Course	**CHEM 1311: General Chemistry I**
Professors	Gregg Dieckmann, Jason McAfee, John Sibert, Amandeep Sra, Stephanie Taylor
Term	Fall 2013
Meetings	Section 001: MWF 9:00 am – 9:50 am, SLC 1.102 (Dr. Sibert) Section 002: MWF 10:00 am – 10:50 am, SLC 1.102 (Dr. McAfee) Section 003: MWF 11:00 am – 11:50 am, SLC 1.102 (Dr. D) Section 004: MWF 1:00 pm – 1:50 pm, SLC 1.102 (Dr. Sra) Section 005: MWF 8:00 am – 8:50 am, SLC 1.102 (Dr. Taylor)

Professor's Contact Information

Office Phones [972-883-XXXX]	Dr. D: 2903; Dr. McAfee: 2906; Dr. Sibert: 2918; Dr. Sra: 4818; Dr. Taylor: 6044
Office Locations	Dr. D: BE 2.522; Dr. McAfee: BE 3.330C; Dr. Sibert: BE 3.520; Dr. Sra: SLC 3.403; Dr. Taylor: FN 3.308D
Email Addresses	Dieckgr@utdallas.edu; Jason.McAfee@utdallas.edu; Sibertj@utdallas.edu; aks057000@utdallas.edu; StephanieM.Taylor@utdallas.edu
Office Hours	Dr. D: Mon 2:00 to 3:00 pm; Thurs 9:00 to 10:00 am Dr. McAfee: Mon/Wed/Thurs/Fri 11:00 am to noon Dr. Sibert: Mon/Tues 11:00 am to noon Dr. Sra: Mon/Wed 2:00 to 3:30 pm; Thurs 10:00 am to noon Dr. Taylor: Mon 4:00 to 5:00 pm; Thurs 3:00 to 4:00 pm For all: PLEASE feel free to stop by when we are in our offices
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: Atoms First, 1st Edition* (Julia Burdge, Jason Overby); McGraw-Hill 2. course materials located on class site at eLearning: http://elearning.utdallas.edu/ 3. CONNECT online assignment system: http://connect.mcgraw-hill.com 4. Calculator: TI-30X IIS (or TI-30X IIB)

