



University of North Texas
College of Science
Department of Chemistry
Physical Chemistry Lab
Hao Yan, George Rawling, Ramesh Sapkota, Veronica
Lee

COURSE INFORMATION

Welcome to CHEM 3230! Dr. Yan will be leading this class together with our TAs.

- Lecture: Tue. 1:00 – 1:50 PM, Chemistry 352
- Labs:
 - Tue. 3:00 – 5:50 PM, Chemistry 280
 - Wed. 6:00 – 8:50 PM, Chemistry 280
 - Thu. 3:00 – 5:50 PM, Chemistry 280

Instructor Contact Information

- Instructor:
 - Dr. Hao Yan (Hao.Yan@unt.edu)
- Office hours:
 - Tue. 2:00 – 3:00 PM, Wed. 4:00 – 5:00 PM, Thu 2:00 – 3:00 PM
 - Room 376, Chemistry Building
- TA:
 - George Rawling (georgerawling@my.unt.edu)
 - Ramesh Saptoka (rameshsapkota@my.unt.edu)
 - Veronica Lee (veronica.lee@unt.edu)

Course Pre-requisites, Co-requisites, and/or Other Restrictions

You must have already passed or be currently enrolled in CHEM 3510.

Course Objectives

In this course we will use the knowledge from CHEM 3510 to solve real problems in laboratory settings. Key concepts we will touch include measurement and error, equation of state, enthalpy of reaction, rate constant and dynamic equilibrium, etc.

Learning Outcomes

- Upon successful completion of this class students will learn to:
- Quantitatively analyze uncertainties of experimental data
- Plot data and use linear fitting to extract key information
- Instrumental measure of thermodynamic quantities

Materials

Please review the lab manual before each lecture and lab section.

COMMUNICATIONS

Grades and announcements will be posted on Canvas.

Graded short lab reports will be returned to the students at the beginning of the next lab section.

Grades on bonus questions will be posted within one week of the lecture section.

Graded quizzes will be returned at the beginning of the next lab section. Grades will also be posted on Canvas.

The score of the long lab report will be posted on Canvas within a week after the deadline.

The University of North Texas provides student technical support in the use of Canvas and supported resources. The student help desk may be reached at:

Email: helpdesk@unt.edu

Phone: 940.565-2324

In Person: Sage Hall, Room 130

Hours are:

- Monday-Thursday 8am-midnight
- Friday 8am-8pm
- Saturday 9am-5p
- Sunday 8am-midnight

Canvas technical requirements: <https://clear.unt.edu/supported-technologies/canvas/requirements>

ASSESSMENT & GRADING

Assessments

- Lecture attendance: 3 pt EACH (total of eight)
- Lab attendance and short lab reports: 20 pts EACH (total of eight)
- Long lab report: 20 pt (total of one)
- Quiz: 15 pt EACH (total of two)
- Bonus questions: 5pt EACH (total of eight)

Overall average semester percentage will be:

$(7 \text{ best short lab scores} + 2 \text{ quiz scores} + \text{long lab report score} + \text{attendance} + \text{bonus}) / 2.14$

Grading

Overall average semester percentage	Grade
$\geq 90\%$	A
80% - 89%	B
70% - 79%	C
60% - 69%	D
$< 60\%$	F

CALENDAR**Lectures**

Date	Topic
8/27	Experiment 1: Error analysis and graph plotting
9/3	Exp. 1 (cont.d) + Experiment 2: Ideal gas thermometer
9/10	Experiment 3: Measurement of the Vapor Pressure of a Liquid
9/17	none
9/24	Experiment 4: Measurement of the Heat Capacity of Gases
10/1	Experiment 5: Bomb Calorimetry
10/8	Quiz 1
10/15	Experiment 6: Partial Molar Volume
10/22	Experiment 7: The Kinetics of the Inversion of Sucrose

10/29	None
11/5	Experiment 8: Temperature dependence of acid ionization
11/12	None
11/19	Quiz 2
11/26	None
12/3	None
12/10	Long lab report due

Labs

Week of	Group*								
	A	B	C	D	E	I	F	G	H
8/27	none	none	none	none	none		none	none	none
9/3	1	1	1	1	1	1	1	1	1
9/10	2	2	3	2	2	3	2	2	3
9/17	none	3	2	none	3	2	none	3	2
9/24	3	4	none	3	4	none	3	4	none
10/1	4	none	5	4	none	5	4	none	5
10/8	none	5	4	none	5	4	none	5	4
10/15	5	6	none	5	6	none	5	6	none
10/22	none	none	none	none	none	none	none	none	none
10/29	7	none	6	7	none	6	7	none	6
11/5	6	8	none	6	8	none	6	8	none
11/12	none	7	8	none	7	8	none	7	8
11/19	8	none	7	8	none	7	8	none	7

* Please refer to group assignment sheet for the group you are in.

