Summer 5W2 2013
General Chemistry for Science Majors
(Prerequisite: MATH 1100 or equivalent)
Lecture: CHEM 1420.001: MTWR, 8:00-9:50 AM, Chemistry 109
Recitation CHEM 1420.211: M, 2:00 – 3:50 PM, Chemistry 109

Professor: **Mr. Timothy Stephens**
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Office hours: CHEM 163, Monday and Wednesday 4:00 pm – 5:00 pm

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Office: Chemistry Building (CHEM) 225
Office hours: Tuesdays and Wednesdays 10:00 am – 11:00 am

Suggested: Moore, Stanitski, and Jurs: Principles of Chemistry: The Molecular Science
Web page: https://learn.unt.edu/

REQUIRED: Internet access and Blackboard Learn access are required for this course.
Non-graphing scientific calculator (Does not include cell phones, smartphones, iPods, iPads, Kindles, Nooks, laptops, etc.)

Exam Dates:

Exam 1	**July 11 (Thursday)**
Exam 2	**July 18 (Thursday)**
Exam 3	**July 25 (Thursday)**
Exam 4	**August 1 (Thursday)**
Final Exam	**August 9 (Friday) 7–10 AM**

No exam grades are dropped! If you miss an exam, the grade on your final exam will be scaled to replace the missing exam grade!

Catalog Description

Fundamental concepts, states of matter, periodic table, structure and bonding, stoichiometry, oxidation and reduction, solutions, and compounds of representative elements.

Grade Allocation

KEEP ALL RETURNED ASSIGNMENTS IN CASE THERE IS ANY DISCREPANCY REGARDING YOUR COURSE GRADE! Your final grade is based on the number of points you receive out of the total possible points. Possible points will be obtained from your homework and exams. There will be no dropped homework or exam grades. If you fail to attend an exam (regardless of excuse), the same percentage as your final exam grade will be calculated in its place.
Your letter grade in this course will be based on the following scale:
A = > 90.0%; B = 80.0 – 89.9%; C = 70.0 – 79.9%; D = 60.0 –69.9%; F < 59.9%.

Failure to turn in completed assignments by the due date and time will result in a zero for the missing grade.

Extra Credit will be available for attending Super CRC Review Sessions. These sessions will be scheduled every week, and the schedule will be announced in class. For each session that the student attends, the student will receive 5 points. There is no limit on the number of sessions a student can attend.

Important University Dates

July 8	Last day to add a class (4:30 pm deadline and $50 late fee)
July 11	Census Day/12th Class Day
	Last day to drop a 5W1 course and not show on UNT transcript.
July 18	Last Day for Auto W (written approval by instructor)
	Last day to change pass/no pass status
July 31	Last day to drop with either W or WF (written approval by instructor)
	Last day to withdraw from the university (5 PM deadline)
August 1	Can Begin to Request Incomplete

Course Objectives

(1) Upon successful completion of Chem. 1420, students should be able to write rate law expressions and propose reaction mechanisms based on experimental reaction data.
(2) Upon successful completion of Chem. 1420, students should understand chemical equilibria and be able to calculate the equilibrium concentrations given the initial reactant concentrations and the equilibrium constant.
(3) Upon successful completion of Chem. 1420, students should be able to apply the scientific method.
(4) Upon successful completion of Chem. 1420, students should be able to calculate the pH of solutions containing strong and weak acids/bases.
(5) Upon successful completion of Chem. 1420, students should be able to apply the laws of thermodynamics to determine whether or not a given reaction will be spontaneous under the given set of experimental conditions.
(6) Upon successful completion of Chem. 1420, students should be able to solve problems related to electrochemistry.

Student Learning Objectives: General Chemistry (based on topics listed by the ACS Exams Institute)

1. Students will be able to determine the order of a chemical reaction and calculate the rate constant from initial rate data.
2. Students will be able to perform equilibrium constant calculations for chemical reactions involving gases and for chemical reactions occurring in solution.
3. Students will be able to write reaction mechanisms consistent with the rate law expression.
4. Students will be able to construct pH titration curves for the titration of both monoprotic and polyprotic weak acids.
5. Students will be able to calculate the pH of solutions containing weak acids, weak bases, salts of weak acids.
6. Students will be able to balance oxidation-reduction equations using both the method of half-reactions and method of oxidation numbers.
7. Students will be able to solve basic stoichiometry problems involving acid-base chemical reactions.
8. Students will be able to determine oxidation numbers of atoms in common compounds.
9. Students will be able to apply Le Chatelier's Principle to chemical systems at equilibrium.
10. Students will be able to calculate molar and molal concentrations of chemicals in various solutions and mixtures, and to work stoichiometric problems using afore-mentioned concentrations.
11. Students will be able to solve thermochemical problems.
12. Students will be able to calculate the equilibrium constant based on thermodynamic data.
13. Students will be able to apply the laws of thermodynamics to determine whether or a chemical reaction is spontaneous under the given set of experimental conditions.
14. Students will be able to calculate the molar mass of an unknown substance based on the colligative properties.
15. Students will be able to compute the potential of an electrochemical cell using standard reduction potentials.
16. Students will be able to solve numerical problems pertaining to the solubility of ionic salts in water.