Schedule & Academic Calendar

Class Period	Day	Date	Topic	Chapter
1	Mon	Aug 26	Introduction	
2	Wed	Aug 28	Atoms and the Periodic Table:	2
3	Fri	Aug 30	atomic theory; structure of the atom; atomic number; mass	
	Mon	*Sept 2*	*Labor Day (no classes)*	
4	Wed	Sept 4	number; isotopes; average atomic mass; mole and molar mass	2 (cont.)
5	Fri	Sept 6	Quantum Theory and Electronic Structure of Atoms:	3
6	Mon	Sept 9	energy; light; atomic line spectra; Bohr model; quantum mechanics;	
7	Wed	Sept 11	quantum numbers; atomic orbitals; electron configurations; periodic	
8	Fri	Sept 13	table	
9	Mon	Sept 16	Periodic Trends of the Elements:	4
10	Wed	Sept 18	effective nuclear charge; periodic trends—atomic radius, ionization	
11	Fri	Sept 20	energy, electron affinity;	
12	Mon	Sept 23	electron configuration of ions; ionic radius	
	Tues	**Sept 24**	**Exam 1 (Chapters 2, 3, 4)**	
13	Wed	Sept 25	Ionic and Covalent Compounds:	5
14	Fri	Sept 27	Lewis dot symbols; ionic bonding; covalent bonding; molecular and	
15	Mon	Sept 30	structural formulas; empirical formulas; nomenclature; molecular and	
16	Wed	Oct 2	formula masses; % composition; molar masses; determination of empirical and molecular formulas	
17	Fri	Oct 4	Representing Molecules:	6
18	Mon	Oct 7	octet rule; electronegativity and polarity; Lewis structures and formal	
19	Wed	Oct 9	charges; resonance; octet rule exceptions	
20	Fri	Oct 11		
21	Mon	Oct 14	Molecular Geometry & Bonding Theories:	7 (excluding 7.6)
22	Wed	Oct 16	VSEPR theory; molecular geometry and polarity; valence bond	
23	Fri	Oct 18	theory;	
24	Mon	Oct 21	hybridization; sigma and pi bonding	
	Tues	**Oct 22**	**Exam 2 (Chapters 5, 6, 7)**	
25	Wed	Oct 23	Chemical Reactions:	8
26	Fri	Oct 25	chemical equations; stoichiometry; limiting reactants; percent yield	
27	Mon	Oct 28		
28	Wed	Oct 30		
29	Fri	Nov 1	Chemical Reactions in Aqueous Solutions:	9
30	Mon	Nov 4	strong and weak electrolytes; precipitation reactions; acid-base	
31	Wed	Nov 6	reactions; oxidation-reduction reactions; concentration units;	
32	Fri	Nov 8	gravimetric analysis and titrations	
33	Mon	Nov 11		
	Tues	**Nov 12**	**Exam 3 (Chapters 8, 9)**	
34	Wed	Nov 13	Energy Changes in Chemical Reactions:	10
35	Fri	Nov 15	energy/energy changes; thermodynamics; enthalpy; calorimetry;	
36	Mon	Nov 18	Hess's Law; standard enthalpies of formation; bond enthalpies; lattice energy	
37	Wed	Nov 20	Gases:	11
38	Fri	Nov 22	properties of gases; kinetic molecular theory; pressure; gas laws;	
	Mon-Wed	*Nov 25-27*	*Fall Break (no classes)*	
	Thurs	*Nov 28*	*Thanksgiving (no classes)*	
	Fri	*Nov 29*	*Thanksgiving Holiday (no classes)*	
39	Mon	Dec 2	ideal gas equation; real gases; Dalton's law of partial pressures and	11 (cont.)
40	Wed	Dec 4	mole fractions; reactions with gases	
41	Fri	Dec 6	Intermolecular Forces and the Physical Properties of Liquids and Solids:	12
42	Mon	Dec 9	intermolecular forces; properties of liquids; crystal structure; types of solids;	
	Tues	**Dec 10**	**Exam 4 (Chapters 10, 11)**	
43	Wed	Dec 11	phase changes; phase diagrams	12 (cont.)
	Thurs	*Dec 12*	*Reading Day*	
	Tues	**Dec 17**	**Cumulative Final Exam (8:00 to 10:45pm)**	

Exam Schedule:	**Tues**	**Sept 24**	**Exam 1**	**7:00 to 8:30pm**
	Tues	**Oct 22**	**Exam 2**	**7:00 to 8:30pm**
	Tues	**Nov 12**	**Exam 3**	**7:00 to 8:30pm**
	Tues	**Dec 10**	**Exam 4**	**7:00 to 8:30pm**
	Tues	**Dec 17**	**Final Exam**	**8:00 to 10:45pm (NOTE TIME CHANGE)**

Course Policies

Grading (credit) Criteria

Course Evaluation:

(i) In-class Assignments	5%
(ii) LearnSmart Assignments (CONNECT)	5%
(iii) Online Quizzes (CONNECT)	15%
(iv) Midterm Exams (4 x 15%)	60%
(v) Final Exam	15%

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. We have designed this course to empower you to succeed in learning chemical concepts. We have a number of "resources" that we are putting at your disposal to enable you to succeed. While students will differ in the type of resources they prefer to utilize, in our experience we have identified a subset that are critical. Thus for those, we give credit in the class to strongly encourage students to use them. Resources are described below and in the following sections:

0. Homework assignments (end of chapter problems):

- a principle method for assessing whether you understand a concept and how to use it
- one of the most critical resources for preparing for exams
- assigned for each chapter from end-of-chapter exercises in your textbook
- large number of problems selected to cover the majority of important concepts
- mixture of conceptual and quantitative problems
- these will not be collected or graded
- all homework assignments for the next section will be posted approx. the day after the previous exam

1. In-class Assignments:

- obvious message: attending class each and every day is arguably the MOST important thing a successful general chemistry student does
- approximately one in-class assignment each week (or as needed)
- these will be unannounced, and can occur anytime during any lecture
- typically short (1 or 2 questions) on material seen within last 1 or 2 lectures
- we will drop your lowest in-class assignment score; the others will be averaged together to give your in-class assignment average
- ***there will be no makeup in-class assignments given*** *(you will receive a "zero" for any you miss)*

