Course	**CHEM 1311: General Chemistry I**
Professors	Gregg R. Dieckmann (Dr. D), Sandhya Gavva, and John W. Sibert
Term	Fall 2009
Meetings	Section 001: MWF 10:30 am – 11:20 am, HH 2.402 (Dr. Gavva) Section 002: MWF 11:30 am – 12:20 pm, HH 2.402 (Dr. D) Section 003: MWF 12:30 pm – 1:20 pm, HH 2.402 (Dr. Sibert)

Professor's Contact Information

Office Phones	Dr. D: 972-883-2903; Dr. Gavva: 972-883-2279; Dr. Sibert: 972-883-2918
Office Locations	Dr. D: BE 2.522; Dr. Gavva: BE 3.330; Dr. Sibert: BE 3.520
Email Addresses	dieckgr@utdallas.edu ; sgavva @utdallas.edu ; sibertj@utdallas.edu
Office Hours	Dr. D: Mon 1:30 to 2:30 pm; Tues 10:30 to 11:30 am Dr. Gavva: Tues 12:30 to 1:30 pm; Thurs 10:00 to 11:00 am Dr. Sibert: Tues 2:00 to 3:00 pm; Wed 2:00 to 3:00 pm For all: PLEASE feel free to stop by when our doors are open
Other Information	Best way to contact us: email listed above or stop by our offices; we don't read eLearning 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	*Objectives* 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. *Expected Learning Outcomes* Upon successful completion of this course, students will therefore: 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 compounds 2) 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 figures 3) 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 calculations 4) 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	1. Textbook: *Chemistry, 1st Edition* (Julia Burdge); McGraw-Hill 2. course materials located on class site at eLearning: http://elearning.utdallas.edu/ 3. ARIS online assignment system: http://www.mharis.com 4. eInstruction clicker and registration: http://www.einstruction.com

Schedule & Academic Calendar

Class Period	Day	Date	Topic	Chapter
1	Fri	Aug 21	Introduction	
2	Mon	Aug 24	Atomic Theory: structure of the atom;	2.1–2.3
3	Wed	Aug 26	atomic number; mass number and isotopes	
4	Fri	Aug 28	Quantum Theory and Electronic Structure of Atoms:	6
5	Mon	Aug 31	light; atomic line spectra;	
6	Wed	Sept 2	Bohr model; quantum numbers;	
7	Fri	Sept 4	atomic orbitals; electron configuration	
	Mon	*Sept 7*	*Labor Day*	
8	Wed	Sept 9	Electron Configuration and Periodic Table:	7
9	Fri	Sept 11	periodic table; effective nuclear charge;	
10	Mon	Sept 14	periodic trends of atoms and ions; elements and properties	
	Tues	**Sept 15**	**Exam 1 (Chapters 2.1–2.3, 6, 7)**	
11	Wed	Sept 16	Chemical Bonding I: Basic Concepts:	8
12	Fri	Sept 18	ionic bonding; covalent bonding;	
13	Mon	Sept 21	electronegativity; Lewis structures and formal charges;	
14	Wed	Sept 23	resonance and octet rule exceptions	
15	Fri	Sept 25	Nomenclature	2.6–2.7
16	Mon	Sept 28	Chemical Bonding II: Molecular Geometry & Bonding Theories:	9
17	Wed	Sept 30	VSEPR theory; polarity;	
18	Fri	Oct 2	valence bond theory; hybridization;	
19	Mon	Oct 5	sigma and pi bonding;	
20	Wed	Oct 7	polarity	
21	Fri	Oct 9	Atoms, Molecules and Ions:	2.5–2.7
22	Mon	Oct 12	average atomic mass; molecular/ionic & empirical formulas	
	Tues	**Oct 13**	**Exam 2 (Chapters 8, 9, 2.5–2.7)**	
23	Wed	Oct 14	Stoichiometry: Ratios of Combination	3
24	Fri	Oct 16	molecular/formula masses; % composition;	
25	Mon	Oct 19	the mole; determination of empirical and molecular	
26	Wed	Oct 21	formulas; stoichiometry with reactions; limiting reactants	
27	Fri	Oct 23	Reactions in Aqueous Solutions:	4
28	Mon	Oct 26	precipitation reactions;	
29	Wed	Oct 28	acid-base reactions;	
30	Fri	Oct 30	oxidation-reduction reactions; concentration units	
31	Mon	Nov 2	Thermochemistry:	5
32	Wed	Nov 4	introduction; state functions;	8.9
33	Fri	Nov 6	first law of thermodynamics; enthalpy;	
34	Mon	Nov 9	calorimetry; Hess's Law; bond enthalpies	
	Tues	**Nov 10**	**Exam 3 (Chapters 3, 4, 5, 8.9)**	
35	Wed	Nov 11	Gases:	11
36	Fri	Nov 13	properties; gas laws;	
37	Mon	Nov 16	Ideal gas laws; Dalton's law of partial pressures;	
38	Wed	Nov 18	kinetic molecular theory; deviation from ideality	
39	Fri	Nov 20	Intermolecular Forces; Liquids and Solids:	12
40	Mon	Nov 23	IM forces; properties of liquids;	
41	Wed	Nov 25	crystal structures of solids;	
	Fri	*Nov 27*	*Thanksgiving Holiday*	
42	Mon	Nov 30	types of crystals and solids	12
	Tues	**Dec 1**	**Exam 4 (Chapters 11, 12.1–12.5)**	
43	Wed	Dec 2	phase changes;	12.6–12.7
44	Fri	Dec 4	phase diagrams	
45	Mon	Dec 7		
	Tues/Wed	*Dec 8–9*	*Reading Days*	
	Tues	**Dec 15**	**Cumulative Final Exam (7pm to 9:45pm)**	

