

## CHEM 151 ELEMENTARY SURVEY OF CHEMISTRY

3 Credits CRN 63015

TR 8:30- 9:45 am

**INSTRUCTOR:** Vilma Fermin

**OFFICE:** Imiloa 118

**OFFICE HOURS:** 8-8:30 TR or by appointment

**TELEPHONE:** 236-9116

**EMAIL:** vfermin@hawaii.edu

**EFFECTIVE DATE:** Fall 2016

### 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 in MATH 24, 25, 26, 28, 29, 75X or higher.  
Placement in ENG 23 or higher

### STUDENT LEARNING OUTCOMES

Upon completion of the course, the student will be able to:

1. Predict properties of chemical elements based on their atomic structure and their location in the Periodic Table.
2. Name chemical compounds, balance chemical and nuclear reactions.

3. Predict properties of chemical compounds based on chemical bonding, molecular shapes, and polarity.
4. Calculate mass relationships in chemical reactions and the quantity of matter in gaseous chemicals and chemical solutions.
5. Predict the products of common chemical reactions.
6. Apply knowledge of chemical concepts to a current environmental, health, industrial, or technological issue or condition by writing a short research paper

## **COURSE TASKS**

quizzes, homework, midterm exams, final exam, attendance and research paper

## **ASSESSMENT TASKS AND GRADING**

### **1. Quizzes (10)**

A short quiz based on topics discussed in the previous meeting(s) and related homework will be given at the start of class every Thursday, except on 12/08

10 points for each quiz for 15-20 minutes

5-10 items in multiple choice format

first quiz on 9/01

last quiz on 12/01

lowest quiz will be dropped

### **2. Homework (11)**

Homework for each chapter will be assigned.

Turn in chapter homework the following class meeting or at designated date announced by the instructor.

Each homework is worth 5 points.

Late homework is not credited unless there is an existing medical emergency or serious personal and family matters. The instructor reserves the right to determine if the personal or family matter is excusable or not.

Late homework is penalized: minus 1 pt. for each day late.

### **3. Midterm Exams (3)**

Each exam will cover three chapters except for the first exam which will include only two chapters.

Each exam will have around 40 multiple choice items which may involve calculations.

The whole class time for each meeting will be used up for each exam. Review the Learning Checks for each chapter, re-do the associated Homework and the Quizzes to prepare for the exam.

#### 4. **Final Exam** (1)

Covers the topics discussed after the last midterm exam and chapters 9,10 & 11 and special topics consisting of:

Unit conversions from Chapter 2

Covalent bonding model from Chapter 5

Final exam will consist of 60 items.

**The dates of these written evaluations (midterms exams and the final exam) are given in the last page of this Syllabus.**

#### 5. **Research paper** (1)

This activity will evaluate a student's ability to apply or relate chemical concepts, theories or principles discussed in class, to current issues on environmental, health and technological problems/conditions/issues or to real life applications.

Details like requirements and grading of the research paper will be posted in Lulima.

Due date: 12/5

You may e-mail me the research paper by 12 noon of 12/5/16 or turn in a hard copy by the end of class time on 12/5/16.

#### 6. **Attendance** (27 points)

A student earns 1 point for each class session attended.

Sign in on the sheet of paper by the instructor's desk for class attendance.

#### 7. **Extra credits**

In class participation during lecture time will be graded as extra credits on a daily basis.

One (1) point for every contribution. A total of 25 points is allowed for every student.

If you are shy, and does not want to talk in class or show your work, you can earn 5 pts if you attend any Chemistry Forum seminar and turn in a written report.

Flyer of the Chemistry Forum is posted by the classroom door and at the bulletin boards in the hallway.

1. Have an attendance sheet with your name, date, and two (2) spaces for the signature of the person in charge of the forum.

Have the professor in charge, usually Prof. Letty Colmenares, sign your attendance sheet. You have to let her sign on two separate times: first to sign the session start and the second time for the session end.

Attach this attendance sheet to your report.

2. About the written report
  - a. Turn in report a week after the seminar
  - b. 2 pages, double spaced
  - c. Substance: summary of the talk as given by the speaker and/or critique of any points discussed (your opinion on topic discussed)
  
3. You may attend 5 separate sessions to get the 25 points.

**8. Grades** will be computed based on activities listed above: quizzes, homework, exams, attendance, research paper and extra credits.

		<b>Total points</b>	<b>%</b>
Quizzes (9 of 10)	10 points each	90 points	13.8
Homework (11)	5 points each	55 points	8.4
Midterm exams (3)	100 points each	300 points	*46.0
Final exam (1)	120 points	120 points	18.4
Research paper (1)	60 points	60 points	9.2
Attendance		27 points	4.1
Extra credits	25 points		(3.8%)
<b>Grand Total</b>	<b>652 points</b>		<b>*15.3% each exam</b>

Course grade will be assigned as follows:

A	90-100% of <i>Grand Total</i>
B	80-89%
C	70-79%
D	60-69%
F	below 60%

Curving maybe employed if deemed necessary and at the discretion of the instructor.

