

CHEM 162, Section 2, Spring 2011

GENERAL CHEMISTRY II

Instructor: Prof. Joseph T. Jarrett

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Office hours: Students are encouraged to meet with the instructor for questions, additional information or any other related matter. Office hours are every lecture day, one hour after the lecture, no appointment required. Any other time can be scheduled by email request. In addition, Bilger 319 will be staffed by Teaching Assistants Monday through Friday. Check the posted schedule for the times when specific TA's are available.

Classroom: Bilger 152

Hours: 10:30-11:45 T Th, 3 credit hours

Textbook: "Chemistry: A Molecular Approach", Nivaldo J. Tro, Custom Edition
ISBN 10: 0-558-29865-6
Solutions Manual ISBN 10: 0-558-26010-1

Online Homework Problems: Optional online homework problems and guided tutorials will be available through the MasteringChemistry.com website. Access to this site requires an access code that is supplied with a new textbook or can be purchased separately. Access codes are good for 12 months from initial login, and codes purchased in Fall 2010 should still work this semester. It is essential that students work through homework problems, either by using the online homework or by working problems provided in the textbook. While homework will not be graded, success on exams will depend on being able to solve problems similar to those found in the online and/or textbook homework problems.

iClicker: The iClicker system may be used for occasional in-class problem solving example questions. Participation will be optional. Students who wish to participate must have their own iClicker, available from the UH bookstore.

Student Responsibilities (HOW TO PASS THIS CLASS):

1. Read the textbook sections before each lecture
2. Come to the lectures. I will make the material more relevant to your practical experience, will have occasional demonstrations, and will show you how to solve problems. Students that attend class usually get better grades.
3. Re-read the textbook after class and make sure you understand everything
4. I will assign a few problems that correspond to each section of the textbook – work through these problems on your own or in groups. Make sure you understand how to get the answer quickly and without help, just like you would in an exam.

5. Go see one of the TAs in lab or in the tutorial room if you can't solve a problem or you don't understand a concept.
6. Come see me in office hours or right after class if you are still confused.
7. I will give out practice exam questions before each exam – work through these on your own.
8. I will work through selected problems during review sessions before each exam. Come to the review sessions and make sure I answer any questions about specific problems.
9. Don't miss any exams ! Don't cheat on any exams !

Course Policies:

1. There will be no makeup exams. If you miss an exam and have a valid excuse (doctor's note or equivalent), the weighting of the other exams will be adjusted accordingly. If you miss a second exam, you will receive a zero for that exam.
2. Regular attendance in lecture is highly recommended. The aim of the lecture session is to guide you in your studies and to clarify, emphasize and illustrate the important (and sometimes subtle) concepts. Topics not included in the text will be covered in class and will appear in the tests. You are responsible for all information relayed in class whether you attend or not.
3. You will be required to show your student ID at each exam. Unregistered students will not be allowed in the room.
4. Academic dishonesty will not be tolerated. Cheating in the form of copying, plagiarism, altering information, or using cribs or electronic aids on exams will result in judicial proceedings in accordance with the University of Hawaii Student Conduct Code
5. See http://studentaffairs.manoa.hawaii.edu/policies/conduct_code/ for details.

Grading and Student Evaluation

Four exams each worth 25% of the final grade. The 4th exam will be held during final exam week and will be cumulative but with an emphasis on the material covered since Exam 3.

Everything will be graded from 0 to 100. *No curves will be applied.* Final grade ranges will be:

<40: F 40-54: D 55-69: C 70-84: B 85-100: A

Exam results will be posted to Laulima as soon as possible after each exam is graded.

Student Disabilities

The University of Hawaii is an equal opportunity/affirmative action institution, dedicated to teaching all students and reaching all learners. It is our commitment to make our lectures and classrooms accessible to all students. If you have a disability and have not voluntarily disclosed its nature and the support you need, you are invited to contact the KOKUA Program of UH (<http://www.hawaii.edu/kokua/>, phone (808) 956-7511), or talk with the instructor in order to get any accommodation you might need to take the course. This information will be kept confidential. Please do this as early in the course as possible.