Exam Schedule:	**Tues**	**Sept 15**	**Exam 1**	**7 to 8:30pm**
	Tues	**Oct 13**	**Exam 2**	**7 to 8:30pm**
	Tues	**Nov 10**	**Exam 3**	**7 to 8:30pm**
	Tues	**Dec 1**	**Exam 4**	**7 to 8:30pm**
	Tues	**Dec 15**	**Final Exam**	**7 to 9:45pm (NOTE TIME CHANGE)**

Course Policies

Grading (credit) Criteria

Course Evaluation:

(i) Quizzes	15%
(ii) Class participation	5%
(ii) Midterm Exams (4 x 15%)	60%
(iii) Final Exam	20%

Our goal in 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:

1. Homework assignments (end of chapter problems):

- assigned for each chapter from end-of-chapter exercises in *Burdge*
- large number of problems selected to cover majority of important concepts
- these will not be collected or graded
- all homework assignments for the next section will be posted the day after the previous exam

2. Quizzes (online in ARIS):

- one per chapter plus additional "Foundation Concepts" quizzes
- we will drop your 2 lowest quiz scores; the others 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)*
- each quiz will be composed of two parts:
  a. pre-quiz: -- approx. 5 to 10 questions (similar to homework)
  -- worth 25% of quiz score
  -- can take as many times as you want (top score counts)
  -- can take it anywhere you wish
  -- can work together, use notes and textbook
  b. proctored quiz:
  -- typically 3 to 5 questions
  -- similar to homework (and pre-quiz questions)
  -- worth 75% of quiz score
  -- only take once
  -- must take it independently (no working together, textbook or notes) at the Success Center (Conference Center, CN building)
- all quizzes for the next section will be posted the day after the previous exam, and the quizzes will be due (i.e. access closed) on the dates listed below. ***There are 700+ students in this class, and ALL of you will be required to take the proctored quizzes at the Success Center (~40 computers). So don't wait until the last day before the due date to try to take your quizzes—there will be no excuses accepted for unfinished quizzes***
- you are required to take the proctored quizzes at the Success Center, and software on those computers track student access and usage to allow us to ensure this***. Any attempt by a student to take the proctored quiz at a different location will be considered an act of scholastic dishonesty and will be dealt with appropriately (see Section "Academic Integrity" on a following page).***

3. Class participation (in-class use of clickers):

- approximately 2 in-class questions and attendance checks per lecture period
- for each clicker question: 0 pts = did not answer
  1 pt = answered wrong
  2 pts = answered correct
- at end of semester, each student's total clicker score will be divided by the total possible and multiplied by 5% to determine the class participation score

4. Midterm exams (scantron-based multiple choice exams):

- ALL 4 MIDTERM EXAMS MUST BE TAKEN, at the scheduled time and on the scheduled day
- ***There will be no makeup exams given***
- The lowest of the 4 exam scores will be automatically replaced by a higher final exam score. 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, pre-quizzes and quizzes

5. Final exam (scantron-based multiple choice exam):

- 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!***

Quiz Deadlines

Prequizzes and Proctored Quizzes are ***due 7:00 pm on the day listed below (note exception for Quiz 1, which is due at 2:00 pm)***—after the deadline on those days, these assignments will close and you will no longer be able to work on them:

Date Due	Assignment	Topic
Section 1		
Fri Sept 11	Quiz 1	Chap 6: Quantum theory and electronic structure of atoms
Mon Sept 14	Quiz 2	Chap 7: Electron configuration and periodic table
Section 2		
Mon Sept 28	Quiz 3	Electron configuration review
Mon Sept 28	Quiz 4	Nomenclature
Mon Sept 28	Quiz 5	Chap 8: Chemical Bonding I
Mon Oct 12	Quiz 6	Chap 9: Chemical Bonding II
Mon Oct 12	Quiz 7	Chap 2 pt 2: Second half of Chap 2
Section 3		
Mon Oct 26	Quiz 8	Sig figs, dimensional analysis review
Mon Oct 26	Quiz 9	Chap 3: Stoichiometry
Mon Nov 9	Quiz 10	Chap 4: Reaction in Aqueous Solutions
Mon Nov 9	Quiz 11	Chap 5: Thermo (thru 5.4)
Section 4		
Mon Nov 23	Quiz 12	Chap 5: Thermo (5.5 and 5.6)
Mon Nov 23	Quiz 13	Chap 11: Gases
Mon Nov 30	Quiz 14	Chap 12: Intermolecular forces

Make-up Exams

There are **no make-up exams** (see above).

