



Course	CHEM 1311: General Chemistry I
Professors	Dr. Yanping Qin
Term	Summer 2009
Meetings	Section: OU1: MWF 1:00 pm – 2:15 pm, FN2.102

Professor's Contact Information

Office Locations	BE 3.516
Email Addresses	Yanping.Qin@utdallas.edu
Office Hours	Th 2:00-3:00pm or by appointment
Other Information	Best way to contact me: email listed above ;I don't have office phone; I don't read WebCT email

General Course Information

Pre-requisites, Co-requisites, & other restrictions	One year of high school chemistry is assumed.
Course Description	Introduction to elementary concepts of chemistry theory. The course emphasizes molecular structure and bonding, chemical reactions, and the mole concept and its applications.
Learning Outcomes	<p><u>Objectives</u></p> <p>This course is the first of a two-course sequence. The goal is to provide students with a working knowledge of the basic concepts of general chemistry needed for creative problem solving, as well as a background for advance chemistry and related science courses, and for laboratory applications. The course focuses on the following: the architecture of the atom; molecular structure and bonding; chemical reactions; thermochemistry; the mole concept and its applications; and the properties of solids, liquids and gases. Basic problem solving skills and critical thinking are also emphasized.</p> <p><u>Expected Learning Outcomes</u></p> <p>Upon successful completion of this course, students will therefore:</p> <ol style="list-style-type: none">1) be able to use basic concepts in quantum theory and chemical bonding theory by predicting both the chemical properties (e.g. periodic trends, reactivities) and the electronic and 3-dimensional structures of representative compounds2) be able to interpret experimental data (in both tabular and graphical form) by appropriately setting up and solving scientific problems using dimensional analysis with proper attention to scientific units and significant figures3) be able to demonstrate an understanding of the role of energy in physical changes and chemical reactions by predicting the direction and magnitude of energy changes and by performing thermochemical calculations4) be able to demonstrate an understanding of the properties of gases by applying the gas laws and kinetic molecular theory to processes involving gases
Required Texts & Materials	<ol style="list-style-type: none">1. Textbook: <i>Chemistry, 1st Edition</i> (Julia Burdge); McGraw-Hill2. course materials located on WebCT at http://webct6.utdallas.edu/3. A scientific calculator(any type)
Supplemental Materials	<ol style="list-style-type: none">1. <i>General Chemistry</i> version 3.0 (interactive DVD-ROM covering one year of freshman general chemistry); available through CSA or online at http://www.t2i2edu.com

