

CHEM 100 Chemistry in Society

3 Credits CRN 61200

TR 10:0-11:15 am, Imiloa 111

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OFFICE HOURS: MW 10:30-11:30 am, TR 9:00-10 am
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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

Chemistry 100 provides a survey of basic concepts and applications of chemistry in the real world. This course is suitable for students who had little or no background in chemistry and serves to fulfill a general education physical science core course for the non-science major or as a preparatory course for Chem 151.

STUDENT LEARNING OUTCOMES

1. Describe the relationship between properties and structure of matter.
2. Name chemicals, balance chemical and nuclear equations.
3. Solve problems involving mole ratios.
4. Identify the types of chemical reactions (i.e. acid-base, redox, nuclear) and their applications to everyday lives.
5. Explain the chemistry of household chemicals, and the composition of air and water.
6. Relate a specific chemical concept to a current environmental, health, industrial, or technological issue by writing a short research paper.

COURSE TASKS

- Attendance & daily quizzes
- Assignments (submit online)
- Research Paper
- 4 Long Exams
- Final Exam

GRADING

1. Grades will be based on the following:

Attendance & Quizzes-----	100 points
Assignment-----	50 points
Research -----	90 points
Midterm Exams (60 x 4) -----	240 points
Final Exam -----	120 points
Total -----	600 points

Course grades will be assigned as follows:

A	600-540 points
B	539-480 points
C	479-420 points
D	419-360
F	below 360

N Grade: The 'N' grade indicates 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 in the class but is unable to complete the class due to extenuating circumstances, such as major health, personal or family emergencies. **Students requesting for N grade must provide a formal letter of request before the final examination with supporting evidences.**

The other grades **I, W, Cr, NC** to be assigned are described in the current college catalog. These options must be discussed with the instructor. The deadline to change from A-F to Cr/NC grade option is on **October 29, 2012**.

If you drop out from the course without any notice you will get a 'F' grade. To avoid this, please be sure to withdraw officially by **October 29, 2012**.

2. Assignment: There is a homework due every week to be submitted online in Laulima. Please see 'Policies' for details.

3. Attendance & Quizzes. There is a quiz in every class meeting. There are only 1-3 questions per quiz. Please prepare a half sheet of paper for the quiz every meeting.

4. There will be **four long exams**, each of which will cover approximately one-fourth of the course. All exams (including final exam) are closed notes and closed books.

5. The **final exam** will **cover all topics** (cumulative) 2 hrs. long. The dates of the assessments are given in the Course Schedule (see last page).

6. You are required to attend at least **8 supplemental instruction (SI) sessions** during the semester. You will be deducted points for not meeting the minimum. You will get extra credit points for going beyond the minimum.

LEARNING RESOURCES

1. Instructor Lecture Notes (spiral bound available at WCC Bookstore)-required
2. Textbook: *Chemistry in Changing Times* by Hill and Kolb, 2010, 12th edition-required (avail at WCC Bookstore)
3. Calculator (required) & Periodic Chart
4. Course website: <https://laulima.hawaii.edu>
5. Multimedia (videos, animations, etc.) in Modules (*Laulima*)
6. Practice quizzes & exams in Tasks, Tests & Surveys (*Laulima*)
7. *Supplemental Instruction Sessions* (Leader: Paul)
8. *Smarthinking* online live tutor and essay center (see flier in *Laulima*)
<http://windward.hawaii.edu/smarthinking/>
9. Paper anti-plagiarism and feedback tool <Http://Turnitin.com>

HOW TO STUDY FOR THIS COURSE

1. Please **use the Course Schedule** (found on the last page) throughout the semester. It contains the topics, reading requirements and due dates. You are responsible to MEET ALL DEADLINES as listed on the class schedule.
2. Please **come to class everyday**. Bring the Instructor Notes (and calculator) to class. Be on time. A quiz is given at the start of every class meeting.
3. Focus on the **objectives of each chapter**. Read the notes and textbook with the objectives in mind before coming to class.
4. **Have a notebook**. Take notes during lecture, and, also when watching videos, tutorials, and animations. If you don't write your notes, you will forget the material when you reach the final exam. Ask questions, if you do not understand.
5. **Participate** in all the course **activities** including group activities. Always treat everyone in class with respect.
6. **Review** your notes soon after class. Do assigned practice problems and drills.
7. Test yourself by doing the **Lecture Notes** worksheet, learning checks, self-assessments and **Laulima practice test in Tasks, Tests and Surveys**.
8. **Supplemental instruction is available before and after class**. Students should use tutoring from the very beginning of the semester before running into difficulty.
9. If you have any problems, please do not hesitate to **see your instructor for consultation**. The best time is **before class in the office**.

