CHEM 1430: General Chemistry I Laboratory

Course Overview

Course Description

This course is designed to accompany the CHEM 1410, 1412, or 1413 General Chemistry I lecture course. Many of the topics covered in this course will have direct correlation with the topics covered in your General Chemistry I lecture course. However, there may be times when the laboratory course is "ahead" of the lecture course. It is your responsibility to read all material presented on Canvas so that you can complete the assignments and experiments successfully.

Communication

- Instructor: Dr. Timothy Stephens
- Office Hours: Mondays and Fridays 10:00 am - 11:30 am via Zoom. Meeting links will be posted on Canvas. You will be placed into a Waiting Room when you log in and I will meet with you individually in the order in which students logged in.
- Email: Timothy.Stephens@unt.edu

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. I would prefer that most general questions go through the Q & A forum in the Discussion Board area. If you have a general question about the course or assignments, please post it there. Either your TA, one of your classmates, or I will answer it there. This way we can all benefit from questions asked, and they can be answered in a venue that the whole class can see. You may also want to find someone in class to be a "buddy" with. This will give you at least one other person who you can email with questions.

If you have a private 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.** I do not receive those notifications regularly and your message will get lost. Email me directly for a quick response.

When emailing your Instructor or TA, you MUST include your Full Name, Course Number, and Section Number in order to receive a response. There are a lot of 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. Your TA will also be utilizing this feature for mass communications throughout the semester.

Prerequisites

- Either concurrent or previous enrollment in CHEM 1410 (or equivalent course if transferring from another institution) is required.
- CHEM 1430 is a separate course from CHEM 1410. If you drop one course, you are not automatically dropped from the other.

Required Texts, Technology, and Other Materials

- There is no required textbook for the course. All instructional material will be presented on Canvas.
- You are required to provide your own chemical safety glasses or chemical safety goggles. Information about where to purchase these from the Department of Chemistry will be posted on Canvas.
- You are required to download and install Microsoft Office so that you can complete the assignments for all In-Person experiments. Microsoft Office is provided by UNT. You can download and access Microsoft Office by signing in with your UNT email and password.
- You are required to have a stable internet connection in order to complete the simulations and to upload all assignments.
    - If you do not have access to a stable internet connection at home, or you are unsure if your connection is stable, you are always welcome to utilize the computers available on the UNT Denton campus to complete your assignments.

Course Structure

All instructional material for this course is provided on Canvas. Each week, you will be expected to come in and perform an experiment. The day, location, and time you are scheduled to come in is based on the section you registered for. Please refer to your class schedule to know when you are expected come in to complete your experiment.

Before each experiment, you will be expected to complete a short Prelab quiz. This quiz will test your understanding of the background material for the experiment. This background material is provided in the Introduction for each experiment. After you complete each experiment, you will be expected to complete at least one Postlab question. These questions are designed to force you to evaluate your performance during the experiment. I want you to think about things that could have been done differently to get better results. I also want you to acknowledge things that went well during the experiment so that you can replicate them in the future and encourage good laboratory practices.

All the experiments will need to be completed on the day and time you registered for. Because of the large number of students enrolled in CHEM 1430, we cannot guarantee a time for you to come in and make up the missed experiment. If you need to make up an experiment, please **email the Instructor (not your TA!!)** and he will get you an

<u>appropriate make-up assignment.</u> Prelab quizzes will need to be completed before 11:59 pm the night before your scheduled in-person experiment. The Data Submission and Postlab question(s) for each in-person experiment will be due one week after you complete the experiment.

Course Objectives

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

1. Demonstrate the ability to measure the volume of a liquid using various chemical glassware.
2. Analyze data using statistical methods in Excel.
3. Identify an unknown material from chemical and physical property data.
4. Demonstrate the ability to follow a chemical procedure.
5. Analyze data and observation in order to apply critical thinking skills to explain discrepancies in your data.
6. Compare the empirical formulas of simple compounds to known formulas and evaluate sources of error in an experimental design.
7. Demonstrate an ability to read the volume of a buret and determine the concentration of a liquid solution.
8. Evaluate trends in data to verify known physical laws.
9. Compare the molar mass of a gas based on experimental results.

Course Activities & Assignments (1,000 points total)

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 four sections for a total of 100 points per experiment. Every assignment must be submitted individually through Canvas.

- Prelab Quiz (to be completed after reading the Introduction and watching all videos on Canvas): 15 points each
    - Prelab Quizzes will only be open for one attempt in Canvas, but will not be timed.
- Data Submission: 50 points each
    - Must perform the experiment or have permission for an alternative assignment to receive credit.
- Postlab Question(s) (will unlock on Canvas after you have submitted your Data): 25 points each
    - If you are not present to perform the experiment, nor have permission for an alternative assignment, you cannot answer the Postlab Question(s) for the missed experiment.
- Safety and Cleanup in the laboratory (to be assessed by your TA when you are performing the experiment): 10 points each

Grading

Grading is based on the total points earned throughout the semester rounded to the nearest whole number.