Schedule & Academic Calendar

Class Period	Day	Date	Topic	Chapter
1	Wed	May 27	Introduction; the scientific method, classification of matter; scientific measurement; the properties of Matter; significant figures; conversion factors; dimensional Analysis	1
2	Fri	May 29 (quiz)	Atomic Theory: structure of the atom; atomic number; mass number and isotopes	2
3	Mon	Jun 1	Atoms, Molecules and Ions: average atomic mass; molecular/ionic & empirical formulas; nomenclature	
4	Wed	Jun 3 (quiz)	Quantum Theory and Electronic Structure of Atoms: light; atomic line spectra;	6
5	Fri	Jun 5	Bohr model; quantum numbers; atomic orbitals; electron configuration	
6	Mon	Jun 8 (quiz)	Electron Configuration and Periodic Table: periodic table; effective nuclear charge;	7
7	Wed	Jun 10	periodic trends of atoms and ions; elements and properties	
8	Fri	Jun 12	Exam 1 (Chapters 2, 6, 7)	
9	Mon	Jun 15 (quiz)	Chemical Bonding I: Basic Concepts: ionic bonding; covalent bonding; electronegativity; Lewis structures and formal charges; resonance and octet rule exceptions	8.1-8.8
10	Wed	Jun 17		
11	Fri	Jun 19(quiz)	Chemical Bonding II: Molecular Geometry & Bonding Theories: VSEPR theory; polarity; valence bond theory; hybridization;	9
12	Mon	Jun 22	sigma and pi bonding;polarity	
13	Wed	Jun 24		
14	Fri	Jun 26	Exam 2 (Chapters 8, 9)	
15	Mon	Jun 29(quiz)	Stoichiometry: Ratios of Combination molecular/formula masses; % composition;	3
16	Wed	July 1	the mole; determination of empirical and molecular formulas; stoichiometry with reactions; limiting reactants	
17	Fri	July 3		
18	Mon	July 6 (quiz)	Reactions in Aqueous Solutions: precipitation reactions;	4
19	Wed	July 8	acid-base reactions;	
20	Fri	July 10	oxidation-reduction reactions; concentration units	
21	Mon	July 13 (quiz)	Thermochemistry: introduction; state functions;	5 8.9
22	Wed	July 15	first law of thermodynamics; enthalpy;	
23	Fri	July 17	calorimetry; Hess's Law; bond enthalpies	
24	Mon	July 20	Exam 3 (Chapters 3, 4, 5, 8.9)	
25	Wed	July 22 (quiz)	Gases: properties; gas laws;	11
26	Fri	July 24	Ideal gas laws; Dalton's law of partial pressures;	
27	Mon	July 27	kinetic molecular theory; deviation from ideality	
28	Wed	July 29		
29	Fri	July 31 (quiz)	Intermolecular Forces; Liquids and Solids: IM forces; properties of liquids; crystal structures of solids; phase changes; phase diagrams	12
30	Mon	Aug 3 (quiz)		
	Fri	Aug 7	Cumulative Final Exam (11:00-2:00pm)	

Please note the quiz date. If there is a change, I will post it on Webct.

Course Policies

<p style="text-align: center;">Grading (credit) Criteria</p>	<p>Course Evaluation:</p> <table style="margin-left: 40px;"> <tr> <td>(i) Quizzes</td> <td style="text-align: right;">10%</td> </tr> <tr> <td>(ii) Midterm Exams (3 x 20%)</td> <td style="text-align: right;">60%</td> </tr> <tr> <td>(iii) Final Exam</td> <td style="text-align: right;">30%</td> </tr> </table> <p>The Goal of this class is to help you develop an understanding (and appreciation) of how chemistry impacts your everyday lives. Our main focus will be on CONCEPTS and not just FACTS, and our teaching and testing will reflect this. A principle method for learning a concept is by working problems that test your understanding of that concept and how it relates to other concepts you already know. We have designed this course to empower you to succeed in learning chemical concepts. Important components of the course are as follows:</p> <p>1. Homework assignments (end of chapter problems):</p> <ul style="list-style-type: none"> • assigned for each chapter from end-of-chapter exercises in <i>Burdge</i> • large number of problems selected to cover majority of important concepts • these will not be collected or graded • homework assignments/solutions will be posted on Webct. <p>2. Quizzes (in class):</p> <ul style="list-style-type: none"> • we will have 11 quizzes, one per chapter. • your 10 best quiz scores will be averaged together to give your quiz average • there will be no makeup quizzes given (you will receive a "zero" for any quiz you miss) <p>3. Midterm exams (scantron-based multiple choice exams):</p> <ul style="list-style-type: none"> • ALL 3 MIDTERM EXAMS MUST BE TAKEN, at the scheduled time and on the scheduled day • There will be no makeup exams given • If you have an acceptable, documented reason for missing an exam (e.g., documented illness, auto accident, participation in UTD-sponsored event, observance of religious holiday), you will be allowed to replace the missed exam with your score on the final. Otherwise, you will receive a "zero" for that exam, that zero will not be replaced by the final, and will be included in the calculation of your final class grade. • You may arrive late for an exam up until the first student finishes and leaves (only penalty being that you will have proportionally less time to finish the exam). After this grace period you will not be allowed to take the exam and will receive a score of "zero" • questions will focus on concepts and material covered in homework, quizzes <p>4. Final exam (scantron-based multiple choice exam):</p> <ul style="list-style-type: none"> • comprehensive exam • The final exam must be taken and cannot be replaced by any other grade, so don't miss it • No makeup final will be given. NOTE THE DAY AND TIME OF THE FINAL! 	(i) Quizzes	10%	(ii) Midterm Exams (3 x 20%)	60%	(iii) Final Exam	30%
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(ii) Midterm Exams (3 x 20%)	60%						
(iii) Final Exam	30%						
<p>Make-up Exams</p>	<p>There are no make-up exams (see above).</p>						
<p>Extra Credit</p>	<p>There is no extra credit.</p>						
<p>Class Attendance</p>	<p>Your attendance is CRITICAL for your ultimate performance in this class. Results from Fall 2006 support this statement: students that missed just 4 of the first 21 lectures ended up with D's, F's or withdrew from the course. Bottom line: DO NOT SKIP CLASS</p>						
<p>Student Conduct and Discipline</p>	<p>The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, <i>A to</i></p>						