2. LearnSmart Assignments (in CONNECT):

- helps a student gauge their fundamental knowledge and identify what they don't understand
- approximately one per chapter covered in the textbook
- typically 30 to 60 minutes long
- number of questions vary based on strength of a student's understanding
- questions tend to have a more conceptual focus
- scores will be averaged together to give your LearnSmart assignment average
- ***there will be no makeup LearnSmart assignments given*** *(you will receive a "zero" for any you miss)*
- for additional details, see "CONNECT details" section below

3. Online Quizzes (in CONNECT):

- similar in focus to the assigned homework problems
- approx. 10 quizzes during the semester
- we will drop your lowest quiz score; 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)*
- for additional details, see "CONNECT details" section below

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

- each exam is 80 minutes long

	• 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 (examples include: 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 ***until the time when 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 class, homework, pre-quizzes, in-class assignments and quizzes **5. Final exam (scantron-based multiple choice exam):** • comprehensive exam • the final exam is 2 hours and 45 minutes long • The final exam must be taken and cannot be replaced by any other grade, so • ***No makeup final will be given***. ***NOTE THE DAY AND TIME OF THE FINAL!***
Make-up Exams	There are **no make-up exams** (see above).
Extra Credit	There is **no extra credit**.
Class Attendance	Regular and punctual class attendance is expected. Students who fail to attend class regularly are inviting scholastic difficulty. Absences may lower a student's grade (see "1. In-class Assignments:" in the Course Evaluation section above).
CONNECT details	**What:** McGraw-Hill's CONNECT is an electronic assignment system that we will be using for online prequiz and quiz assignments, as well as LearnSmart assignments. **Where:** Go to http://connect.mcgraw-hill.com **First-time Registration/Create a New Account/Enrolling for Course:** • procedure outlined in document "CONNECT Overview.ppt" (eLearning course site) • BE SURE TO USE THE CORRECT WEB ADDRESS FOR YOUR SECTION: section 001 (Sibert): http://connect.mcgraw-hill.com/class/j_sibert_001-f13 section 002 (McAfee): http://connect.mcgraw-hill.com/class/j_mcafee_002-f13 section 003 (Dieckmann): http://connect.mcgraw-hill.com/class/g_dieckmann_003-f13 section 004 (Sra): http://connect.mcgraw-hill.com/class/a_sra_004-f13 section 005 (Taylor): http://connect.mcgraw-hill.com/class/s_taylor_005-f13 • when registering, **be sure to use your university name** as it appears for the registrars office and grade book. Failure to do so will result in you possibly not receiving credit for the work you do. This is the student's responsibility. **Quiz/prequiz assignment formats:** • each quiz will be composed of two parts: a. pre-quiz: -- approx. 5 to 15 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 (e.g., home, etc.) but NOT the Testing Center -- can work together, use notes and textbook b. proctored quiz: -- typically 3 to 6 questions -- timed (usually 30 minutes) -- 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 UTD Testing Center (see "UT Dallas Testing Center" section below)

