

Chem 151 Elementary Survey of Chemistry

3 credits (CRN 62086)

TTH 9:45 -11:00 AM Imiloa 111

INSTRUCTOR: Bernardine Reeves

OFFICE: Imiloa 130

E-MAIL: br2@hawaii.edu

OFFICE HOURS: TTH 9:15-9:45

TELEPHONE: 236- 9116

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.

CATALOG DESCRIPTION

This course provides the student with an adequate background in the fundamentals of chemistry. It 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. Students will not receive credit for both Chem 151 and Chem 161. (3 hrs. lect.)

Prerequisites: Credit in Math 24, grade of C or higher in ENG 21 or higher, or placement in ENG 100, or consent of instructor.

Recommended Preparation: Math 25 or equivalent.

WCC: DP

STUDENT LEARNING OUTCOMES

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 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.

GRADING

1. Grades will be based on *in-class participation, research paper, quizzes, long exams, and a final exam.*

| | |
|--|---------------------|
| Attendance & Participation and homework----- | 10 % of total grade |
| Quizzes----- | 15 % of total grade |
| Long Exams (2) @ 20%----- | 40 % of total grade |
| Final Exam ----- | 25 % of total grade |
| Paper, (1) ----- | 10 % of total grade |
| 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 (POGIL) will be graded on a daily basis.

Scoring:

- On time and participate in class activities ----- 3points
- Late and participates in class activities----- 2 points
- Late and does not participate ----- 1 point
- Absent----- 0 points
- Two points may be received if student who was absent shows back homework before the next class.

3. A short 20 minute **quiz** (closed notes) will be given every *Thursday* at the *end of the class period*. The first quiz will be on August 28.
4. There will be *two long exams*, each of which will cover approximately one-third of the course. Long exams will last approximately 45 min.
5. The *final exam* will **cover all topics** (cumulative) from the beginning with special emphasis on topics covered after the second midterm exam. The final exam will be approx. 2 hrs. The dates of these evaluations are given in the Course Schedule (see last page).
6. 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* will be required. In this short paper, 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). Deadline is on Tuesday, **November 17, 2009**.

COURSE TASKS

Class attendance, participation, homework, weekly quizzes, midterm exams, research paper, and 3 recitation classes with a peer tutor and the final exam.

LEARNING RESOURCES

Required Textbook: General, Organic & Biological Chemistry by H. Stephen Stoker, 5th edition, 2009 with accompanying Study Guide (sold at Bookstore)
 Required Notes: Chemistry 151 Lecture Notes by Colmenares (sold at Bookstore)
 Course Website: <http://laulima.hawaii.edu> (use UH email account login and password)
 Other Requirements: Scientific Calculator
 Internet access

HOW TO STUDY FOR THIS COURSE

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. The concepts are the same but the words might be slightly different. Take **notes** during the lecture. Bring your **calculator and textbook** 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 some time other than the posted office hours.
3. **Participate** in all the in-class **Learning Checks** and **POGIL (inquiry learning) activities**.
4. **Review** your notes soon after class. I will assign **Drills** in the **Lecture Notes** and the **Practice Exercises** in the **Study Guide** or **Questions in the textbook**. **The homework assignments will be posted on Laulima.**
5. Individual and small group **tutoring** is 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 tutoring hours** are posted at the Bulletin Board outside Imiloa 112 (Tutoring Room). Other hours are available upon request to wcc-chemistrytutoring-L@hawaii.edu at least two days in advance.

You are expected to attend several recitations 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.
 - **Chapter Drills** in the *Lecture Notes*
 - **Peer Tutoring**
 - **Exercises and problems** at the end of each chapter in the *Textbook*.
 - **Self-tests** in every chapter in your *Study Guide*.
 - **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
3. **Research Paper**. “Suggested Research Topics”, “Sample Research Paper”, “Tips on Writing a Research Paper” and “Criteria for Grading” can be downloaded from **Laulima**. Students are encouraged to critique each other’s paper before final submission. Plagiarism will not be tolerated.
4. **Missed Quizzes**. If you are *absent*, the quiz you missed will be counted as *zero*. If you know in advance that **you** will be **absent** from class, you may notify the instructor to take it in *advance* at the Learning Center.
5. **Missed Exam**. 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.
6. **Make-ups**. Exams and quizzes *cannot* be retaken to obtain better grades.
7. **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 will be marked absent.
8. If you have any *special learning needs*, including hearing/visual impairment, please inform the instructor as soon as possible.
9. An "F" will be assigned to students *cheating* and will be reported to the Dean.

10. 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.
11. If you have any question or issue to discuss with me, the **best time** to see me is during office (Imiloa 111) hour at 9:00-9:30 AM MWF. 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.
12. 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.**

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 SCHEDULE

Important Dates: **Last day for withdrawal**, 10/27 (T); **Last day of instruction**, 12/10 (Th)
Holidays: 11/26Th

| Chapter | Topic* | Date |
|--------------------------|---------------------------------------|-------|
| 1- | Basic Concepts about Matter | 8/25 |
| 2- | Measurements in Chemistry | 8/27 |
| 3- | Structure and Periodic Table | 9/1 |
| 4- | Ionic Bonds | 9/8 |
| First recitation | | 9/15 |
| First Long Exam – | | 9/17 |
| 5- | Covalent Bonds and Molecular Geometry | 9/22 |
| 6- | Chemical Calculations | 10/1 |
| 7- | Gases, Liquids and Solids | 10/15 |
| 10/23 | MOLE DAY | |

| | |
|---------------------------|------------------|
| Second recitation | 10/26 |
| Second Long Exam – | 10/29 |
| 8- Solutions | 11/3 |
| | |
| Paper due – 11/9 | |
| 9- Chemical Reactions | 11/10 |
| 10. Acids, Bases, Salts | 11/17 |
| | |
| 11- Nuclear Chemistry | 12/1 |
| Review – | 12/11 |
| Third Recitation | 12/12 |
| | |
| Final Exam | |
| * Subject to change | 12/17 9:30-11:20 |

Peer tutoring schedule:

Check the open hours schedule by end of second week of classes at http://windward.hawaii.edu/chemistry_Tutors/

Extra Credit. You can receive ½ 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. Check the schedule at http://windward.hawaii.edu/chemistry_forum/2009_Fall/

You can also receive extra credit for volunteering at Chemistry Day on Saturday October 10th at Windward Mall or at the WCC Ho'olaule'a on September 26.