	<p><i>Z Guide</i>, which is provided to all registered students each academic year.</p> <p>The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the <i>Rules and Regulations, Series 50000, Board of Regents, The University of Texas System</i>, and in Title V, Rules on Student Services and Activities of the university's <i>Handbook of Operating Procedures</i>. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391) and online at:</p> <p style="text-align: center;">http://www.utdallas.edu/judicialaffairs/UTDJudicialAffairs-HOPV.html</p> <p>A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.</p>
Academic Integrity	<p>The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.</p> <p>Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.</p> <p>Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.</p>
Copyright Notice	<p>The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted materials, including music and software. Copying, displaying, reproducing, or distributing copyrighted works may infringe the copyright owner's rights and such infringement is subject to appropriate disciplinary action as well as criminal penalties provide by federal law. Usage of such material is only appropriate when that usage constitutes "fair use" under the Copyright Act. As a UTD student, you are required to follow the institution's copyright policy (Policy Memorandum 84-1.3-46). For more information about the fair use exemption, see:</p> <p style="text-align: center;">http://www.utsystem.edu/ogc/intellectualproperty/copypol2.htm</p>
Email Use	<p>The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's UTD email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at UTD provides a method for students to have their UTD mail forwarded to other accounts.</p>
Technical Support	<p>If you experience any problems with your UTD account, you may send an email to: assist@utdallas.edu or call the UTD Computer Helpdesk at 972-883-2911.</p>
Withdrawal from	<p>The administration of this institution has set deadlines for withdrawal of any college-level</p>

Class	<p>courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.</p>
Student Grievance Procedures	<p>Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's <i>Handbook of Operating Procedures</i>.</p> <p>In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.</p> <p>Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.</p>
Incomplete Grades	<p>As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of F.</p>
Disability Services	<p>The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.</p> <p style="text-align: center;">The contact information for the Office of Disability Services is: The University of Texas at Dallas, SU 22 PO Box 830688 Richardson, Texas 75083-0688 (972) 883-2098 (voice or TTY) disabilityservice@utdallas.edu</p> <p>If you anticipate issues related to the format or requirements of this course, please meet with the Coordinator of Disability Services. The Coordinator is available to discuss ways to ensure your full participation in the course. If you determine that formal, disability-related accommodations are necessary, it is very important that you be registered with Disability Services to notify them of your eligibility for reasonable accommodations. Disability Services can then plan how best to coordinate your accommodations.</p> <p><i>It is the student's responsibility to notify his or her professors of the need for such an accommodation.</i> Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. <i>Individuals requiring special accommodation should contact the professor ASAP after class or during office hours.</i></p>
Religious Holy	<p>The University of Texas at Dallas will excuse a student from class or other required</p>

Days	<p>activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.</p> <p><i>The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, in advance of the assignment.</i> The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.</p> <p>If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.</p>
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These descriptions and timelines are subject to change at the discretion of the Professor.