10. If you are at home and need a tutor, use Smarthinking. Also use this resource to help you choose a research paper topic and improve your homework paragraphs and research paper. The **login to Smarthinking is via the MyUH portal**.

11. You should plan to spend at least 6 hours outside class time per week on this course:

- 2-3 hours reading chapter notes and text (including multimedia in Laulima Modules)

- 1-2 hours supplemental instruction

- 1-2 hour doing self-assessments, learning checks, worksheets and assignment

- one hour taking practice quiz in Laulima Tasks, Tests and Surveys.

12. The **multimedia materials** available in the Laulima course website include voice-over powerPoints, videos, animations, audio recordings, movies and interactive websites that are organized by chapter. All the downloadable files and links are found under **Modules in Laulima**.

13. Back up all your submissions (assignments and research paper).

POLICIES

1. **Daily quizzes (4 points each)**. The quiz will be **timed (5 to 10 min)**. Missed quizzes will be counted as zero. No make up for missed quizzes.

2. **Long exams and the final exam are closed books and notes** (no cheat sheet). The final exam will be cumulative covering ALL topics taken throughout the semester and will take about 2 hrs long. **Check the course schedule**.

3. Only one missed exam (with requisite doctor's note, police report or obituary note) can be made up if you notify (email) the instructor before or on the day of the exam. There will be no make-up for the final exam.

4. Exams and quizzes cannot be retaken to obtain better grades.

5. **Assignments/Homework**. There are a total of ten assignments (see list below). Each assignment is described in the Lecture notes. Please follow the detailed instructions in the Lecture notes. It is expected that you understand the concept and extend this by applying it to other applications not covered in the text by doing an online research. Please do not write your assignment just based on its title.

How to turn in assignment. The assignment should be saved in any of the file formats: .doc or .docx or .pdf but **NOT** in .txt or .wps. **IMPORTANT. If you are using a word-processing software other than Microsoft word, please convert your submission to .pdf so I can open it and grade it.** Label the file with your family name and assignment number and upload in Laulima "Assignments" as attachment.

Each assignment will be graded based on its grading rubric described in the instructions in the Lecture Notes (5 points). If an assignment is submitted past the deadline, a penalty will be implemented. Each of this is due on **Thursday 10 am** (see course schedule -last page).

Assign #1- Scavenger Hunt in Laulima

Assign #2 - Risk Benefit Analysis & DQ (Ch1 p.3) Notes p.10

Assign #3 – Redi’s Hypothesis (Ch1 p.5) Notes p.12

Assign #4 – Chemicals in Tobacco (Ch4 p.26) Notes p.81

Assign #5 - Reactions of the Atmosphere (Ch5 p.7) Notes p.91

Assign #6 – Practice mass-mass conversion (Ch5 p.24) Notes p.108

Assign #7 – Vitamin A & E (Ch6 p.13) Notes p.132

Assign #8 – What is the chemistry of airbags? (Ch6 p.18) Notes p.137

Assign #9 – What are the different types of antacids? (Ch7 p.16) Notes p.158

Assign #10 – Chemistry in the News

The **scavenger hunt assignment is mandatory**. Please do this as soon as possible. It is very important that you become familiar with the tools in the course website: Tasks, Tests & Surveys, Gradebook, Modules, Discussion, Assignment, and Chat Room.

6. The **research paper** is a three-page (double space) paper of at least 750 words to make a connection between a chemistry concept covered in the course and an application in everyday life. This will be made based on textbook readings and online resources. A sample paper and a handout “tips on how to search for references” are downloadable in Laulima Modules.

Research paper topics need to be pre-approved by Oct 1, 2012 (by email). Topics like the Krebs’s cycle, Glycolysis, or Prebiotics, etc, (textbook topics in nutrition, biology and zoology, etc courses) and airbags and antacids (already included in assignments) are **NOT acceptable**. Take advantage of *Smarthinking.com* to help you select a paper topic. Login to Smarthinking.com from MyUH.

Turn in your research paper at <http://turnitin.com>. Please view the online tutorial (10 min) and then create a login for Class ID: 5356135 (password: chemistry). Generate the originality report and then submit your paper. Instructor will give feedback if paper was submitted early. Paper may be revised and resubmitted at any time up until the deadline (Dec. 4, 2012).

The paper grade will be based on the following rubrics:

- contains title and purpose (1 point)
- explains at least one chemistry concept in detail (1 point)
- discusses at least one application or current issue in detail (1 point)
- connects the chemistry concept to application (1 point)
- information is technically sound and coherent (1 point)
- well-organized and body has correct length (at least 750 words) (1 point)

- no errors in spelling, grammar and use of English (1 point)
- citations are included (1 point)
- reference list of at least five reliable sources is included (1 point)

7. An "F" will be assigned to students involved in **cheating** (in quizzes, homework, research paper, midterms or final) and will be reported to the Dean.

