 47, 51, 55, 57, 59, 51, 63, 69, 93, 95, 97, and 122-131</td>
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<td><strong>Review with SI for test</strong></td>
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<td><strong>Test 3</strong></td>
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<td>10</td>
<td>Acids, Bases, Salts</td>
<td>11/29</td>
<td>p. 286 #1, 3, 4, 5, 7, 9, 11, 31, 41, 43, 47, 51, 55, 57, 59, 51, 63, 69, 93, 95, 97, and 122-131</td>
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<td><strong>Term Paper Final draft or PowerPoint due</strong></td>
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<td>11</td>
<td>Nuclear Chemistry</td>
<td>12/4</td>
<td>Nuclear Modules on Laulima (Due 12/5)</td>
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<td><strong>Review in Class</strong></td>
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<td><strong>Final Exam</strong></td>
<td>December 13</td>
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