**University of North Texas**
**Syllabus for CHEM 1420**
**General Chemistry II**

**Summer 2019**
**MTWR 8:00 – 9:50 am, Chemistry 109**
**M 2:00 – 3:50 pm, Chemistry 109 (Exams and Recitation)**


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| **Instructor**: | Dr. Timothy Stephens |
| **Office**: | Chemistry 264 |
| **Email**: | Timothy.Stephens@unt.edu (best contact method, do not use the Canvas message feature. To avoid having your email filtered as "spam", **use your UNT account and/or use CHEM 1420 as the subject line of all messages.** |
| **Office Hours**: | MTWR 10:45 – 11:45 am, or by appointment. It is best to make an appointment with me by email. |


**Required Text and Materials**: Principles of General Chemistry, Third Edition by Silberberg. ISBN: 9780073402697. Access to Canvas (canvas.unt.edu). Scientific calculator that can perform logarithms and antilogarithms.

**Prerequisites**: Grade of "C" or better in CHEM 1410 (General Chemistry I) or equivalent. College Algebra.

**Expected Learning Outcomes**:
Upon successful completion of this course, students will therefore:

1. be able to use their understanding of intermolecular forces that determine the properties of the states of matter and phase behavior to predict colligative properties and the characteristics of solutions.
2. be able to use the basic concept of equilibrium in writing equilibrium constant relation- ships, determining whether equilibrium has been established, calculating equilibrium concentrations, and predicting the effects of concentration, pressure and temperature changes on equilibrium mixtures (le Chˆateliers Principle).
3. be able to interpret experimental data (in both tabular and graphical form) by appropri- ately 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 reac- tions that occur in aqueous solutions (e.g. acid-base, solubility-precipitation and oxida- tion/reduction reactions); (b) understand how chemical equilibria depend on $\Delta H$, $\Delta S$ and $\Delta G$; and (c) determine standard and non-standard cell potentials and equilibrium constants from cell potential data for oxidation/reduction reactions.
5. be able to demonstrate an understanding of the basic concepts of chemical kinetics, how rate and equilibrium properties are related, and utilize this knowledge to solve kinetics problems and evaluate reaction mechanisms.

**Recitations**:
Recitations will be broken into two parts. The first hour of recitation will be for exam administration. Once all of the exams are collected, the remaining time during recitation will be available for students to ask questions and go over problems from the exams just taken.

**Student Disabilities and ODA**
The University of North Texas makes reasonable academic accommodation for students with disabilities. **Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility**. If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time, however, **ODA notices of accommodation should be provided as early as possible in the semester** to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the Office of Disability Accommodation website at http://www.unt.edu/oda. You may also contact them by phone at 940.565.4323.

**Academic Integrity**
Students caught cheating will receive a "0" for that particular assignment or exam. Additionally, the incident will be reported to the Dean of Students, who may impose further penalty. According to the UNT catalog, the term "cheating" includes, but is not limited to: (a) use of any unauthorized assistance in taking quizzes, tests, or examinations; (b) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; (c) the acquisition, without permission, of tests or other academic material belonging to a faculty or staff member of the university; (d) dual submission of a paper or project, or resubmission of a paper or project to a different class without express permission from the instructor(s); or (e) any other act designed to give a student an unfair advantage.

**University Closing**: Should the university announce that it will close, due to inclement weather, national emergency, etc., on a day on which an exam is scheduled; the exam will be given on the next class day on which the university is open. If the university closes on or during a recitation day, all students will receive full credit for that week's quiz.

**Exam Administration**: Exams will begin at 2:00 pm on the announced dates during recitation. Exams will last 60 minutes. Students will not be allowed to turn in their exam before the scheduled end time. If a student completes their exam early, an activity will be provided at the end of the exam so that the student does not get bored. Exams will focus on the material covered the previous week during lecture. Due to the nature of the material, exams will be cumulative for the entire semester.

Students are expected to be on time for announced exams. While there are instances when one may be unavoidably late, no over-time will be permitted in test taking. All test papers must be handed in at the end of the scheduled testing time. Exam grades will not be dropped for missed exams.