8. **Extra Credit.** *You can earn* extra credit up to a **maximum of 20 points.**

- Extra credit essays and short activities available in the Lecture Notes.
- Attendance in SI sessions.
- Attendance in chemistry forum is two points each. The dates of the chemistry forum will be posted at http://www.wcc.hawaii.edu/chemistry_forum.

9. You have access to your scores and grades 24/7 in **Laulima gradebook.**

10. Disruptive behavior, such as activated cell phones, text messaging, eating, sleeping, prolonged chattering, reading other materials not pertinent to class, making noise, etc. will not be tolerated. The instructor reserves the right to exclude students who take part in disruptive behavior from class, and will be reported to the Dean.

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

12. If you cannot come to my office, please email me for grade-related and personal questions, and **check your hawaii.edu email account for the responses.** Please ALLOW 24 HOURS for responses to emails or messages. You may also call at 236-9120.

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 encourage to contact the Disability Specialist Counselor (and instructor) to discuss reasonable accommodations that will help you to succeed in this class. Ann Lemke can be reached at 235-7448 or lemke@hawaii.edu or you may stop by Hale 'Akoakoa 213 for more information. Also, inform your instructor ASAP.

COURSE CONTENT AND SCHEDULE

Holidays: Sep 3 (M), Nov 6 (T), Nov 12 (M), Nov 22-23 (R-F)

Important Dates: **Last day for withdrawal**, CR/NC Oct 29 (M)

Last day of instruction, Dec 6 (R)

Week	Topic	Chapter	Quiz Schedule*	Learning Outcomes
1	Orientation & Chemistry	Chap 1 & 2	Aug 21 Aug 23 <i>Assign#1</i>	Scientific method, DQ, matter, classes, properties and changes.
2	Atomic Structure	Chap 3	Aug 28 Aug 30 <i>Assign#2</i>	Law of Conservation of Matter, Law of Definite Proportions. Atoms and structure. Periodic Table.
3	Chemical Bonds	Chap 4	Sep 4 Sep 6 <i>Assign#3</i>	Name chemical compounds. Write chemical formulas. Ionic & covalent compounds. Polar and Nonpolar molecules.
4	Chemical Accounting I	Chap 5a Bring a calculator	Sep 11 Sep 13 <i>Exam 1</i>	Balance chemical equations. Solve for molar mass, moles, grams.
5	Chemical Accounting II	Chap 5b Bring a calculator	Sep 18 Sep 20 <i>Assign#4</i>	Solve problems involving mole ratios. Solve using unit factor method. Solution concentration.
6	Gases, Liquids, Solids & Intermolecular	Chap 6	Sep 25 Sep 27 <i>Assign#5</i>	Describe the relationship between properties and structure of matter. IMF. Gases.
7	Acids & Bases	Chap 7 Bring a calculator	Oct 2 Oct 4 <i>Assign#6</i>	Identify acid-base reactions and their applications to everyday lives.
8	Oxidation & Reduction	Chap 8	Oct 9 Oct 11 <i>Exam 2</i>	Identify redox reactions and their applications to everyday lives.
9	Organic Chemistry & Polymers	Chap 9 & 10	Oct 16 Oct 18 <i>Assign#7</i>	Carbon compounds: structures and names. Alkanes, Alkenes, Acids...
10	Nuclear Chemistry	Chap 11	Oct 23 Oct 25 <i>Assign#8</i>	Common polymers. Structure. Names and Applications.
11	Air	Chap 13	Oct 30 Nov 1 <i>Assign#9</i>	Balance nuclear equations. Identify nuclear reactions and their applications to everyday lives.
12	Water	Chap 14 <i>Paper Topic</i>	Nov 6 holiday Nov 8 <i>Exam 3</i>	Explain the composition of air. Oxygen cycle, Nitrogen Cycle, Acid rain, Ozone.

13	Household Chemicals	Chap 21	Nov 13 Nov 15 <i>Assign#10</i>	<i>Explain the composition of water.</i> Hard water. BOD. Water treatment.
14	Research Paper		Nov 20 Nov 22 holiday	<i>Explain the chemistry of household chemicals.</i> Soaps. Bleach. Cosmetics.
15		Research Paper or Oral presentation	Nov 27 Nov 29 <i>Exam 4</i>	Relate a specific chemical concept to a current environmental, health, industrial, or technological issue .
16		Final Exam Review	Dec 4 <i>Paper Due</i> Dec 6	<i>Turnitin.com</i>
17		11:00-1:00 pm	Dec 11, 2010 <i>Final Exam</i>	<i>Cumulative</i>

* Assignment/exam calendars may be changed due to institutional, weather or class problems.