| | Course | CHEM 1311: General Chemistry II |
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| | Professors | John W. Sibert, other instructors: Jiyong Lee and Amandeep Sra |
| uijv | Term | Spring 2013 |
| | Meetings | Section 003: MWF 8:00 am - 8:50 am, SLC 1.102 |

Professor's Contact Information

| Office Phone | 972-883-2918 |
|-------------------|---|
| Office Location | BE 3.520 |
| Email Address | sibertj@utdallas.edu |
| Office Hours | Monday, Tuesday 10:00 to 11:00 am or when my door is open |
| Other Information | Best way to contact me: email listed above |

General Course Information

| Pre-requisites, Co- requisites, & other restrictions | One year of high school chemistry and one semester of college general chemistry (e.g. CHEM 1311) are assumed. |
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| Course Description | A continuation of CHEM 1311 treating solutions; chemical equilibrium, acids and bases, solubility; electrochemistry; organic chemistry; rates of reactions; and environmental, polymer, nuclear, and biochemistry. |
| | Objectives This course is the second of a two-course sequence. The goal of this course is to provide students with a working knowledge of how the basic concepts learned in CHEM 1311 apply to more complex chemical systems. The course focuses on the following: chemical equilibrium; rates of reactions; acid base chemistry, including buffer systems and acid/base titrations; electrochemistry; thermodynamics; nuclear chemistry; and basic organic chemistry concepts. Basic problem solving skills and critical thinking continue to be emphasized in this course. |
| | Upon successful completion of this course, students will therefore: |
| | be able to use their understanding of intermolecular attractive forces that determine the properties of the states of matter and phase behavior by predicting colligative properties and the characteristics of solutions |
| Learning Outcomes | 2) be able to use the basic concept of equilibrium in writing equilibrium constant relationships, determining whether equilibrium has been established, calculating equilibrium concentrations, and predicting the effects of concentration, pressure and temperature changes on equilibrium mixtures (LeChatelier's Principle) |
| | 3) 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 |
| | 4) be able to apply the concepts of equilibrium to (a) understand common inorganic reactions that occur in aqueous solutions (e.g. acid-base, solubility-precipitation and oxidation/reduction reactions); (b) understand how chemical equilibria depend on Δ H, Δ S and Δ G; and (c) determine standard and non-standard cell potentials and equilibrium constants from cell potential data for oxidation/reduction reactions |
| | 5) be able to use their understanding of intermolecular attractive forces that determine be able to demonstrate an understanding of the basic concepts of chemical kinetics, how rate and equilibrium properties are related, and how these topics relate to major scientific issues by utilizing this knowledge to solve kinetics calculations and evaluate reaction mechanisms |
| | 1. Textbook: <i>Chemistry: Atoms First, 1st Edition</i> (Julia Burdge, Jason Overby); McGraw- |
| Required Texts & | |
| Materials | 2. course materials located on class site at eLearning: <u>http://elearning.utdallas.edu/</u> |
| | 3. CONNECT online assignment system: http://connect.mcgraw-hill.com |

