



University of North Texas  
College of Science  
Department of Chemistry  
Physical Chemistry I  
Hao Yan, Chad Ladewig

## COURSE INFORMATION

Welcome to CHEM 3510! Dr. Yan will be leading this class together with our TA.

- Lecture: 10:00 – 10:50 AM, Monday/Wednesday/Friday, Chemistry 106
- Recitation: 12:59 – 1:50 PM, Wednesday, Chemistry 106

## Instructor Contact Information

- Instructor:  
Dr. Hao Yan ([Hao.Yan@unt.edu](mailto:Hao.Yan@unt.edu))  
Office hours:  
11:00 AM – 12:00 PM, Monday  
Zoom link: <https://unt.zoom.us/j/87976417002>
- TA:  
Chad Ladewig ([ChadLadewig@my.unt.edu](mailto:ChadLadewig@my.unt.edu))

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

Pre-requisites: CHEM 1420, MATH 1720 and PHYS 1420 or 2220 all with C or better. Exceptions can be made upon discussion with Professor

Should also enroll in CHEM 3230.

## Course Objectives

In this course we will explore the basics of chemical thermodynamics and kinetics. The core skill of this course is the physical and mathematic approach to chemistry problems.

## Learning Outcomes

Upon successful completion of this class students will have a basic understanding of:

- States of matters and their transitions
- Laws of thermodynamics
- State functions and their relationships

- Chemical equilibrium
- Chemical kinetics
- Applying physics and mathematics to chemistry problems

### Important dates

- First class: Aug. 23<sup>rd</sup>
- Mid-term exam: Week of Oct. 3<sup>rd</sup> (detailed time TBD)
- Final exam: Week of Dec. 5<sup>th</sup> (detailed time TBD)

### Materials

We will use online and open-source materials for this class.

1. Main reference: MIT OpenCourseWare

<https://ocw.mit.edu/courses/chemistry/5-60-thermodynamics-kinetics-spring-2008/index.htm>

Related lecture notes will be posted on Canvas

2. For a more detailed reading: Thermodynamics and Chemistry, 2<sup>nd</sup> Ed. by H. Devoe:

<http://www2.chem.umd.edu/thermobook/v10-screen.pdf>

A copy of the book will be posted on Canvas

3. You are also encouraged to refer to the Chem LibreTexts:

[https://chem.libretexts.org/Bookshelves/Physical\\_and\\_Theoretical\\_Chemistry\\_Textbook\\_Maps/Supplemental\\_Modules\\_\(Physical\\_and\\_Theoretical\\_Chemistry\)/Thermodynamics](https://chem.libretexts.org/Bookshelves/Physical_and_Theoretical_Chemistry_Textbook_Maps/Supplemental_Modules_(Physical_and_Theoretical_Chemistry)/Thermodynamics)

My lecture notes used in class will also be posted on Canvas. The traditional Atkins book (Physical Chemistry by Peter Atkins and Julio de Paula, 10th Edition) is listed as a reference but not required.

### COMMUNICATIONS

Grades and announcements will be posted on Canvas.

Graded homework will be returned to the students each week.

Graded exams will be returned within one week. Grades will also be posted on Canvas.

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](mailto:helpdesk@unt.edu)

Phone: 940.565-2324

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

## ASSESSMENT & GRADING

### Assessments

- Lecture attendance: 10%
- Problem sets: 30%
- Mid-term exam: 25%
- Final exam: 35%

### Grading

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

## COURSE POLICIES

### Assignment Policy

There will be 9 problem sets. Due dates of problem sets will be announced as they are handed out. Students are expected to turn in the problem sets on or before the due date. Exceptions must be discussed with the instructor and approved on a case-by-case basis. Students are welcome to use references and discuss among themselves; however, plagiarism is strictly prohibited.

### Examination Policy

We will have one mid-term exam and one final exam. These exams will take place in-person and should be completed within the duration of the lecture section (50 minutes) unless otherwise approved. Students must answer the questions independently. Communication among students during the quizzes regarding the quiz materials is considered breach of academic ethics codes and strictly prohibited.

### Late Work

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

**Attendance Policy**

Attendance to the lectures is, in principle, mandatory. However, it is important for all of us to be mindful of the health and safety of everyone in our community, especially given concerns about COVID-19. Please contact the instructor if you are unable to attend class because you are ill, or unable to attend class due to a related issue regarding COVID-19. Acceptable exceptions will be approved on a case-by-case basis.

**Syllabus Change Policy**

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

**UNT POLICIES****COVID-19 Safety**

The North Texas region is currently experiencing high transmission of the highly contagious and dangerous Delta variant of COVID-19. The University of North Texas is very concerned about the risks of this new variant. UNT is requesting that all students, faculty and staff, whether vaccinated or not, comply with the public health recommendations of the U.S. Centers for Disease Control & Prevention in order to prevent Delta from spreading on campus. ***I strongly recommend that all students wear a mask during class and in other indoor locations on campus until we receive guidance that the public health risks are decreasing.*** I understand that masks are uncomfortable, but they will help us achieve our goal of protecting vulnerable members of the community and their families, including unvaccinated children, during this latest resurgence of COVID-19.

If you are experiencing any symptoms of COVID-19 (<https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>) please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider PRIOR to coming to campus. UNT also requires you to contact the UNT COVID Hotline at 844-366-5892 or COVID@unt.edu for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure. While attendance is an important part of succeeding in this class, your own health, and those of others in the community, is more important.

**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
- 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](http://disability.unt.edu).

### **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](http://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](http://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/](http://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](mailto: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](mailto: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](mailto: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](mailto:oeo@unt.edu) or at (940) 565 2759.