

Course Overview

Course Description

This course is designed to perform experiments in-person (with a partner), inside the laboratory and the lecture portion of the course will be available fully online in Canvas. This laboratory sequence is designed to correlate with the CHEM 1420 General Chemistry lecture course. Most often laboratory experiments performed in this course have a direct relationship with the lectures. However, there will be instances when laboratory experiments will be ahead or behind the lectures. It is your responsibility to read and prepare for the laboratory experiments despite having help from the lecture. Please read and understand all the content in the syllabus. If you find anything hard to understand or not clear please reach out to me. It is your responsibility to know all the information provided in the syllabus.

Communication

INSTRUCTOR INFORMATION: Dr. Sreekar Marpu

E-mail: sreekarbabu.marpu@unt.edu

Phone: (940) 565-4850

Office: CHEM 371

Office Hours: F: 4-5.00 PM via Zoom: <https://unt.zoom.us/j/84951438516>

While I want to make myself as available as possible to each of you, I do have to place some limitations on when I can be contacted. You can email me anytime and I will try my best to reply as soon as possible. If you want to meet me via Zoom, please email me to get your Zoom link to log in.

If you have a question, please contact me via email only and I will respond within 24 hours on weekdays (usually sooner). Please do not expect a response over the weekend. **DO NOT** use Canvas Inbox to contact me directly. I do not receive those notifications regularly and your message will get lost. Email me directly for a quick response.

When mailing your Instructor or TA, **you MUST** include your Full Name, Course Number, and Section Number to receive a response. There are many sections all with over 20 students each. If you do not give me that information, I do not have the time to find you in all of those sections, so I will not look.

My primary means of communication with the entire class will be through the Announcements feature of Canvas and emails. Your TA will also be utilizing this feature for mass communications throughout the semester.

Prerequisites

C or better in CHEM 1430.

Corequisite

CHEM 1420 or CHEM 1422 or CHEM 1423.

Required Texts

There is no required textbook for the course. All material will be presented on Canvas. Reach out to your TA if you cannot find or are confused about any part of the course.

Course Structure

This course takes place fully in person during Fall 2022. Your instruction will primarily be performed here on Canvas. All experiments will be expected to be completed on the day and time assigned to you. Each assignment will be given a certain period to finish and you will not have any extensions. Your TA may provide additional instruction as needed.

- There will be 10 experiments that need to be completed in person in your assigned laboratory room on your assigned week. Grading for each experiment will consist of three sections for a total of 100 points per experiment.
 - Prelab Quiz (to be completed after reading the Introduction and watching all videos on Canvas): 15 points each
 - Data Submission: 60 points each
 - Postlab Questions (will unlock on Canvas after you have submitted your Data): 25 points each

End of the semester only 9 experiments will be counted towards your final letter grade. One experiment can be dropped with the lowest score or for an unexcused absence. Total 9 experiments will be counted towards the final grade

Course Objectives

Upon successful completion of this course, learners will be able to (numbered in order of presentation):

1. Describe the principles of thermodynamics and their application
2. Describe the principles of spectroscopy and its applications

4. Relate knowledge of Acid and bases that acids and bases can be found everywhere
5. Interpret the acid-base neutralization reaction
6. Apply acid base neutralization knowledge to the titration
7. Calculate the pH of a strong acid or base
8. Describe the principle of oxidation and reduction reactions
9. Calculate the pKa value of unknown acid
10. Explore the chemistry by myth-busting the popular diet program
11. Explore chemical kinetics

Course Activities & Assignments

In-person experiments

In-person experiments will be worth 100 points each. Each experiment will consist of a prelab quiz, post-lab quiz, and data submission assignment. Your datasheet should be submitted online through the datasheet submission assignment. Before you come to the lab you have to finish the prelab quiz the prelab quiz will be open two days before your lab class and will be due at 11.59 AM on your lab class day. (eg -if you have your lab class on Monday at 9.00 AM, then your prelab quiz was open Saturday 12.00 AM and will be due on Sunday at 11.59 AM.) You have one week to finish your post-lab and data submission assignment. (eg- if you have your lab class on Monday at 9.00 AM, your postlab and data submission assignment will be due on 11.59 AM next Sunday.). Some experiments (1 or 2 of them) will contain assessments in addition to above mentioned three activities. The activities will be available on Canvas, ask your TA for additional information.

