Chem 161 General Chemistry I
3 credits CRN 64450 & 64185
MW 11:30 AM - 12:45 PM Imiloa 111

INSTRUCTOR: Leticia Colmenares, Ph.D.
OFFICE: Imiloa 116
E-MAIL: Leticia@hawaii.edu
OFFICE HOURS: MW 1-2 pm, TR 11:30-12:30 pm, F 9-10 (online)
TELEPHONE: 236-9120
EFFECTIVE DATE: Spring 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

Basic principles of inorganic chemistry with emphasis on problem solving. First course of a two-course sequence designed to meet the one-year General Chemistry requirement for pre-med, science and engineering majors. Topics include chemical calculations, electronic structure, chemical bonding, states of matter and solutions. Concurrent registration in CHEM 161L is required. (3 hrs. lect.)

Prerequisites: A grade of 'C' or better in Math 27 or 103, or placement in Math 135 or instructor's consent.
Co-requisite: Concurrent registration in Chem 161L.
Recommended Preparation: Student should have taken high school chemistry, Chem 100 or Chem 151. Students will not credit for both Chem 151 and 161.
WCC: DP

The Math 103 prerequisite is waived for students involved in the learning community (LC) with MATH 103 (CRN 64070) College Algebra.

STUDENT LEARNING OUTCOMES

1. Use the mole concept in solving stoichiometry problems involving solids, liquids, gases and solutions.
2. Balance chemical equations, classify reactions, identify and analyze the role of the chemicals involved in chemical reactions.
3. Predict the behavior of gases while undergoing changes in volume, pressure, temperature and quantity.
4. Manipulate thermochemical equations and calculate the amount of energy involved in chemical reactions.
5. Predict physical and chemical properties of elements based on electronic structure and
location in the Periodic Table.

6. Predict physical and chemical properties of compounds based on chemical bonding, geometry and intermolecular interactions.

**COURSE TASKS**

- Daily attendance
- Weekly Homework (online and paper-based)
- Weekly Quizzes (online and in-class)
- Three long exams
- Final exam (ACS National Standardized Exam for General Chemistry I)
- At least four supplemental instruction (SI) sessions

**GRADING**

1. Grades will be based on attendance, *homework, quizzes, midterm exams and a final exam*.

   Homework & Attendance ---------10% of total grade
   Quizzes--------------------------10% of total grade
   Long Exams (3)@ 20%----------60 % of total grade
   Final Exam ------------------20 % 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.

These options must be discussed with the instructor. The last day to change A-F to Cr/NC option is on Apr 2, 2012.

2. Weekly short quizzes will be given.

3. Homework assignments (online and paper-based) will be due every week.

4. *Class attendance* will be checked on a daily basis.

5. There will be three long exams, each of which will cover approximately one-third of the course. Each will last for 75 minutes.

6. The final exam will cover all topics (cumulative) 2 hrs. long. This is the National ACS Standardized exam (70 multiple-choice questions). The dates of these evaluations are given in the Course Schedule (see last page). All exams will be closed book.

**LEARNING RESOURCES**

Required DVD-ROM: General Chemistry by Ketan Trivedi, Version 4 & DVD Notes
Required Notes: Chemistry 161 Lecture Notes by Instructor (spiral bound, sold at Bookstore)
Course Website: http://laulima.hawaii.edu (use UH email account login and password)
Use Modules for links to multimedia resources
Access to Masteringchemistry.com (purchase online) for online homework and tutorials
(purchase access key online or from WCC Bookstore). Please activate login immediately. The course ID is CHEM161SP2012
Other Requirements: Scientific Calculator and Internet access
Supplemental Instruction is offered after every class period. Each student must participate in at least 4 SI sessions.
Chem 161L lab activities will enrich many topics in the lecture.

HOW TO STUDY FOR THIS COURSE

Nothing is more important to your academic success than strong study skills. On average, you should spend about six 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.

1. Use the Chem 161 Instructor Notes during class. Take notes during the lecture. Have a separate Chem 161 notebook. Take notes to jot announcements, when doing in-group activities, work-sheets and homework. Bring your calculator at all times. Ask questions if you do not understand

3. Participate in all the in-class Learning Checks and POGIL (inquiry learning) activities.

4. Review your notes soon after class. Attend the supplemental instruction session held after every lecture in the classroom. At least four sessions are required. If you have not have any background in chemistry you will need to attend all SI sessions. This is a good place to get tips on how to solve your homework and review for quizzes and exams.

5. Watch your DVD and do all the interactive problems. Summarize the ideas in a small index card (use as cheat sheet for weekly quizz). Do the weekly paper-based homework.