	Quiz/prequiz Assignment details: • prequizzes and quizzes will be posted in a timely manner, and will be due (i.e. access closed) on the dates listed below (see "Quiz/Prequiz Deadlines" section below) • you are required to take the proctored quizzes at the UTD Testing 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 "Academic Integrity" section below).*** • quizzes will be timed (typically 50 minutes long). Be sure to submit your work when finished. At the end of the available time, entered answers on the quiz will be collected automatically by the CONNECT system and graded. ***There will be no excuses accepted for unfinished quizzes.*** • ***Students are not allowed to access CONNECT prequiz materials, other online resources, or any other materials during the proctored quiz—this will be considered an act of scholastic dishonesty and will be dealt with appropriately (see "Academic Integrity" section below).*** **LearnSmart Assignment format/details:** • number of questions (and thus the length of time per assignment) vary • each student will get a unique set of questions tailored by the system to suit the student's preparation and understanding of the material • can take it anywhere (e.g., home, etc.) but NOT the Testing Center • ***strongly suggested*** that you work independently so that the system can give you accurate feedback on your level of understanding of the topics
UT Dallas Testing Center	**What:** The UTD Testing Center, located in the basement of the Eugene McDermott Library, is a proctored, computer testing lab with 158 computers to support online exams and quizzes. The Testing Center has video surveillance and remote monitoring of each individual computer. Students are prohibited from bringing any testing aids or personal items to the Testing Center. **Website:** http://www.utdallas.edu/studentsuccess/testingcenter/ **Testing Center Hours:** Monday – Wednesday; Friday: 9:00am – 10:00pm (doors locked at 9:30pm) Thursday: 8:00am – 10:00pm (doors locked at 9:30pm) Saturday: 10:00am – 2:00pm (doors locked at 1:30pm) Sunday: closed **Testing Center Policies** • you will need your valid COMET CARD to be admitted to the Testing Center. • Demonstrate academic integrity in accordance with the UT Dallas Student Code of Conduct. All instances of academic dishonesty will be reported to the appropriate personnel including the Dean of Students and your instructor • The following items are not allowed in the Testing Center: -- electronic devices such as cell phones, pagers, PDAs, iPods, cameras, flash drives— **"Any student found with a cell phone or other electronic device in the test room will be immediately escorted from the Testing Center, quiz will be submitted as is, and the student will be reported to instructor and the Dean of Students."** -- backpacks, bags or purses, hats -- books, notes, formula sheets, papers or any other items not previously approved by the instructor -- food or beverages • Lockers are available to store your personal items—information regarding lockers can be found on the Center's website (see link above) • An approved calculator and work materials (whiteboard and marker for working problems) will be provided to you by the Testing Center for use during your quiz • Once a quiz has started, students may not leave the room for ANY reason until the quiz is finished • No children allowed in the Testing Center

Quiz/Prequiz Deadlines

Prequizzes and Proctored Quizzes in CONNECT are ***due 9:30 pm on the Fridays listed below***—at the deadline time, these assignments will close—you will no longer be able to work on them. Prequizzes are graded and available for review upon submission; proctored quizzes are graded and available for review after the deadline time.

Quizzes/prequizzes will contain content covered in class up through the previous Friday (i.e., the Friday prior to the quiz/prequiz due date).

Date Due	Assignment	Date Due	Assignment
Section 1		***Section 3***	
Fri Sept 6	Prequiz 1	Fri Nov 1	Prequiz/Quiz 7
Fri Sept 13	Prequiz/Quiz 2	Fri Nov 8	Prequiz/Quiz 8
Fri Sept 20	Prequiz/Quiz 3		
Section 2		***Section 4***	
Fri Oct 4	Prequiz/Quiz 4	Fri Nov 22	Prequiz/Quiz 9
Fri Oct 11	Prequiz/Quiz 5	Fri Dec 6	Prequiz/Quiz 10
Fri Oct 18	Prequiz/Quiz 6		

LearnSmart Deadlines

All LearnSmart assignments in CONNECT for a given section are ***due 6:30 pm on the Exam date for that section***—at the deadline time, these assignments will close—you will no longer be able to work on them.

Exam/Final Exam Details

- Students will be assigned to specific exam rooms based on their last name. Assignments will be announced before the first midterm exam, and will be valid for the full semester.
- you will need your valid COMET CARD to take the exam; in the absence of this, a valid, current photo ID such as your driver's license can be used
- during exams, students are not allowed to have the following items with them: food or beverages, scratch paper (unless provided by the instructor), course materials, textbooks, notes (including formula sheets), or electronic devices, including iPads, iPhones or any other type of smart phone or cellular phone, iPods, MP3 players, earphones, radios, cameras, multi-functional timepieces, or computers.
- when possible, students will sit in alternating seats, face forward at all times, and remove any clothing which might conceal eye movements, reflect images of another's work, or hide course materials for copying.
- exam proctors will monitor any communication or signaling between students by talking, whispering or making sounds, or by using your hands, feet, or other body movements, the test paper itself or your writing implement.
- We have a specific calculator (listed below) **required for use on all exams**

