CHEM 151 Elementary Survey of Chemistry
3 credits
CRN 61060
MW 8:30-9:45 am Imiloa 111
Spring 2016
Instructor: Vilma Fermin
Office: Imiloa 118
Office Hour(s): MW 8:00-8:30/ by appointment
Telephone: 236-9116

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT
Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawaii 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 adequate background in the fundamentals of chemistry. Covers the basic language and quantitative relationship of chemistry including atomic structure chemical bonding, structure-property relationships and chemical reactions.
Pre-requisite to Chem 152 for majors in medical technology, nursing and other allied health and science related fields or can be taken as a preparatory course for Chem 161
(3 hour lecture)

STUDENT LEARNING OUTCOMES
Know the scope of chemistry, its interdisciplinary nature and its basic language like matter, elements, compound, molecule, atoms, mole, reagents, reactant, coefficient, products, metals, nonmetals, metalloids, equilibrium, acids, bases, etc
Learn the basic principles, theories and concepts fundamental to the field of chemistry like the Octet rule, Law of Conservation of Mass, Gas Laws Kinetic Molecular Theory, and their applications in everyday life and to society
Be able to solve problems, mathematical or otherwise, which are related to these basic principles, theories and concepts like conversion between systems of measurements, and stoichiometric problems, writing formulas of compounds and naming compounds, answering the why’s and how’s of certain phenomena, solving gas laws, balancing chemical and nuclear reactions, difference between acids and bases, and predicting products of a nuclear reaction.

Write a written report on any environmental, health or technological issue/condition related to any concepts discussed in class.
COURSE TASKS
quizzes, homework, midterm exams, final exam and research paper.

ASSESSMENT TASKS AND GRADING
1. **Quizzes**(9). A short quiz based on previous meeting, and related homework will be given at the start of class on Wednesdays except on a Wednesday immediately before an exam and immediately after an exam. 10 pts for every quiz with each quiz timed for 15-20 minutes. Generally 5-10 items in every quiz in multiple choice format. (10 pts each quiz) The lowest quiz will be dropped. First quiz on 1/13.

2. **Midterm exams**(3). Each exam will cover approximately one-fourth of the course material. Each exam will have around 40 items mostly as multiple choice questions which can include calculations. The whole class session for the day will be used for each exam.

3. **Final exam** will for the most part cover the topics covered after the last midterm exam(85%). The remaining 15% will cover topics covered from the beginning and includes the topics below:

   Unit conversion/ Covalent Bonding:
   common bonding patterns of C,H, O, N & the halogens
   Lewis formulas/structural formulas/electronegativity & trend/
polarity of bonds/polar covalent bond vs nonpolar covalent bond

The dates of these written evaluations (midterms and final exams) are given in the Course Schedule (last page of this Class Syllabus)

4. **Research Paper** (1). This activity will evaluate a student’s ability to apply/relate chemical concepts/theories to current issues on environmental, health and technological problems/condition/issues or real life applications. In this paper, the student is asked to develop a connection between chemical theory/concept and its application.

   Report must be 3 pages long, double spaced with at least five (5) references, two (2) of which can be web sources.
   Deadline is the last instructional day of the class, Wednesday, 5/4/16. You may e-mail me the research paper by 12 noon of 5/4/16 or submit a hard copy by the end of class on 5/4/16.
Criteria for grading and evaluation of the research paper will be posted in Lauilima by the second week of class.

5. **Homework (10)**
Drills at end of each chapter discussion in Lecture Notes by Colmenares will be the homework. In some instances, additional homework for each chapter may be given.
Turn in a week after the class discussion for the chapter is over and done with.
A student earns 5 pts for each chapter Drill(s) turned in.
Late homework – homework turned after a week – will not be credited.

6. **Extra credits:**

*In-class participation* during lecture will be graded on a daily basis.
Class participation: 1 pt per class contribution/ 10 pts max per student

7. **Grades** will be based on quizzes on selected Wednesdays, homework, midterm exams, a final exam and research paper.

<table>
<thead>
<tr>
<th>Component</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes (8 of 9)</td>
<td>80 points (10 pts each)</td>
</tr>
<tr>
<td>Homework (10 of 11)</td>
<td>50 (5 pts each)</td>
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<tr>
<td>Midterm Exams (3)</td>
<td>300 points (40 items x 2.5 points each = 100 pts each)</td>
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<tr>
<td>Final Exam (1)</td>
<td>60 items x 2 = 120 points</td>
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<tr>
<td>Paper (1)</td>
<td>15 points</td>
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**Total** 565 points

Course grade will be assigned as follows:

- **A**: 90-100% of total points
- **B**: 80-89%
- **C**: 70-79%
- **D**: 60-69%
- **F**: below 60%

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

If you drop from the course without notice, you will get an “F” grade.
N grade: The “N” grade presupposes 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 but is unable to complete the class due to extenuating circumstances such as major health problem, personal and/or family emergencies. Students requesting for N grade must provide a letter of request before the final examination with supporting evidence.

LEARNING RESOURCES

**Required:** Chemistry 151 Lecture Notes by Colmenares (available at the bookstore)


**Scientific calculator**

**Internet access/course website** at [https://laulima.hawaii.edu](https://laulima.hawaii.edu)

ADDITIONAL INFORMATION

Strong study skills are important to your academic success. On the average, spend about seven hours per week outside the classroom to study for this course.