- A: 895 – 1000 points
- B: 795 – 894 points
- C: 695 – 794 points
- D: 595 – 694 points
- F: 0 – 594 points

The percentages listed on Canvas will always be an incorrect representation of your grade in the course. The reason for this is because Canvas does not count missed assignments when calculating your percentage in the course. So if you miss a lot of assignments, but do well on one or two, Canvas will list the assignments you completed and will show a high percentage in the course. This is incorrect because I look at the total number of points that you earned. Meaning that if you miss an assignment, those zero points are still calculated in your total points earned. In order to see an accurate representation of your grade in the course, you will need to add up all of the points you have earned on Canvas and divide by the total points available for all of the assignments up to that point in the semester.

At the very end of the semester, your Instructor will tabulate your Total Points and will upload that to Canvas. An Announcement will be posted when this happens along with instructions for what to do if there is an arithmetic error or recording error in your grades for assignments.

Grading Turnaround

Labster simulations and all prelab quizzes will be graded immediately and uploaded to Canvas. Data submissions and postlab questions will be graded within one week of your submission. If you do not have a grade after 10 business days from the due date, please email Timothy.Stephens@unt.edu as soon as possible so that he can figure out what is going on.

Course Policies

Late Work

I will not accept late work in this course. Canvas will lock submissions for an assignment once the due date has passed. Extensions will only be granted if a student has a [university-excused absence](#) and provides documentation within a reasonable time after the due date has passed.

Attendance

Attendance is required in order to perform the experiments and collect data. If you have a university-excused absence with proper documentation, you are expected to contact

the Instructor within 10 days of your missed class time to discuss options for earning missed points. Failure to provide documentation within those 10 days or for absences that are not university-excused will result in the missed day's work receiving a grade of 0 points.

Students must arrive to all class meetings on time. If a student arrives to class more than 20 minutes after the official start of class, that student will not be allowed to complete the experiment nor will they be allowed to request a make-up assignment.

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

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 guaranteed 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 student's 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.

There may be other opportunities for extra credit throughout the semester. These will be assigned when they become available. Some extra credit opportunities may come in the form of additional awarded points on Postlab Question assignments. These are generally awarded so that grading of those assignments is easier.

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, 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, 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. 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 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 accommodation 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 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 prior to 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 the 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.). You may also contact ODA by phone at (940) 565-4323.

Emergency Notification and Procedures

In the event that the university closes due to an emergency, I will post an Announcement on Canvas as soon as possible with instructions for you to complete the missed experiment(s). Each emergency is going to be different, so I will take into account what is happening while posting these Announcements. Since the situation may change at a moments notice, please refer to the most recent Announcement during these emergencies in case I do not have the ability to delete older Announcements in time. In the event that I am unable to access Canvas, I promise to post an Announcement with instructions as soon as I am able.

Academic Integrity

Academic integrity states that your work and every aspect of your work was produced with the highest of integrity and is free from cheating and plagiarism, that your work does not include any material that was fabricated, that your work and your records were not falsified via forgery, that you did not sabotage another academic's work, and that you did not facilitate another academic in violating academic integrity guidelines. Violating academic integrity policies is sometimes also called academic dishonesty. In this course, you are going to be held to the highest standards of academic integrity. You are going to be expected to uphold these principles with yourself, your fellow students, your TA, and your instructor.

Academic integrity is applied to any submission or activity that has your name on it, regardless of whether you violated these policies or not. Let me walk through an example. You are working on a group project and decide to split the report writing to different sections with each member writing a section. Your section is properly cited, but another section is flagged for a lot of plagiarism violations. Because your name is on that assignment, you are assuming responsibility that the entire assignment is free of any academic integrity violations along with every other group member. That means that every member of the group (including yourself) will be held responsible for the academic integrity violation and you all will share the same punishment for that violation.

Cheating

UNT defines cheating as the following (Source: [UNT Policy 06.003 Student Academic Integrity (Links to an external site.)](#)):

"'Cheating' means the use of unauthorized assistance in an academic exercise, including but not limited to:

1. use of any unauthorized assistance to take exams, tests, quizzes, or other assessments;
2. use of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments;
3. use, without permission, of tests, notes, or other academic materials belonging to instructors, staff members, or other students of the University;
4. dual submission of a paper or project, or resubmission of a paper or project to a different class without express permission from the instructor;
5. any other act designed to give a student an unfair advantage on an academic assignment."