  TI-30X IIS (solar) or TI-30X IIB (battery)

  -- same calculator required for SAT and ACT exams
  -- same calculator supplied by Testing Center for quizzes
  -- inexpensive sources ($10 to $20): Walmart, Amazon.com

  -- NO OTHER CALCULATOR TYPE IS ALLOWED. ***Use of a non-approved calculator will be considered an act of scholastic dishonesty and will be dealt with appropriately (see Section "Academic Integrity" below).***
  -- ALL calculators will be checked before/during the exam. Non-approved calculators will be removed immediately from the student, to be returned at some point after the exam period (possibly in class)
  -- if your calculator is removed, you will be required to finish the exam WITHOUT a calculator (i.e., we do not have calculators to provide, and another student cannot provide you with a calculator once the exam has started)

Peer Instructional Support (PLTL Program)

Peer Led Team Learning (PLTL) is a 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 other science 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. **It is critical to attend every session**—skipping a PLTL session limits the utility of that session for everybody else. We want people who sign up for the program to be fully committed to attending. ***You are allowed only 2 absences during the whole semester; students in the PLTL program that miss more than 2 PLTL sessions will not be allowed to drop their lowest quiz grade. Bottom line: only sign up for PLTL if you are committed to attending every session.*** To participate in a PLTL group, you will need to apply online. More details of this program, and the enrollment procedure, will be announced in class. You can learn more about PLTL at the following link for the Student Success Center: http://www.utdallas.edu/studentsuccess/leader/pltl.html
Other Assistance	We have many other resources available to you in this class: • Chemistry TA office hours (in Student Success Center) -- hours will be set in near future and posted online at Success Center website -- available for walk-in assistance • Chemistry Tutors provided by Student Success Center -- hours will be set in near future and posted online at Success Center website http://www.utdallas.edu/studentsuccess/leader/tutors.html -- available for walk-in assistance In short: with 5 instructors, an army of Chemistry TAs, Chemistry Tutors, and PLTL, there should be NO STUDENT that cannot find help. Our goal is to put the resources in place to help every student that wants to succeed in a position where they can do so!
Regrade Policy	Requests to have 1 or more questions of a prequiz/quiz/in-class assignment/exam regraded have to be made within 1 week of receiving the graded assignment. The request should be in the form of an email from your UTD email account to the instructor; the subject line should read "prequiz X regrade", "quiz X regrade", "in-class assignment regrade" or "exam X regrade", where X is the assignment number; the body of the email should contain your full name, the problem number and an explanation of how the problem was graded incorrectly
UT Dallas Syllabus Policies and Procedures	The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus: http://go.utdallas.edu/syllabus-policies Policies covered include: student conduct and discipline, academic integrity, copyright notice, email use, student grievance procedures, and religious holy days. Some additional information regarding some of these topics is included in related sections below.
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. *Scholastic Dishonesty*: Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, submitting for credit any work or materials that are attributable in whole or in part to another person, taking an examination for another person, or any act designed to give unfair advantage to a student or the attempt to commit such acts.
Email Use	Our policy in this class is to ***not*** communicate any details regarding your grade through email. We 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 drop without a "W": Wednesday Sept 11*** ***Undergraduates last day to withdraw with WL: Thursday, Oct 31***
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**.
Office of Student AccessAbility (OSA)	It is the policy and practice of The University of Texas at Dallas to make reasonable accommodations for students with properly documented disabilities. However, written notification from the Office of Student AccessAbility (OSA) is required. If you are eligible to receive an accommodation and would like to request it for a course, please discuss it with an OSA staff member and allow at least one week's advanced notice. Students who have questions about receiving accommodations, or those who have, or think they may have, a disability (mobility, sensory, health, psychological, learning, etc.) are invited to contact the Office of Student AccessAbility for a confidential discussion. The primary functions of the Office of Student AccessAbility are to provide: 1. academic accommodations for students with a documented permanent physical, mental or sensory disability 2. non-academic accommodations 3. resource and referral information and advocacy support as necessary and appropriate. OSA is located in the Student Services Building, suite 3.200. They can be reached by phone at (972) 883-2098, or by email at disabilityservice@utdallas.edu.

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