

CHEM 162, Section 2, Spring 2012

GENERAL CHEMISTRY II

Instructor: Prof. Joseph T. Jarrett

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Office hours: Come see me if you have questions, need additional information, or for any other course-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, the Science Learning Emporium in Bilger Addition Room 209 will be staffed by Teaching Assistants Monday through Friday. Check the schedule at <http://www.hawaii.edu/natsci/academic/emporium/> 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 (required)
Solutions Manual ISBN 10: 0-558-26010-1 (optional)

If you have the full 1st edition (pale blue-green cover) or the 2nd edition of this textbook (dark purple-green cover), those will also work, but the page numbering, figures, and end-of-chapter questions are slightly different.

Required Online Homework Problems: Online homework problems and guided tutorials will be available through <http://www.saplinglearning.com/>. Access to this site requires an access code that must be purchased through the website the first time you register. Online homework will be graded and will count towards 20% of the final grade. Students who do not complete the online homework by the due dates will be locked out from accessing material on the Laulima site until they come talk to the instructor.

Laulima: All course materials will be posted to Laulima (<https://laulima.hawaii.edu/portal/site/MAN.80548.201230>). This includes handouts, lecture slides, and practice exam questions. I will not handout any materials in class. Please access the site and print out the materials on your own. The lecture slides posted at Laulima are always a work-in-progress and may not be the same versions I present in class.

Exam Review: A practice exam (20-30 multiple choice questions) will be provided one week prior to each exam. This practice exam will have questions that are similar, and in a few cases identical, to the actual exam questions. The last class session before each exam will be a tutorial devoted to working through the more challenging questions.

Exams: Each exam will consist of 20-25 multiple choice questions, with 4 choices per questions. Obviously there will be no partial credit. You will be required to show photo ID in order to take the exam.

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. Each week there will be 10-15 online homework problems related to the course material. If you don't understand any of the problems, use the textbook or online tutorials to try to learn the material.
5. If you still can't solve a problem or you don't understand a concept, go see one of the TAs in the learning emporium.
6. Come see me in office hours or right after class if you are still confused.
7. I will give out practice exam questions the week 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 20% of the final grade. Each exam covers 2 chapters of material.

Online homework – 20% of the final grade.

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

A+	95 - 100	B+	80 – 84.9	C+	65 – 69.9	D+	50 – 54.9	F	<= 39.9
A	90 - 94.9	B	75 – 79.9	C	60 – 64.9	D	45 – 49.9		
A-	85 - 89.9	B-	70 – 74.9	C-	55 – 59.9	D-	40 – 44.9		

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

Students With 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
1/10	Introduction to the Class	
Lec 1	<i>Review of Lewis Structures, Intermolecular Forces</i>	9.4 – 9.7
1/12 – 1/24	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
1/26 – 2/2	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
2/7/12	<i>Review and Problem Solving</i>	
2/9/12	Exam 1	

2/13 – 2/21	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

2/23 – 3/1	Acids and Bases	Chapter 15
Lec 12	<i>Strong Brönsted Acids/Bases</i>	15.1 – 15.4
Lec 13	<i>pH and pK_a, Weak Acid/Base Solns</i>	15.5 – 15.7
Lec 14	<i>Polyprotic Acids, Lewis Acids</i>	15.9 – 15.11
3/6/12	<i>Review and Problem Solving</i>	
3/8/12	Exam 2	

3/13 – 3/20	Aqueous Ionic Equilibrium	Chapter 16
Lec 15	<i>Buffers</i>	16.2 – 16.3
Lec 16	<i>Titrations and pH curves</i>	16.4
Lec 17	<i>Solubility Product, Complex Ion Equil.</i>	16.5 – 16.8
3/22 – 4/10	Free Energy and Thermodynamics	Chapter 17
Lec 18	<i>State Functions and Enthalpy (ΔH)</i>	6.5, 17.1 – 17.2
Spring Break (3/26-3/30)		
Lec 19	<i>Entropy (ΔS)</i>	17.3 – 17.4
Lec 20	<i>Gibbs Free Energy (ΔG)</i>	17.5 – 17.6
Lec 21	<i>ΔG for Reactions, ΔG vs. K_c</i>	17.7 – 17.9
4/11/12	<i>Extra Evening Review Session</i>	
4/12/12	Exam 3	

4/17 – 4/26	Electrochemistry	Chapter 18
Lec 22	<i>Oxidation-Reduction Reactions</i>	4.9, 18.2 – 18.3
Lec 23	<i>Half-Cells and Cell Potentials</i>	18.4 – 18.5
Lec 24	<i>Nernst Equation: Cell Potentials and Concentration</i>	18.6
Lec 25	<i>Batteries, Electrolysis</i>	18.7 – 18.8
5/1/12	<i>Review and Problem Solving</i>	
5/8/12	Final Exam (9:45 – 11:45 am)	50% Ch. 18 50% Cumulative