Schedule & Academic Calendar

| Class Period | Day | Date | Торіс | Chapter |
|--------------|---------|---------|--|------------|
| 1 | Mon | Jan 14 | Introduction | |
| 2 | Wed | Jan 16 | Physical Properties of Solutions: | 13 |
| 3 | Fri | Jan 18 | heats of solutions; concentration units; | 15 |
| | Mon | Jan 21 | Martin Luther King Day (no classes) | |
| 4 | Wed | Jan 23 | temperature and pressure effects on solubility; | |
| 5 | Fri | Jan 25 | colligative properties: boiling pt. elevation/freezing | 13 (cont.) |
| 6 | Mon | Jan 28 | pt. depression, osmosis; colloids | |
| 7 | Wed | Jan 30 | Kinetics: collision theory; reaction rates; | |
| 8 | Fri | Feb 1 | concentration vs. rate; | |
| 9 | Mon | Feb 4 | concentration vs. time; | 14 |
| 10 | Wed | Feb 6 | dependence of rate on temperature; | |
| 11 | Fri | Feb 8 | reaction mechanisms; | |
| | Sat | Feb 9 | Exam 1 (Chapters 13 and 14) | |
| 12 | Mon | Feb 11 | catalysis | 14 (cont.) |
| 13 | Wed | Feb 13 | Equilibrium: the concept and the equilibrium constant; | 15 |
| 14 | Fri | Feb 15 | equilibrium expressions; | |
| 15 | Mon | Feb 18 | using equilibrium to solve problems; | 15 (cont.) |
| 16 | Wed | Feb 20 | factors that affect equilibrium | |
| 17 | Fri | Feb 22 | Acids and Bases:Bronsted acids/bases; molecular structure and | |
| 18 | Mon | Feb 25 | acid strength; acid/base properties of water; pH scale; strong | |
| 19 | Wed | Feb 27 | acids and bases; weak acids and K_a ; weak bases and K_b ; | 16 |
| 20 | Fri | Mar 1 | conjugate acid/base pairs; polyprotic acids; acidic/basic | |
| | • | | saits, actu/ base properties of oxides and flydroxides, Lewis | |
| | Sat | Mar 2 | Exam 2 (Chapters 15 and 16) | 40 (1) |
| 21 | Mon | Mar 4 | acids and bases | 16 (cont.) |
| 22 | Wed | Mar 6 | Acid/base equilibria and Solubility equilibria: | 17 |
| 23 | Fri | iviar 8 | common ion effect; | |
| | | | bullet solutions, actu/base titrations, | 17 (cont.) |
| | | | solubility equilibria, factors affecting solubility, | |
| | Sun-Sat | Mar 10- | Spring Break (no classes) | |
| | our out | 16 | | |
| 24 | Mon | Mar 18 | | 17 (cont.) |
| 25 | Wed | Mar 20 | | () |
| 26 | Fri | Mar 22 | | |
| 27 | Mon | Mar 25 | | |
| 28 | Wed | Mar 27 | Entropy, Free energy and Equilibrium: | |
| 29 | Fri | Mar 29 | Spontaneous processes; | |
| 30 | Mon | Apr 1 | entropy and entropy changes; | 18 |
| 31 | Wed | Apr 3 | second and third laws of thermodynamics; | |
| 32 | Fri | Apr 5 | predicting spontaneity and Gibb's free energy; | |
| | Sat | Apr 6 | Exam 3 (Chapters 17 and 18) | |
| 33 | Mon | Apr 8 | free energy and equilibrium | 18 (cont.) |
| 34 | Wed | Apr 10 | Electrochemistry: | 10 |
| 35 | Fri | Apr 12 | balancing redox reactions; galvanic cells; | 19 |
| 36 | Mon | Apr 15 | cell potentials and reduction potentials; | |
| 37 | Wed | Apr 17 | spontaneity of redox reactions; | |
| 38 | Fri | Apr 19 | batteries; | 19 (cont.) |
| 39 | Mon | Apr 22 | electrolysis | |
| 40 | Wed | Apr 24 | | |
| 41 | Fri | Apr 26 | Nuclear chemistry: | 20 |
| | Sat | Apr 27 | Exam 4 (Chapter 19) | |
| 42 | Mon | Apr 29 | nuclei and nuclear reactions; nuclear stability; | 20 (cont.) |
| 43 | Wed | May 1 | fission and fusion/organic chemistry | . , |
| 44 | Fri | May 3 | Organic Chemistry | 24 |
| | Sat | May 11 | Cumulative Final Exam (8:00 to 10:45pm) | |