TENTATIVE LECTURE SCHEDULE

The course will follow the textbook and cover Ch. 12 through 18. The schedule is approximate and some lectures may include material from more than one chapter. Class sessions will highlight important points from the text, and may include some problem solving examples when appropriate. Where time permits there may be some live chemical demonstrations.

Date	Topic	Textbook Chapter
1/11	Introduction to the Class	
Lec 1	<i>Review of Lewis Structures, Intermolecular Forces</i>	9.4 – 9.7
1/13 – 1/25	Properties of Solutions	Chapter 12
Lec 2	<i>Review of Liquids and Solids</i>	11.3 – 11.5
Lec 3	<i>Solutions and Solubility</i>	12.1 – 12.4
Lec 4	<i>Different Concentration Units</i>	12.5 – 12.6
Lec 5	<i>Colligative Properties</i>	12.7 – 12.8
1/27 – 2/3	Chemical Kinetics	Chapter 13
Lec 6	<i>Collisions and Reaction Rate</i>	13.1 – 13.3
Lec 7	<i>Integrated Rate Laws</i>	13.4
Lec 8	<i>Arrhenius Equation and Reaction Mechanisms</i>	13.5 – 13.7
2/8/11	<i>Review and Problem Solving</i>	
2/10/11	Exam 1	

2/15 – 2/22	Chemical Equilibrium	Chapter 14
Lec 9	<i>The Equilibrium Constant</i>	14.1 – 14.5
Lec 10	<i>Concentration, Pressure, and the Reaction Quotient</i>	14.6 – 14.7
Lec 11	<i>Calculating Equilibrium Concentrations</i>	14.8 – 14.9

2/24 – 3/3	Acids and Bases	Chapter 15	
	<i>Lec 12</i>	<i>Strong Brønsted Acids/Bases</i>	15.1 – 15.4
	<i>Lec 13</i>	<i>pH and pK_a, Weak Acid/Base Solns</i>	15.5 – 15.7
	<i>Lec 14</i>	<i>Polyprotic Acids, Lewis Acids</i>	15.9 – 15.11
3/8/11	<i>Review and Problem Solving</i>		
3/10/11	Exam 2		

3/15 – 3/29	Aqueous Ionic Equilibrium	Chapter 16	
	<i>Lec 15</i>	<i>Buffers</i>	16.2 – 16.3
	<i>Lec 16</i>	<i>Titrations and pH curves</i>	16.4
	Spring Break		
	<i>Lec 17</i>	<i>Solubility Product, Complex Ion Equil.</i>	16.5 – 16.8
3/31 – 4/12	Free Energy and Thermodynamics	Chapter 17	
	<i>Lec 18</i>	<i>State Functions and Enthalpy (ΔH)</i>	6.5, 17.1 – 17.2
	<i>Lec 19</i>	<i>Entropy (ΔS)</i>	17.3 – 17.4
	<i>Lec 20</i>	<i>Gibbs Free Energy (ΔG)</i>	17.5 – 17.6
	<i>Lec 21</i>	<i>ΔG for Reactions, ΔG vs. K_c</i>	17.7 – 17.9
4/13/11	<i>Extra Evening Review Session</i>		
4/14/10	Exam 3		

4/19 – 5/3	Electrochemistry	Chapter 18	
	<i>Lec 22</i>	<i>Oxidation-Reduction Reactions</i>	4.9, 18.2 – 18.3
	<i>Lec 23</i>	<i>Half-Cells and Cell Potentials</i>	18.4 – 18.5
	<i>Lec 24</i>	<i>Nernst Equation: Cell Potentials and Concentration</i>	18.6
	<i>Lec 25</i>	<i>Batteries, Electrolysis</i>	18.7 – 18.8
		<i>Review and Problem Solving</i>	
5/12/10	Final Exam (9:45 – 11:45 am)	50% Ch. 18 50% Cumulative	