Class Policies

1. You should enroll in both lecture (with recitation) and a lab (with lecture). CHEM 1440.50x (Lab) are separate courses from CHEM 1420.001 + CHEM 1420.211. Students receive separate grades for the lecture and lab courses. Dropping either course does NOT automatically drop a student from the other course.
2. Scientific calculators are permitted for use in class and on exams. Calculators may never be shared during an exam. Graphing calculators, cell phones or other devices that can access the internet may NOT be used in place of a scientific calculator!
3. By University regulations, a grade of "I" cannot be given as a substitute for a failing grade in a course.
4. There are no "extra credit" assignments given to an individual that are not available to the entire class.
5. Attend class—lectures and recitations, labs and lecture for labs. You are responsible for all information presented in class regardless of your attendance. Some of the information discussed in class is not in your textbook and you are still very much responsible for this information! No make-up work is provided. If you fail to attend an exam (regardless of excuse), the same percentage as your final exam grade will be calculated in its place.

Study Groups

You are strongly encouraged to form study groups. Practicing the language of chemistry by "talking" chemistry with others is a very easy and painless way to help you understand the concepts covered in this course.

POLICY STATEMENTS

ADA COMPLIANCE: In cooperation with the Office of Disability Accommodation (ODA) reasonable accommodations for qualified students with registered disabilities will be made. If applicable, please present your request, with written verification from the ODA, prior to the first exam. See: http://policy.unt.edu/policy/18-1-14

- "The University of North Texas is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 92-112 – The Rehabilitation Act of 1973 as amended. With the passage of new federal legislation entitled Americans with Disabilities Act (ADA), pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens."
- The University of North Texas complies with Section 504 of the 1973 Rehabilitation Act and with the Americans with Disabilities Act of 1990. The University of North Texas provides academic adjustments and auxiliary aids to individuals with disabilities, as defined under the law. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring accommodation, please see the instructor and/or contact the Office of Disability Accommodation at 940-565-4323 during the first week of class.

SCHOLASTIC DISHONESTY: The University expects every student to maintain a high standard of individual integrity for work done. Scholastic dishonesty is a serious offense, which includes, but is not limited to, cheating on a test or other class work, plagiarism (the appropriation of another's work and the unauthorized incorporation of that work in one's own work), and collusion (the unauthorized collaboration with another person in preparing college work offered of credit). In cases of scholastic dishonesty, the faculty member responsible for the class may initiate disciplinary proceedings against the student. In this class all UNT procedures will be followed and the necessary paperwork will be filed with the Academic Integrity Office. In the case of an infraction, a penalty will be recommended by the professor of this course to the Academic Integrity Officer, who may impose an additional university penalty. (See: http://www.vpaa.unt.edu/academic-integrity.htm)

Grades are not wages. They are not intended to reflect how hard you worked or how good your intentions were. They are intended to reflect your mastery of the material relative to this class, other classes (elsewhere and else-when), and to reflect what I believe you ought to have achieved to attain a particular grade.

Tentative Schedule of Events for Chemistry 1420.001 (Stephens)
Summer 5W1 2013

Activity	Date	Chpts	Topics	Graded Assignments
L1	7/8	14.1 14.4-14.7	The Chemistry of Solutes and Solutions	
R1	7/8	17.1-17.6	Thermodynamics: Directionality of Chemical Reactions	
L2	7/9			
L3	7/10			HW1 Due before 8:00 am
E1	***7/11***	***14.1*** ***14.4-14.7*** ***17.1-17.6***		***Exam 1***
L4	7/15	13.1-13.6	Chemical Equilibrium	
R2	7/15	17.7	Gibbs Free Energy Changes and Equilibrium Constants	
L5	7/16	18.1-18.7 18.11	Electrochemistry and Its Applications	
L6	7/17			HW2 Due before 8:00 am
	7/18 at 5:00:00 PM Last chance to challenge grades for HW1 and E1			
E2	***7/18***	***13.1-13.6*** ***17.7*** ***18.1-18.7*** ***18.11***		***Exam 2***
L7	7/22	15.1-15.5 15.7-15.9	Acids and Bases	
R3	7/22			
L8	7/23	16.1-16.5	Additional Aqueous Equilibria	
L9	7/24			HW3 Due before 8:00 am
	7/24 at 5:00:00 PM Last chance to challenge grades for HW2 and E2			
E3	***7/25***	***15.1-15.5*** ***15.7-15.9*** ***16.1-16.5***		***Exam 3***
L10	7/29	12.1-12.8	Chemical Kinetics: Rates of Reactions	
R4	7/29			
L11	7/30			
L12	7/31			HW4 Due before 8:00 am
	7/31 at 5:00:00 PM Last chance to challenge grades for HW3 and E3			
E4	***8/1***	***12.1-12.8***		***Exam 4***
L13	8/5	19.1-19.4	Nuclear Chemistry	
R5	8/5		Intro to Organic Chemistry	
L14	8/6			
L15	8/7			
L16	8/8			HW5 Due before 8:00 am
	8/8 at 5:00:00 PM Last chance to challenge grades for HW4 and E4			
E5	***8/9***	***ALL***		***Final Exam***