COURSE POLICIES**Assignment Policy**

Short lab reports will be turned in at the end of each lab section.

A long report on the experiment of your choice should be turned in at the end of the semester before the specified deadline (see Calendar).

One bonus question will be handed out at the end of each lecture. To earn bonus points, email your answer to the instructor (Hao.Yan@unt.edu) before the next lecture.

Examination Policy

Two quizzes will be given (see Calendar for specific dates). These quizzes must be turned in at the end of the sections. Each student is allowed to bring one Letter-size (8.5" by 11") cheat sheet and a calculator. No other materials are allowed.

Late Work

Late work will not be accepted. Ungraded work will automatically receive zero point.

Attendance Policy

Attendance to both lecture and lab sections are mandatory. Zero point will be given to any missing sections.

Syllabus Change Policy

Please contact the instructor regarding any time conflict or concerns over the syllabus ASAP.

UNT POLICIES

Academic Integrity Policy

According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University. The following behaviors are considered academic dishonesty in this class:

- Plagiarism
- Fabrication of experimental data
- Talking to or looking at another person's exam, and/or using unauthorized materials during the quiz
- Having another person complete and submit work in your name
- Lying to an instructor to improve your grade
- Altering a graded work after it has been returned and then submitting the work for re-grading

Such behaviors will result in zero point for the particular assignment or quiz. Additionally, the incident will be reported to the Dean of Students, who may impose further penalty.

ADA Policy

UNT makes reasonable academic accommodation for students with disabilities. Students 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 ODA website at disability.unt.edu.

Course Safety Procedures

IMPORTANT: All students must follow the safety codes as outlined in the Student Laboratory Safety Agreement. These include, but are not limited to:

- **Always wear safety glasses or goggles while in the lab**
- **Do not wear contact lenses in the lab**
- **Arrive at the lab in proper attire with no exposed skin below the waist**
- **Always wear shoes and socks that cover the entire feet**
- **Always wear a lab coat while in the lab**

TAs have the right to expel students who fail to follow these rules from the lab, with zero point for the particular lab section and no opportunity for make-up assignments.

Students enrolled in CHEM 3230 are required to use proper safety procedures and guidelines as outlined in UNT Policy 06.038 Safety in Instructional Activities. 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 UNT 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 Standard Syllabus Statements Related Policy 06.049 Course Syllabi Requirements obtaining Student Health Insurance. Brochures for student insurance are available in the UNT Student Health and Wellness Center. 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 students have an insurance plan other than Student Health Insurance at UNT, they should be sure that the plan covers treatment at this facility. If students choose not to go to the UNT Student Health and Wellness Center, they may be transported to an emergency room at a local hospital. Students are responsible for expenses incurred there.

Emergency Notification & Procedures

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

Retention of Student Records

Student records pertaining to this course are maintained in a secure location by the instructor of record. All records such as exams, answer sheets (with keys), and written papers submitted during the duration of the course are kept for at least one calendar year after course completion. Course work completed via the Canvas online system, including grading information and comments, is also stored in a safe electronic environment for one year. Students have the right to view their individual record; however, information about student's records will not be divulged to other individuals without proper written consent. Students are encouraged to review the Public Information Policy and the Family Educational Rights and Privacy Act (FERPA) laws and the University's policy. See UNT Policy 10.10, Records Management and Retention for additional information.

Acceptable Student Behavior

Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. The Code of Student Conduct can be found at deanofstudents.unt.edu/conduct.

Access to Information - Eagle Connect

Students' access point for business and academic services at UNT is located at: my.unt.edu. All official communication from the University will be delivered to a student's Eagle Connect account. For more information, please visit the website that explains Eagle Connect and how to forward e-mail: eagleconnect.unt.edu/

Student Evaluation Administration Dates

Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available during weeks 13, 14 and 15 of the long semesters to provide students with an opportunity to evaluate how this course is taught. Students will receive an email from "UNT SPOT Course Evaluations

via IASystem Notification" (no-reply@iasystem.org) with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey they will receive a confirmation email that the survey has been submitted. For additional information, please visit the SPOT website at <http://spot.unt.edu/> or email spot@unt.edu.

Sexual Assault Prevention

UNT is committed to providing a safe learning environment free of all forms of sexual misconduct, including sexual harassment sexual assault, domestic violence, dating violence, and stalking. Federal laws (Title IX and the Violence Against Women Act) and UNT policies prohibit discrimination on the basis of sex, and therefore prohibit sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking, and/or sexual assault, there are campus resources available to provide support and assistance. UNT's Survivor Advocates can assist a student who has been impacted by violence by filing protective orders, completing crime victim's compensation applications, contacting professors for absences related to an assault, working with housing to facilitate a room change where appropriate, and connecting students to other resources available both on and off campus. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-565- 2648. Additionally, alleged sexual misconduct can be non-confidentially reported to the Title IX Coordinator at oeo@unt.edu or at (940) 565 2759.