Chemistry 4631 **Spring 2022**

Instructor: Dr. Teresa D. Golden. Chemistry 279, tgolden@unt.edu.

Office hours: F 1:30 - 3:00 p.m. CHEM Room 207B or by Zoom.

Lecture: MWF 9:00 – 9:50 a.m. Room 109 Chemistry.
Attendance is required.

Exams: There will be several in-class on-campus exams and a final exam. Dates for each exam will be announced in class and class website. The final is scheduled for Wednesday May 11th (8:00-10:00 am) in CHEM 109 (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, 7th 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:
https://chemistry.unt.edu/~tgolden/courses/course_downloadsSpr22.xhtml

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:

The University of North Texas 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 Office of Disability Accommodation website at http://www.unt.edu/oda.

Chemistry 4631 **Spring 2022** **Course Outline***

WEEK	CLASS ASSIGNMENT	TOPICS
1	Ch. 1 & 6 & Appendix Lab: No Lab	Intro Laboratory Principles, Electromagnetic Spectrum, Quantum Theory
2	Ch. 6 & 7 Lab: Check-in	General Components of Optical Instrument and Lasers
3	Ch. 7 Lab: UV-vis	Optical Instruments and Semiconductors
4	Ch. 13 & 14 Lab: UV-vis	UV Theory and Instrumentation
5	Ch. 16 & 17 Lab: FTIR/Fluorescence	Fluorescence Spectroscopy and Instrumentation
6	Ch. 15 & 18 Lab: FTIR/Fluorescence	IR Spectroscopy Theory and Instrumentation, FTIR
7	Ch. 8 & 9 Lab: AAS/Raman/NMR	Atomic Absorption and Atomic Emission Spectroscopy and NMR
8	Ch. 22 Lab: AAS/Raman/NMR	Intro to Electrochemistry
9	Ch. 23 & 24 Lab: Potentiometry/ Voltammetry	Potentiometry, Conductivity, and Voltammetry Techniques
10	Ch. 24 & 25 Lab: Potentiometry/ Voltammetry	Intro to Chromatography, Chromatography Theory, Gas Chromatography
11	Ch. 26 Lab:GC-FID/ GC-MS	Gas Chromatography Instrumentation
12	Ch. 27 Lab:GC-FID/ GC-MS	High Performance Liquid Chromatography Instrumentation
13	Ch. 28 Lab:HPLC-UV/HPLC-MS	Mass Spectroscopy Instrumentation and Spectra interpretation
14	Ch. 11 & 20 Lab:HPLC-UV/HPLC-MS	Mass Spectroscopy Instrumentation and Spectra interpretation
15	QA/QC & Review Lab: Final	Assessing Quality Assurance & Quality Control in the Lab
16	Final Exam (ACS)	8:00 -10:00 a.m.

Test will cover the following topics:

UV/vis, IR,
Fluorescence, AAS, ICP
Interpreting UV, IR, MS, & NMR spectra
Electrochemistry, GC, HPLC, MS
Final: Comprehensive, ACS Exam

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