Students are expected to attend class meetings regularly and abide by the attendance policy established for the course. You must communicate with your TA before being absent. Please inform Dr. Marpu and your TA if you are unable to attend the class meetings because you are ill, in mindfulness of the health and safety of everyone in our community, so you, the professor, and the instructional team can discuss and mitigate the impact of the absence on your attainment, of course, learning goals.

If you are experiencing any [symptoms of COVID-19](#) please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider BEFORE coming to campus.

Lis of Experiments for this Semester:

Exp 1- Introduction to Calorimetry – Determination of Specific Heats of Solids and Liquids

Exp 2 - Introduction to Spectrometry – Verification of Beers Law

Exp 3 - Spectrometric Determination Of An Equilibrium Constant For Complex Formation

Exp 4 - Introduction To pH – Titration Of Acetic Acid In Vinegar And Phosphoric Acid In Coca-Cola and Vinegar

Exp 5 - Determination Of pKa And Molar Mass Of An Unknown Acid

Exp 6 - Alkaline Diet

Exp 7 - Molar Solubility And Determination Of Solubility Product

Exp 8 - Chemical kinetics I – determination of the order of reaction and rate constant based on differential rate form expression

Exp 9- Redox Titration – Standardization Of Potassium Permanganate Solution

Exp 10 - A Mass-Based Determination Of Henry's Law Constant For Co₂(G) Using A Diet Carbonated Beverage

Activity or Experiment Number	Name of the Experiment	Activities	Total Points
Syllabus Quiz	NA	Finish Quiz	5
Safety	NA	Read and Accept the Safety Agreement (must be finished before the first experiment)	0
1	Introduction to Calorimetry – Determination of Specific Heats of Solids and Liquids	Finish – Prelab quiz (Canvas), Experiment in the lab, Data submission and postlab quiz on Canvas.	100
2	Introduction to Spectrometry – Verification of Beers Law	Finish – Prelab quiz (Canvas), Experiment in the lab, Data submission and postlab quiz on Canvas.	100
3	Spectrometric Determination Of An Equilibrium Constant For Complex Formation	Finish – Prelab quiz (Canvas), Experiment in the lab, Data submission and postlab quiz on Canvas.	100
4	Introduction To pH – Titration of Acetic Acid In Vinegar And Phosphoric Acid In Coca-Cola and Vinegar	Finish – Prelab quiz (Canvas), Experiment in the lab, Data submission and postlab quiz on Canvas.	100

5	Determination Of pKa And Molar Mass Of An Unknown Acid	Finish – Prelab quiz (Canvas), Experiment in the lab, Data submission and postlab quiz on Canvas.	100
6	Alkaline Diet	Finish – Prelab quiz (Canvas), Experiment in the lab, Data submission and postlab quiz on Canvas.	100
7	Molar Solubility And Determination Of Solubility Product	Finish – Prelab quiz (Canvas), Experiment in the lab, Data submission and postlab quiz on Canvas.	100
8	Chemical kinetics I – determination of the order of reaction and rate constant based on differential rate form expression	Finish – Prelab quiz (Canvas), Experiment in the lab, Data submission and postlab quiz on Canvas.	100
9	Redox Titration – Standardization Of Potassium Permanganate Solution	Finish – Prelab quiz (Canvas), Experiment in the lab, Data submission and postlab quiz on Canvas.	100
10	A Mass-Based Determination Of Henry’s Law Constant For Co ₂ (G) Using A Diet Carbonated Beverage	Finish – Prelab quiz (Canvas), Experiment in the lab, Data submission and postlab quiz on Canvas.	100
Assessments	Critical Thinking (2)		10*2 = 20
Assessments	Core Team work (2)	Not part of the grade	0
Extra Credit	SPOT EVALUATION	Finish SPOT for your TA and for the instructor. Need to send the submission page	25
			1025*

***One of the experiments can be dropped (either lowest or because of an unexcused absence), so the total points would vary.**

Note: Two or one critical thinking assessment will be included in the syllabus that will be part of the grade. Each of these assessments would carry 10 points. The syllabus will also include additional assessments which are not part of the grade but are included as part of UNT/Texas state policy.