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.

Dropping the course without notice will mean an "F" grade

**N grade:** The N grade presupposes that the student has worked conscientiously, turned in all homework, attended regularly, fulfilled course responsibilities, and has made measurable progress but has not achieved the minimum student learning objectives, and is not ready to succeed at the next level or the student has made consistent progress but is unable to complete the class due to extenuating circumstances like a major health problem, personal or family emergencies. **Students requesting for an N grade must provide a letter of request before the final examination with supporting evidence.**

Only one missed exam and only one (1) missed quiz can be made up if the instructor is notified beforehand or on the day of absence AND if you present a doctor's note or a police report. In case of personal and family emergencies, the instructor reserves the right to determine if the emergency is excusable or not.

## LEARNING RESOURCES

- Required:
1. **Lecture Notes for Chem 151 by L. Colmenares**, available at the college bookstore
  2. **scientific calculator**, needed by 11/29 (*ordinary calculator that can do the mathematical operations of addition, subtraction, multiplication and addition will suffice for the meantime*). Bring calculator every meeting.
  3. **internet access**: class website can be found at <http://laulima.hawaii.edu>
  4. additional class material supplements to the Lecture Notes like powerpoint slides of lectures is posted at Laulima
- Recommended:
1. General, Organic and Biological Chemistry, 5<sup>th</sup> Edition, Brooks/Cole Cengage Learning, H. Stephen Stoker
  2. Study Guide to General, Organic and Biological Chemistry, 5<sup>th</sup> Edition, Brooks/Cole Cengage Learning White and White
- There is a copy of the textbook and the Study Guide at the library's reserve section which you can use for limited periods (2 hours at a time)

### Additional Information

- *Since there is much to be covered, 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.*
- *Before class, skim through the Lecture Notes or the powerpoint lecture slides, to familiarize yourself with the topic to be discussed. Topic for each class session is listed on the Course Content on the last page of this syllabus.*
- *Attending class, listening well in class, participating in class exercises, reviewing what was taken up after class and doing the Homework soon after class when lessons are still fresh in your mind, discussing with study buddies, and relating concepts learned to everyday situations, 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.*

### Other Class Policies

These rules regarding classroom behavior, etiquette and courtesy will be enforced at all times.

1. Come to class on time.
2. Get a copy of the class handout, if any, on the top of the instructor's desk
3. Avoid unnecessary conversations with classmates especially during lecture time. Respect the right of others to have a conducive learning environment. Boisterous laughing, 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 phone calls on the cell phone

Reading newspaper, magazines, books or other materials not related to the course

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 college guard.

4. 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.

5. Ask questions courteously.
6. A student is responsible for any class announcement whether or not she/he is present in class when the announcement is made. Check Laulima regularly for announcements.
7. If you have any questions or issue to discuss with me, the best time to see me is during the office hours or e-mail me or set up an appointment with me.
8. No quiz and no exam can be re-taken for a better grade.
9. All exams must be taken to get a D and above

### **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](mailto:lemke@hawaii.edu), or you may stop by Hale Akoakoa 213 for more information.*

### \*Course Content and Course Schedule

8/23	T	Discussion of Syllabus/ Chapter 1: Basic Concepts of Matter
8/25	R	Chapter 1
8/30	T	Chapter 1
9/01	R	Chapter 2: Measurements in Chemistry
9/06	T	Chapter 2
9/08	R	Chapter 2
9/13	T	Chapter 2
9/15	R	<b>EXAM 1</b> (Chapters 1,2 )
9/20	T	Chapter 3: Atomic Structure and the Periodic Table
9/22	R	Chapter 3
9/27	T	Chapter 3
9/29	R	Chapter 4: Ionic Bond Model
10/04	T	Chapter 4
10/06	R	Chapter 5: Covalent Bond Model
10/11	T	Chapter 5
10/13	R	<b>EXAM 2</b> (Chapters 3,4 & 5)
10/18	T	Chapter 6: Chemical Calculations
10/20	R	Chapter 6
10/25	T	Chapter 6
10/27	R	Chapter 7: Gases, Liquids and Solids
11/01	T	Chapter 7
11/03	R	Chapter 8: Solutions
11/08	T	Chapter 8
11/10	R	<b>EXAM 3</b> (Chapters 6, 7 & 8)
11/15	T	Chapter 9
11/17	R	Chapter 9: Chemical Reactions
11/22	T	Chapter 9
11/24-25		THANKSGIVING WEEK-END
11/29	T	Chapter 10: Acids and Bases
12/01	R	Chapter 10
12/06	T	Chapter 11 Nuclear Chemistry
12/08	R	Chapter 11
12/15	R	<b>FINAL EXAM 8:30 - 10:30</b> (Chapters 9,10 &11 and Special Topics) Special topics: conversions from Chapter 2 covalent bonds, electronegativity ionic compounds, covalent compounds shapes of molecules, polarity of bonds from Chapter 3

\*subject to change