6. Study the online (masteringchemistry.com) tutorials. Then, do the weekly online homework.

7. Please plan on spending at least 6 hours per week outside of class. Here is how your time will be allocated during most weeks:
   - three hours reading chapter notes, tutorials and DVD text.
   - three hours doing homework and practice problems

8. Other multimedia resources are provided in the Laulima website. The links and video clips are accessible from Laulima Modules.

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. Please check the math review section that will be provided (i.e. algebraic equations, exponential notations, significant figures, proportionality, percentages). Please let me know immediately if you have any problems with any of these.

3. Missed Quizzes. If you are absent, the quiz you missed will be counted as zero. The two lowest quiz scores will be dropped.

4. 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.

5. Late homework will not be accepted. Paper-based homework is due at the beginning of the class period. If you have a legitimate excuse for not coming to class, you may turn in the homework by email, but it must be on time.

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

7. Extra Credit. You can earn extra credit up to a maximum of 10 points =2% of total grade. For example, attendance in a chemistry forum with a written summary of the topic is 2 points. The forum schedule will be posted at http://www.wcc.hawaii.edu/chemistry_forum. Other extra credits are available by doing special assessments arranged with the SI.

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

9. Please use “email” if you have grade related and personal questions. Please ALLOW 24 HOURS for responses to emails or messages. In emergencies, you may also call at 236-9120. Please speak slowly and leave your name, your phone number and times when you can be reached.

10. 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, packing of books, 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.

11. If you have any special learning needs, including hearing/visual impairment, please inform the instructor as soon as possible.
12. An "F" will be assigned to students involved in cheating systems.

13. 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 ask your classmate and supplemental instructor.

14. Students who wish to drop from one course in the LC are strongly recommended to change to CR/NC in that course in order to remain in the LC.

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 SCHEDULE

Important Dates:
Jan 16 Martin Luther King Day
Feb 20 President’s Day
Mar 2 Excellence in Education
Mar 26-30 Spring Break
Apr 2 Last Day to officially withdraw
Apr 6 Good Friday

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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Chapter</th>
<th>Topics</th>
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<tbody>
<tr>
<td>1</td>
<td>1/9</td>
<td>A - Units, Measurements &amp; Uncertainty</td>
<td>Significant Figures</td>
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<td>1/11</td>
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<td>Dimensional Analysis, Types &amp; States of Matter, Periodic Table</td>
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<td>2</td>
<td>1/16</td>
<td>1 - Atoms, Molecules and Ions</td>
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<td>1/18</td>
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<td>Atoms, Molecules and Ions, Naming of Compounds, Formulas of Compounds</td>
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<td>3</td>
<td>1/23</td>
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<td>Balancing Equations, Solubility</td>
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<td>1/25</td>
<td>2 - Intro to Chemical Reactions</td>
<td>Ionic &amp; Precipitation Equations</td>
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<td>4</td>
<td>1/30</td>
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<td>Acids &amp; Bases</td>
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<td>Oxidation Numbers, Balancing Redox equations</td>
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<td>5</td>
<td>2/6</td>
<td>Exam Review</td>
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<td>2/8</td>
<td>MIDTERM 1</td>
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<td>6</td>
<td>2/13</td>
<td>3- Mass Relations in Formulas &amp; Chemical Reactions</td>
<td>Mass &amp; Mole, % Composition, Empirical &amp; Molecular Formulas</td>
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<td>2/15</td>
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<td>Stoichiometry, Percent Yield</td>
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<td>4- Reactions in Aqueous Solutions</td>
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<td>2/27</td>
<td>Volumetric &amp; Gravimetric Analysis</td>
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<td>2/29</td>
<td>5- Gases</td>
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<td>Gas Laws, Stoichiometry of Gaseous Reactions</td>
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<td>3/5</td>
<td>Kinetic Theory</td>
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<td>3/7</td>
<td>Exam Review</td>
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<td>3/12</td>
<td>MIDTERM 2</td>
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<td>3/14</td>
<td>6-Thermochemistry</td>
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<td>Calorimetry, Thermochemical Rules</td>
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<td>Enthalpy, First Law of Thermodynamics</td>
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<td>7 – Atomic Structure &amp; the Periodic Table</td>
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<td>Bohr’s Model of Hydrogen atom</td>
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<td>8 - Bonding</td>
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<td>Ionic &amp; Covalent Bonds</td>
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<td>9-Molecular Geometry &amp; Hybridization</td>
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<td>Molecular Orbital Model</td>
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<td>Final Review</td>
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<td>FINAL EXAM (Cumulative) ACS Standard National Exam</td>
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- subject to change