For a laboratory course such as CHEM 1430, the lines defining cheating can sometimes seem like they get blurred because you are expected to work with a lab partner on every experiment. Working with another student and sharing answers on a graded assignment can be considered cheating in another course. Because of how the laboratories are set up here at UNT, it is completely understandable that you and your lab partner will have the exact same data and thus the same calculated results. What is not acceptable is using your lab partner's data when you did not perform the experiment or activity in class.

Additionally, using resources such as Chegg.com or even a student's work from a previous semester to complete your assignments is not allowed and will be considered cheating. I also completely understand that there will be times when you need to look something up or find a certain value to complete an assignment. Your instructor will give you these resources throughout the semester as needed to help you with your assignments. If a resource is linked or explicitly listed here on Canvas, it is considered an authorized source for you to utilize for your assignments.

Fabrication

UNT defines fabrication as "falsifying or inventing any information, data, or research outside of a defined academic exercise" (Source: [UNT Policy 06.003 Student Academic Integrity (Links to an external site.)](#)). Fabrication of data is a serious offense in any scientific field because it can have drastic implications for the general public. In chemistry, this can include transforming your data to match what you think is expected to happen instead of finding an explanation for what actually happened. For this course, you will NEVER be penalized for having what you may consider "incorrect data." However, if your data does not seem like it was generated properly, you will be questioned about how your data was acquired. Another common source of fabrication in this course has to do with references on assignments. If you list a reference or state that a source is cited in an assignment, but then that information is not provided in the assignment, that is considered fabrication of your sources.

Facilitating Academic Dishonesty

UNT defines Facilitating Academic Dishonesty as "helping or assisting another in the commission of academic dishonesty" (Source: UNT Policy 06.003 Student Academic Integrity (Links to an external site.)). This is one of the most common violations of academic integrity in CHEM 1430 and is one of the hardest for many students to recognize. The vast majority of students who are accused of facilitating academic dishonesty do so out of the best of intentions. The best way I know to explain this type of violation is to walk through the following very common scenario that occurs in CHEM 1430. Names are fictitious and are not meant to represent specific students.

- Legolas and Gimli work together as lab partners on every experiment. One week, Gimli is absent from an experiment. Gimli asks Legolas to share the data that Legolas obtains so that Gimli can still complete the Data Submission and Postlab Questions for the experiment. Legolas emails Gimli his data and Gimli completes his assignments.
  - In this scenario, Gimli would be accused of cheating because he utilized data that was not authorized by the instructor to complete the Data Submission and Postlab Questions. Legolas would be accused of facilitating academic dishonesty because he knowingly shared his data with Gimli, thus facilitating Gimli's cheating. Even though Legolas most likely had the best of intentions in helping his lab partner, he still violated UNT's policy about facilitating academic dishonesty.

Forgery

UNT defines forgery as "intentionally falsifying or altering a score, grade, or official academic University record or the signature of another" (Source: UNT Policy 06.003 Student Academic Integrity (Links to an external site.)). This is probably one of the least common occurrences of an academic integrity violation in CHEM 1430. It is more common in other courses where assignments are submitted and graded on paper. Because everything is submitted and graded on Canvas, it is nearly impossible for a student to forge their grade or score on an assignment. That being said, there have been students who forge signatures for official documentation and records. The most common form of forgery that I have encountered involved forging a doctor's signature to falsify an excused absence. I have also had students get caught forging a false obituary and funeral program. These violations incur a much harsher penalty than a simple academic integrity violation because these potentially also incur a student code of conduct violation at UNT in addition to the academic integrity violation.

Plagiarism

UNT defines plagiarism as the following (Source: UNT Policy 06.003 Student Academic Integrity (Links to an external site.)):

"'Plagiarism' means use of another's thoughts or words without proper attribution in any academic exercise, regardless of the student's intent, including but not limited to:

1. the knowing or negligent use by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgement or citation, or
2. the knowing or negligent unacknowledged use of materials prepared by another person or by an agency engaged in selling term papers or other academic materials."

Plagiarism is often one of the more difficult aspects of academic integrity to navigate, but is also one of the more common forms of academic integrity violations that is reported. The main reason why plagiarism is so difficult for many academics to navigate is because it encompasses the unintentional misattribution of some other work within your own. Below is a link to a series of articles posted on Scribbr that are a great source to learn about the different forms of plagiarism, how to avoid plagiarism, plus the article gives some great tips for how to paraphrase ideas from other sources. TO navigate to other articles, there is a menu in the upper left side of each article with links to the others in the series. Please make sure that you are comfortable with all of the material in these articles because they are all covered on the quiz at the end of this module.

