

## Chemistry 4631

Spring 2024

- Instructor:** Dr. Teresa D. Golden. Chemistry 279, tgolden@unt.edu.
- Office hours:** MW 8:00-8:45 a.m. and 10:00-10:30 a.m. Chemistry 279.
- Lecture:** MWF 9:00 – 9:50 a.m. Room 352 Chemistry.  
Attendance is required.
- Exams:** There will be several in-class exams and a final exam. Dates for each exam will be announced 1 week before in class and on the class website. The final is a comprehensive, ACS Exam scheduled for Wednesday May 8th (8:00-10:00 am) in CHEM 352 (notice earlier start time).

Absolutely no make-up exams will be given without a signed physician's note.

- Course Material:** Text: Principles of Instrumental Analysis, 7<sup>th</sup> or 6<sup>th</sup> ed.; (Skoog/Holler/Crouch).  
Required prereq: Chem 3451/3452 Quantitative Analysis (w/ C or better).  
This course does not use canvas – for latest info and announcements go to the **Class Website** at:  
[http://chemistry.unt.edu/~tgolden/courses/course\\_downloadsSpr24.html](http://chemistry.unt.edu/~tgolden/courses/course_downloadsSpr24.html)

- Homework:** 1) Problem sets will be assigned at the end of each chapter.  
2) Spectral interpretations will periodically be assigned.

- Grading:** Exams, quizzes, and assignments will each be given a total point value. The student's final grade will be: (the total number of points received/total number of points possible) x 100.

### Guaranteed Course Grade:

A – 90%      B – 80%      C – 70%      D – 60%      F < 60%

### Additional Information:

*UNT 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. 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 <https://studentaffairs.unt.edu/office-disability-access>.*

WEEK	CLASS ASSIGNMENT	TOPICS
1	Ch. 1 & 6 & Appendix Lab: No Lab	Intro Laboratory Principles, Electromagnetic Spectrum, Quantum Theory
2	Ch. 13-17 Lab: Check-in	UV-vis, FTIR, Fluorescence Theory
3	Ch. 6 & 7 Lab: UV-vis/FTIR	Components of Optical Instruments
4	Ch. 7 & 13-17 Lab: UV-vis/FTIR	Optical Instrument Design
5	Ch. 7 Lab: UV-vis/Fluorescence	Lasers, LEDs, and Semiconductors
6	Ch. 8-10 Lab: UV-vis/Fluorescence	Atomic Absorption and ICP Spectroscopy
7	Ch. 19 Lab: AAS/ICP/NMR	NMR
8	Ch. 22 Lab: AAS/ICP/NMR	Intro to Electrochemistry
9	Spring	Break
10	Ch. 23-25 Lab: Electrochemical Techniques	Electrochemical Techniques
11	Ch. 26 & 27 Lab: Electrochemical Techniques	Intro to Chromatography, Chromatography Theory, Gas Chromatography
12	Ch. 27 Lab:GC-FID/ GC-MS	Gas Chromatography Instrumentation
13	Ch. 28 Lab:GC-FID/ GC-MS	High Performance Liquid Chromatography Instrumentation
14	Ch. 11 & 20 Lab:HPLC-UV/HPLC-MS	Mass Spectroscopy Instrumentation and Spectra interpretation
15	Ch. 11 & 20 Lab:HPLC-UV/HPLC-MS	Mass Spectroscopy Instrumentation and Spectra interpretation
16	QA/QC & Review Lab: Final	Assessing Quality Assurance & Quality Control in the Lab
17	Final Exam (ACS)	8:00 -10:00 a.m.

Other topics that may be substituted for any of the above include:

Statistics, Circuits,  
X-Ray Spectroscopy or Diffraction, Raman Spectroscopy  
Interpreting UV, IR, MS, & NMR spectra  
Coulometry, STM, AFM, TGA/DSC  
SCF, Ion, and SEC Chromatography, Capillary Electrophoresis

\*This is a basic course outline and may change depending on other factors.