Grading

Grading is based on the total points earned throughout the semester. The percentages listed on Canvas will always be an incorrect representation of your grade in the course. 10 experiments were allocated in this course.

A: > 90% points

B: 80 – 89% points

C: 70 to 79% points

D: 60 to 69% points

F: 0 – 59% points

Course Policies

Late Work

I will not accept late work in this course. All work turned in after the deadline will receive a grade of zero unless the student has a [university-excused absence \(Links to an external site.\)](#) and provides documentation within 48 hours of the missed deadline.

Attendance to in-person labs is *mandatory*. Visit the [University of North Texas' Attendance Policy \(Links to an external site.\)](#) (<http://policy.unt.edu/policy/15-2->) to learn more. **Excused Absences:** An absence may be excused for the following reasons: 1. religious holy day, including travel for that purpose; 2. active military service, including travel for that purpose; 3. participation in an official university function; 4. illness or other extenuating circumstances; 5. pregnancy and parenting under Title IX; and 6. when the University is officially closed. The students are required to submit documentation related to excused absence within 48 hours. Arrange with the TA for the late submission. Do not expect any partial credit for the unexcused absences unless prearranged with the TA. **Swapping Laboratory Sections is strictly NOT allowed.**

Grade Disputes

You are required to wait 24 hours before contacting me to dispute a grade. Within that time, I expect that you will review the assignment details and reflect on the quality of the work you turned in. If you would still like to meet, email me to set up a meeting (I cannot discuss grades over email). You should come to our scheduled meeting with specific examples that demonstrate that you earned a higher grade than you received. If you miss your scheduled meeting, you forfeit your right to a grade dispute. If you do not contact me to schedule a meeting within seven days of receiving your grade, you also forfeit your right to a grade dispute.

Extra Credit

There will be one opportunity for extra credit in this course. At the end of the semester, an assignment will open where you can submit a screenshot of your SPOT evaluation submission confirmation. SPOT evaluations are the primary way that we determine TA job duties and evaluate students' needs in this course. Please be critical, but respectful in your evaluation of your TA and the course. I take these evaluations seriously and many suggestions for improvement by former students have been implemented in subsequent semesters.

Course Safety Statement (for Laboratory Courses)

Students in the laboratory are urged to use proper safety procedures and guidelines. While working in laboratory sessions, students are expected and required to identify and use proper safety guidelines in all activities requiring lifting, climbing, walking on slippery surfaces, using equipment and tools, and handling chemical solutions and hot and cold products. Students should be aware that the University of North Texas is not liable for injuries incurred while students are participating in class activities. All students are encouraged to secure adequate insurance coverage in the event of accidental injury. Students who do not have insurance coverage should consider obtaining Student Health Insurance for this insurance program. Brochures for this insurance are available in the UNT Student Health and Wellness Center on campus. Students who are injured during class activities may seek medical attention at the Student Health and Wellness Center at rates that are reduced compared to other medical

facilities. If you have an insurance plan other than Student Health Insurance at UNT, please be sure that your plan covers treatment at this facility. If you choose not to go to the UNT Student Health and Wellness Center, you may be transported to an emergency room at a local hospital. You are responsible for expenses incurred there.

Academic Dishonesty

Students caught cheating or plagiarizing will receive a 0 for that particular assignment or quiz. Additionally, the incident will be reported to the Office of Academic Integrity, which may impose a 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. The term "plagiarism" includes, but is not limited to: a. the knowing or negligent use by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgment; and b. the knowing or negligent unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials. This also includes copying other students' data in the lab, unless given express written permission to do so by the Instructor, turning in a data sheet for an experiment that you were not physically present for, or copying other students' words or work.

ADA Accommodation

The University of North Texas makes reasonable academic accommodations for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to the faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time, however, ODA notices of reasonable 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 reasonable accommodation for every semester and must meet with each faculty member before implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect their privacy of the student. For additional information, refer to the Office of Disability Access website at <http://www.unt.edu/oda> (Links to an external site.) (Links external site.). You may also contact ODA by phone at (940) 565-4323.