Course Policies

| | Course Evaluation: (i) Online Quizzes 15% |
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| | (ii) In-class Assignments 5% |
| | (III) MIDTERT EXAMS (4 X 15%) 60% |
| | (10) find 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 your textbook 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. Online Quizzes (in CONNECT): |
| | 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 |
| | 3. In-class Assignments: |
| Grading (credit) Criteria | 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) |
| | 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 <i>acceptable, documented reason</i> 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 <i>until the time when the first student</i> |
| | 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, prequizzes 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). |
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| 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 where class attendance and class participation are deemed essential by the instructor. In some courses, instructors may have special attendance requirements (see "3. In-class Assignments:" in the Course Evaluation section above); these should be made known to students during the first week of classes. What: McGraw-Hill's CONNECT is an electronic assignment system that we will be |
| | using for online prequiz and quiz 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: The web address for this class will be distributed during the first week both in class and on elearning. Do not register until this information is provided! |
| | 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 work you do. This is the student's responsibility. |
| CONNECT details | CONNECT 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.) 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) Assignment details: quizzes will be posted in a timely manner, and the quizzes will be due (i.e. access closed) in most cases on Thursdays by 9:30 PM. 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). you will schedule your quiz dayltime at the Testing Center through the link www.utdallas.edu/gems. You will typically be able to sign up for quizzes for the upcoming section beginning the Monday after the previous section's exam date. quizzes will be timed (typically 30 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. |
| | considered an act of scholastic dishonesty and will be dealt with appropriately |
| | (see "Academic Integrity" section below). |
| 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 more than 150 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. | | | | |
|-----------------|--|--|--|--|--|
| | Testing Center Hours | | | | |
| | Note that the second se | | | | |
| | Monday – Friday: 7:00am – 10:00pm (doors locked at 9:30pm) | | | | |
| | Saturday: 10:00am – 2:00pm (doors locked at 1:30pm) | | | | |
| | Sunday: closed | | | | |
| | Posserving a Computer | | | | |
| | A Deference more than a reconcision to take your test places register at | | | | |
| | 1. Before you may make a reservation to take your test, please register at | | | | |
| | www.utdallas.edu/gems | | | | |
| | Your username will be your UT Dallas email address; your password will be your netID | | | | |
| | After reserving a computer, you will receive an email confirmation. To cancel or reschedule, please login to the Testing Center website | | | | |
| | Lah Rules | | | | |
| | - you will need your valid LITD ID to be admitted to the Testing Center. A calculator and | | | | |
| | you will held you value of the held and marker for working realized and the | | | | |
| | work materials (i.e., whiteboard and marker for working problems) will be provided to | | | | |
| | you by the Testing Center for use during your quiz. | | | | |
| | 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 ascorted from the Testing Center duit will | | | | |
| | the test form will be immediately esconed from the resting center, duit will be submitted as is and the | | | | |
| | 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 drink | | | | |
| | | | | | |
| | | | | | |
| | • Lockers are available in the hallway next to the testing center. The Testing Center is | | | | |
| | not responsible for lost or stolen items. If you lose the key to the lockers, you will be | | | | |
| | assessed a key replacement fee of \$10 | | | | |
| | Prequizzes and Proctored Quizzes in CONNECT are due at the deadline time (9:30 pm | | | | |
| | Thursdays in most cases); 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 | | | | |
| Quiz/Prequiz | the deadline time | | | | |
| Deadlines | | | | | |
| | Quizzes/prequizzes will contain content covered in class up through the Friday prior to | | | | |
| | the quiz/prequiz due date. | | | | |
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| | | | | | |
| | A Studente will be engiged to encoifie even reame based on their last rame | | | | |
| | • 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 | | | | |
| | tull semester. | | | | |
| | • you will need your valid UTD ID to take the exam: in the absence of this, a valid, current | | | | |
| | nhoto ID such as your driver's license can be used | | | | |
| | photo in such as your unvers incense can be used | | | | |
| | • during exams, students are not allowed to have the following items with them: food or | | | | |
| | drink, scratch paper (unless provided by the instructor), course materials, textbooks, | | | | |
| | notes (including formula sheets), or electronic devices, including iPads, iPhones or | | | | |
| Evam/Einal Evam | any other type of smart phone or cellular phone, iPods, MP3 players, earphones. | | | | |
| | radios, cameras, multi-functional timepieces, or computers | | | | |
| Details | | | | | |

| | • 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 |
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| | 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. |
| | only non-graphing or non-programmable calculators are allowed on midterm exams and the final exam (you will provide your own calculator for exams). Non-approved calculators will be confiscated by the instructor. <u>Use of a non-approved calculator</u> will be considered an act of scholastic dishonesty and will be dealt with appropriately (see Section "Academic Integrity" below). |
| Peer Instructional | 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. |
| Support (PLTL Program) | 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. <u>Bottom line: only sign up for</u> 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/GEMS/ |
| | • 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 |
| Other Assistance | Chemistry Tutors provided by Student Success Center hours will be set in near future and posted online at Success Center website available for walk-in assistance |
| | In short: with 3 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 |
| | The information contained in the following link constitutes the University's policies and |
| LIT Dallas Svilabus | procedures segment of the course synabus. |
| Policies and | Policies covered include: student conduct and discipline academic integrity convright |
| Procedures | notice, email use, student grievance procedures, and religious holy days. Some additional information regarding some of these topics is included in related sections |
| 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. |
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| | 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: <u>assist@utdallas.edu</u> 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. |
| 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 | 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: academic accommodations for students with a documented permanent physical, mental or sensory disability non-academic accommodations resource and referral information and advocacy support as necessary and appropriate. |

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