Link to Scribbr Articles: https://www.scribbr.com/category/plagiarism/ (Links to an external site.)

There are many software packages and websites available to help identify potential sources of plagiarism and to help academics avoid the traps of unintentional plagiarism. For this course, I utilize TurnItIn to assess potential plagiarism. This tool in integrated directly into Canvas. You are welcome to utilize this tool when submitting your work. Shortly after you submit an assignment with TurnItIn, you will receive a similarity report that will mark passages and phrases that the system believes may have been plagiarized. I promise, as your instructor, to always review these reports before I make any decisions about whether you might have plagiarized or not.

For this class, I wanted to share some of the examples of plagiarism that I have reported to UNT in the past. This is not exhaustive and is meant to be an example of plagiarism specific to this course.

- Direct copying from a Wikipedia article without quoting or using internal citations.
- Attaching an image of a lab partner's hand drawn graph or figure to their data submission.
- Uploading a postlab question response that the student completed in a previous semester before having to drop the course and retake it.
  - If you are retaking this course, you do not have permission to upload the exact same material you previously submitted
- Paraphrasing and using the same phrasing as a lab partner in writing the postlab question.
  - I understand that there may only be a certain number of ways to state results. This particular example, the student paraphrased a postlab question that required individual critical thinking and evaluation of the results.
- Not including internal citations for your sources.
- Not including a list of sources that are cited in your assignment.

Sabotage

UNT defines sabotage as "acting to prevent others from completing their work or willfully disrupting the academic work of others" (Source: [UNT Policy 06.003 Student Academic Integrity (Links to an external site.)](#)). While this violation may seem like something that does not occur in CHEM 1430, it can actually be more common than you might expect because of the second half of the definition clause. "Willfully disrupting the academic work of others," when applied to a chemistry laboratory setting, can be as simple as a student being too loud or disruptive when they are asked to lower their voice or stop playing around in the laboratory. (In this example, I want to drive home that being loud in the classroom is completely unintentional for so many scenarios. You will not be in trouble for being loud so long as it is not disruptive to other students work. What makes this an academic integrity issue is if a student is repeatedly asked to be quiet so that other students can focus and the loud student refuses to comply.) Sabotage can also come in the form of willfully giving your lab partner the wrong reagent or mislabeling something so that the data is not recorded properly. (Accidentally giving the wrong reagent is understandable. This can be prevented by labeling your reagents clearly to avoid accidents like this. In this sabotage scenario, the student willfully gives the wrong reagent knowing exactly what they are doing.) Another example of sabotage would be deleting all of your group's shared files for the diversity and inclusion project if you drop the course.

Consequences for Violating Academic Integrity Policies

In this course, I take academic integrity very seriously. Every potential violation of UNT's academic integrity policy will be dealt with in a swift and immediate manner. For every violation, the student will be notified by their UNT email of the potential violation. That student is then required to respond by email within seven calendar days of the email from your instructor to schedule a meeting to discuss the possible violation. At that meeting, the student will need to bring evidence and support to show that they did not violate UNT's academic integrity policies. Your instructor will present their evidence and consider both sides before making a decision on any potential penalties. If penalties are to be sanctioned against the student, the instructor will file a report with the UNT Academic Integrity Officer. Once that report is filed, the student will be notified of any future actions that can be taken. If the student does not respond within seven calendar days from the notification of a possible academic integrity violation, the instructor will file a report with the UNT Academic Integrity Officer and sanction a minimum penalty of zero points for the assignment with no option to resubmit the work for a higher grade.

A student will be investigated for plagiarism if the similarity report from TurnItIn exceeds 25% similar to other sources. Students will be automatically accused of plagiarism if the similarity report from TurnItIn exceeds 50%. All other academic integrity violation claims will be assessed based on the evidence provided by the TA, instructor, and the student. Any final decisions about the penalties for an academic integrity violation will be discussed in the student meeting with the instructor. Potential penalties if a student meets with the instructor can range from a minimum of a verbal warning and admonition

to a maximum penalty of a failing grade in the course based on the severity of the violation.

Schedule

Date	Experiment
May 17th	No Class Meetings
May 19th	Lab Safety Demonstration and TA Introduction
May 24th	Introduction to Data Analysis
May 26th	Chemical and Physical Properties
May 31st	Densities of Solids
June 2nd	Synthesis of Indigo
June 7th	Empirical Formulas
June 9th	Mass of Calcium Carbonate in Antacid Tablets
June 14th	Identify Unknown from Solubility Rules
June 16th	Concentration of Acetic Acid in Vinegar
June 21st	Gas Laws
June 23rd	Molar Mass of a Volatile Liquid
June 28th	No Class Meetings
June 30th	No Class Meetings
July 5th	No Class Meetings