Extra Credit

There is **no extra credit**.

Class Attendance

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***

ARIS details	**What:** McGraw-Hill's ARIS (Assessment, Review, and Instruction System) is an electronic homework and course management system that we will be using for online quiz assignments. **Where:** Go to http://www.mharis.com/ **First-time Registration/Create a New Account:** • procedure outlined in document "ARIS Quickstart Guide.pdf" located on eLearning course site **Enrolling for Course:** • procedure outlined in document "ARIS Quickstart.pdf" located on eLearning course site • BE SURE TO USE THE CORRECT COURSE CODE FOR YOUR SECTION section 001 (Gavva): code = F46-33-E97 section 002 (Dieckmann): code = BF7-F7-34B section 003 (Sibert): code = EC6-86-44E • Be sure to enter your university name as it appears for the registrars office and grade book. Failure to do so will result in you not receiving credit for work you do. This is the student's responsibility.
Classroom Performance System "clickers"	We will be using electronic Classroom Performance System "clickers" in every lecture to enhance the learning environment. • Please purchase a clicker at the University Technology Store (next to University bookstore). The cost will be $19. **First-time Registration/Create a New Account:** • You will need to activate your clicker for this class via the eInstruction website (http://www.einstruction.com; see the back of the clicker box). Instructions will be provided. **Enrolling for Course:** • BE SURE TO USE THE CORRECT CLASS KEY FOR YOUR SECTION section 001 (Gavva): class key = G52984B682 section 002 (Dieckmann): class key = M52547I126 section 003 (Sibert): class key = F52945B437 • Be sure to enter your university name as it appears for the registrars office and grade book. Failure to do so will result in you not receiving credit for work you do. This is the student's responsibility. • You will have the opportunity to earn points based on your participation in class as documented via use of your clicker. You will not be able to earn participation points if you fail to bring your personal clicker with you to class each day. Likewise, you will not be able to earn participation points if you fail to properly utilize your clicker during class (i.e. turning it on, electronically enrolling in class, responding to in-class questions, responding to attendance checks, etc.). ***Battery failure prior to, or during, class will not be an acceptable excuse for failing to participate in class.*** • ***We strongly encourage you to purchase and keep with you an extra set of batteries.*** • Each student must have his or her own clicker. That will allow us to give you credit for your in-class responses. ***Using another student's clicker in an attempt to earn points for that student, or allowing another student to use your clicker in an attempt to earn points for you, is considered an act of scholastic dishonesty and is subject to discipline (see below).*** • Starting with the 5th class period (Mon, August 31st), we will begin using the clickers in class • if you attend a different CHEM 1311 section, please do not use your clicker in that section
Student Conduct and Discipline	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, *A to Z Guide*, which is provided to all registered students each academic year. 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 *Rules and Regulations, Series 50000, Board of Regents, The University of Texas System*, and in Title V, Rules on Student Services and Activities of the university's *Handbook of Operating Procedures*. 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: http://www.utdallas.edu/judicialaffairs/UTDJudicialAffairs-HOPV.html 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.
Peer Instructional Support **(SI/PLTL Programs)**	Two additional resources are available to facilitate your learning and development of study skills. Supplementary Instructors (SIs) are undergraduate students with mastery of course content. They will hold weekly tutorial sessions and exam reviews. Their hours and room assignments will be announced in class. Peer Led Team Learning (PLTL) is a new program designed to provide an active learning experience in which students can gain the skills and confidence to be successful learners in General Chemistry and, potentially, future courses. In weekly ninety-minute PLTL sessions, small groups of students will work together to solve problems written by the course professors. An undergraduate PLTL leader who has training in group dynamics and mastery of course content will lead them. This is an optional component to the course. However, if you choose to participate, you are required to stay in the program throughout the semester—the integrity of the group depends on it. To participate in a PLTL group, you will need to complete the PLTL application form distributed in class. More details of this program will be announced in class.
Academic Integrity	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. 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. 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.
Copyright Notice	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-I.3-46). For more information about the fair use exemption, see:

	http://www.utsystem.edu/ogc/intellectualproperty/copypol2.htm
Email Use	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. ***My policy is to not communicate any details regarding your grade through email. I will only discuss these details in person with a student.***
Technical Support	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.
Withdrawal from Class	The administration of this institution has set deadlines for withdrawal of any college-level 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. ***Undergraduates last day to withdraw with WP/WF: Thursday, Oct 22***
Student Grievance Procedures	Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's *Handbook of Operating Procedures*. 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. 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.
Incomplete Grades	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**.
Disability Services	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. 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 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. ***It is the student's responsibility to notify his or her professors of the need for such an accommodation.*** Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. ***Individuals requiring special accommodation should contact the professor ASAP after class or during office hours.***
Religious Holy Days	The University of Texas at Dallas will excuse a student from class or other required 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. ***The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, in advance of the assignment.*** 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. 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.

These descriptions and timelines are subject to change at the discretion of the Professor.