***All exams will be collected at 3:00 pm during recitations. Any exam not collected at that time will not be graded. Cell phones, laptops, tablets, smartwatches, or anything else that can connect to the internet is not allowed on Exams. If you are caught using any item that connects to the internet during an Exam or the Final Exam, your paper will be confiscated and you will receive zero points for that Exam and that Exam will not be eligible to be replaced by half of the Final Exam. Cheating will result in a zero. Any talking, saved equations on calculators, etc. will result in an automatic F for all students involved.***

**Make-up Exams**: Make-up Exams will only be given for an Official University Activity upon receipt of proper documentation from the University. All other excuses for missing an exam will result in the Exam being replaced by 50.00% of your Final Exam grade.

**Learning Chemistry**: Learning chemistry has been shown to be an effective method of developing and improving critical thinking and problem solving skills. This is a major objective of the core curriculum at UNT. Success is dependent on a student's ability to learn information and develop skill at applying that information. Lecture is only the part of the process. Students are expected to carefully work through the textbook, thoroughly reading the material, preparing detailed, written answers to questions, and solving example problems at the ends of chapters. Online homework is required to help assist and monitor student progress. Note: Many exam questions and problems will require combining concepts learned in more than one set of homework problems (i.e. harder questions!). Memorizing how to do a certain type of problem will not be as useful as understanding the concept. The cumulative skills problems at the end of each chapter are more typical of exam questions.

Students can improve their chances to be successful if they allocate some study time to their Chemistry class each and every day. Successful students use lectures to direct and supplement their individual study and skill development. Students who use the lecture as their main source of information, and then try to develop skill at applying that information a day or two before an exam, are usually not successful in Chemistry classes.

**Chemistry Resource Center**: UNT provides assistance in chemistry classes through the Chemistry Resource Center (CRC) located in Chemistry 231. The CRC is staffed by chemistry graduate students who are there to help tutor you in chemistry. However, the tutors are instructed to only help students to understand the concepts – not to do your homework.

**Computational Chemistry Instructional Laboratory:** UNT also provides assistance for chemistry courses through the Computational Chemistry Instructional Laboratory (CCIL) located in Chemistry 232. Like the CRC, CCIL is staffed by chemistry graduate students. You will need to show your UNT ID card in order to access the computers in CCIL. Since CCIL is an instructional laboratory, there may be classes meeting in CCIL. If a class is meeting in CCIL, you will not be allowed access.

**Recommended Supplies**: Students should have a scientific calculator, capable of displaying numbers in scientific notation, and should know how to use it with ease. Since some calculator manufacturers (Casio, Texas Instruments, Hewlett-Packard, etc.) design keys, key labels, and keystrokes differently from other manufacturers' calculators, students should be thoroughly familiar with the instruction manuals that accompany their calculators. A non-programmable scientific calculator (such as a TI 30 or Casio fx-260) appropriate for this class can be purchased for about $10 at discount stores such as WalMart, Target, etc. Students using beaming devices, cell phone pictures, digital messages, calculators with stored formulae or text, etc are guilty of academic dishonesty and will be dealt with to the maximum penalty allowed.

**Grading**:

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| | Exams (4) | 400 points |
| | Final Exam | 200 points |
| | Total | 600 points |

**Letter Grade Distribution:**

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| 90. % - 100. % | Grade = A |
| 80. % - 89 % | Grade = B |
| 70. % - 79 % | Grade = C |
| 60. % - 69 % | Grade = D |
| 0. % - 59 % | Grade = F |

**Tentative Class Schedule: (SUBJECT TO CHANGE)**

| **Week Of** | **Chapters to be covered** |
|---|---|
| July 8 | 13.1, 13.3-13.5, 17.1, 17.2, 17.4-17.6<br>**Recitation: Begin Lecture Material** |
| July 15 | 18.2-18.5, 18.7, 18.8, 19.1, 19.2<br>**Recitation: Exam 1** |
| July 22 | 19.3, 20.1-20.4, 21.1-21.4, 21.6, 21.7<br>**Recitation: Exam 2** |
| July 29 | 16.1-16.7<br>**Recitation: Exam 3** |
| August 5 | 23.1, 23.2, 23.5, 23.6, Review for Final Exam<br>**Recitation: Exam 4** |
| **August 9** | **Final Exam at 8:00 am** |