You are strongly reminded to keep up with the class schedule.

Study immediately after class when the subject matter discussed is still fresh in your mind.

Like learning a new language, repetition is the key to learning this basic course. Skimming through the Lecture notes before class, attending class, listening well, participating in class exercises, reviewing what was taken up after class, doing the homework, discussing with study buddies, and relating concepts learned to everyday experiences will help greatly in doing the course successfully. You will not only get a good grade in the course but you will develop strong study skills and persistence which will be helpful in your future courses and your overall academic goal.

If you have any questions, see me during my office hours or set up an appointment if you cannot make it to my office hours.
1. Come to class on time.

2. Prepare for each class by *familiarizing yourself* with the lecture slides in the Lecture Notes. Topic to be discussed each day is listed in the Course Schedule of this syllabus for your guidance.

3. Bring Lecture Notes to class and take notes. Listen well in class, ask your questions, and participate in the class exercises/activities. Contact me by e-mail/phone for any questions if you can not see me during office hours. When you call, leave a message if I do not answer and I'll get in touch with you as soon as possible.

4. Soon after class, review Lecture Notes and your class notes. Re-do class exercises and Do the Drills in the Lecture Notes for each chapter.

5. A **scientific calculator** capable of doing logarithm and antilog functions is needed by the last week of April. Ordinary calculators that can perform simple mathematical operations will suffice for the meantime. Bring calculator to class every meeting.

**OTHER CLASS POLICIES**

1. Check for and get any handouts at the instructor’s desk.
2. Boisterous laughing, prolonged personal small talks and unnecessary jokes, offensive or discourteous remarks are distractions which will not be tolerated.

Other disruptive behavior which will not be tolerated include:

- Making and receiving cell phone calls/texts during class time
- Reading newspaper, magazines, books or other materials not related to the course
- Doing things in the classroom that are not related to class activities
- Making comments totally unrelated to the course
- Sleeping in class
- Activated beepers
- Other similar incidents
Disruptive student(s) will be warned ONCE during each class time and if disruptive behavior continues, the student(s) will be escorted out of the classroom by the security guard.

3. If you have to leave the class earlier than the designated end time, make your exit as inconspicuous as possible so as not to disrupt classroom activities.

4. Only one (1) missed Midterm exam and only one (1) quiz can be made up if you notify the instructor in advance or on the day of the exam/quiz, and if you can present a doctor’s note, a police report or if you have a personal/family emergency. The instructor reserves the right to determine if your emergency/excuse is reasonable or not.

The final exam can be made up only if you notify the instructor in advance or on the day of the exam, and if you can present a doctor’s note, or a police report or if you have a personal/family emergency. The instructor reserves the right to determine if your excuse/emergency is reasonable or not.

Exams and quizzes can not be re-taken to get better grades.

All exams must be taken to get a grade of D and above.

5. You are responsible for any class announcement pertaining to changes in schedule or other matters related to the class whether or not you were in class for the announcement. Check course website daily for any class announcement.

6. An “F” will be assigned to anyone cheating. Such behavior will be reported to the Dean for disciplinary action.

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

DISABILITIES ACCOMMODATION STATEMENT
Anyone with any physical, sensory, health, cognitive or mental health disability, is encouraged to contact the Disability Specialist Counselor (Ann Lemke at 235-7448, lemke@hawaii.edu, Hale Akoakoa 213) to discuss reasonable accommodation that will help you succeed in class.
*COURSE CONTENT AND SCHEDULE*

1/11  M  Chapter 1 Orientation/Basic Concepts of Matter
1/13  W  Chapter 1
1/18  M  *Martin Luther King Day -Holiday*
1/20  W  Chapter 2 Measurements in Chemistry
1/25  M  Chapter 2
1/27  W  Chapter 3 Atomic Structure and The Periodic Table
2/01  M  Chapter 3
2/03  W  Chapter 3/ Review
2/08  M  **Exam 1 (Chapters 1, 2 &3)**
2/10  W  Chapter 4 Ionic Bond Model
2/15  M  *President's Day-Holiday*
2/17  W  Chapter 4
2/22  M  Chapter 5 Covalent Bond Model
2/24  W  Chapter 5
2/29  M  Chapter 5
3/02  W  Chapter 6 Chemical Calculations
3/07  M  Chapter 6
3/09  W  Chapter 6/Review
3/14  M  **Exam 2 (Chapters 4,5 &6)**
3/16  W  Chapter 7: Gases, Liquids and Solids

**3/21-3/25**  **SPRING BREAK**
3/28  M  Chapter 7
3/30  W  Chapter 7
4/04  M  Chapter 8 Solutions
4/06  W  Chapter 8
4/11  M  Chapter 8/Review
4/13  W  **Exam 3: Chapters 6,7 & 8**
4/18  M  Chapter 9 Chemical Reactions
4/20  W  Chapter 9
4/25  M  Chapter 10 Acids & Bases
4/27  W  Chapter 10
5/02  M  Chapter 11: Nuclear Chemistry
5/04  W  Chapter 11/ Review
5/09  M  **Finals (Chapters 9,10 & 11) plus:**

Unit conversion/ Covalent Bonding:
common bonding patterns of C,H, O, N & the halogens
Lewis formulas/structural formulas/electronegativity & trend/
polarity of bonds/polar covalent bond vs nonpolar covalent bond

*subject to change*