

The University of Texas at Tyler
SPECTROSCOPY
CHEM 4332.001
Spring 2026 Syllabus

• INSTRUCTOR CONTACT INFORMATION AND OFFICE HOURS

Sean C. Butler, Ph.D.

Office: RBS 3031
Phone: 903.565.5654
Email: sbutler@uttyler.edu
Best method of contact is email.

Office Hours:

TR 1:30–3:30 pm
W 10:30–11:30 pm
(Also by Appointment)

It is my policy to be available anytime I am at the University. Please stop by **anytime** you have questions or concerns and I will do my best to assist you whenever possible. I can also set up appointments if necessary. If my door is open, I am in the department – ask someone where I am and they will point you in my direction.

• COURSE MEETING TIMES

| <u>Days</u> | <u>Time</u> | <u>Room</u> |
|-------------|--------------|-------------|
| MW | 2:30–3:55 pm | RBS 2024 |

• PREREQUISITES

- Organic Chemistry II (CHEM 3344)
- Organic Chemistry II Laboratory (CHEM 3145)

• COURSE DESCRIPTION

Study of modern analytical methods including UV/Vis spectroscopy, vibrational spectroscopy, nuclear magnetic resonance spectroscopy, and mass spectrometry. Spectral interpretation and structural correlation will be emphasized.

• TENTATIVE LIST OF COURSE TOPICS

- UV/Vis Spectroscopy
- Infrared Spectroscopy
- Mass Spectrometry
- 1D- and 2D-NMR Spectroscopy

- **CANVAS**

This course will be hosted on UT Tyler's Canvas server. You may access your Canvas account online at <https://www.uttyler.edu/canvas>.

This site will contain a significant amount of information that will help you in this course in addition to being the medium through which you may access your current grade.

I will contact you through Canvas, so be sure you have your account to receive alerts. I am not responsible for you not receiving announcements pertaining to this course.

- **TEXTBOOK AND OTHER MATERIALS**

Recommended Materials

Textbook (Online Resource)

Title: Introduction to Organic Spectroscopy

Authors: Various

Access: [Click for Web Version](#) (also available for download via website)



- **COURSE GRADE**

Your course grade will be based on the following:

| | |
|---------------------------|---|
| Semester Exams (2) | 66.666666666666666666666666666667% |
| Final Exam | 33.33333333333333333333333333333333% |

**The final exam score, if higher, will be used to replace lowest exam grade.*

Exams are written so that a prepared student can finish in 3 hours or less.

Grades will tentatively be based on the 90/80/70/60 scale, but may be adjusted due to my evaluation of the entire class.

- **CENSUS DATE AND LAST DAY TO WITHDRAW**

Deadline for all registrations, schedule changes, and section changes is **January 26, 2026** and the last day to withdraw from the course is **March 30, 2026**.

- **EXAMS**

Times will be available (3 hour time-blocks) to take the exams. A sign-up sheet will be posted for these slots outside of the instructor's office for you to sign up for a time on Wednesday, Thursday, or Friday. Class time will not be used for exams due to the time needed for an adequate assessment of spectroscopy knowledge.

Tentative Exam Schedule*

| | Week of |
|------------|--------------------------|
| Exam 1 | February 16 |
| Exam 2 | Monday, March 24 |
| Final Exam | Sign-Up List Finals Week |

*dates subject to change depending on material covered.

Note: All exams build from previous material; however, current exams will cover most recent material discussed in class and in the readings.

- **PROBLEM SETS/PRACTICE PROBLEMS**

Problem Sets/Practice Problems are to help you better understand the material. You must demonstrate self-motivation and good study habits in this course. The problems will be used to allow you to practice specific concepts discussed in the course but will not be graded. I would be happy to help you understand anything you're having an issue with, but please bring the problem set as well as your attempted work toward them. You must show me that you have attempted to solve a given problem before I'm able to assist you.

- **REGRADING POLICY**

Questions concerning the grading of an assignment should be submitted **before** the next scheduled class meeting after the exam was returned to you. Alternatively, you may see me during office hours (or any other time you find me available) with the suspect exam in hand. All scores will be considered final one week after originally being returned to you.

Note: Not only will I regrade the problem(s) in question, but I will regrade the entire exam. During a regrade, I will treat mistakes I find in your favor the same way I find mistakes not in your favor – I will adjust them to reflect the correct answer, thus awarding or taking points away depending on the situation.

- **STUDENT LEARNING OUTCOMES**

By the end of this course, you should be able to:

1. Recognize and predict the functional groups in a given organic molecule using IR Spectroscopy.
2. Give a rational explanation of the different fragmentation patterns in Mass Spectrometry using arrow pushing formalisms.
3. Use NMR Spectroscopy to predict the connectivity of various organic compounds by the use of splitting patterns and coupling constants (1D- and 2D-NMR techniques)
4. Use each spectroscopic technique in conjunction with one another to predict the chemical structure of both simple and complex organic molecules.

- **ARTIFICIAL INTELLIGENCE (AI) STATEMENT**

UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate for the discipline and task undertaken. We encourage discussing AI tools' ethical, societal, philosophical, and disciplinary implications. All uses of AI should be acknowledged as this aligns with our commitment to honor and integrity, as noted in UT Tyler's Honor Code. Faculty and students must not use protected information, data, or copy-righted materials when using any AI tool. Additionally, users should be aware that AI tools rely on predictive models to generate content that may appear correct but is sometimes shown to be incomplete, inaccurate, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research. You are ultimately responsible for the quality and content of the information you submit. Misusing AI tools that violate the guidelines specified for this course (see below) is considered a breach of academic integrity. The student will be subject to disciplinary actions as outlined in UT Tyler's Academic Integrity Policy.

AI is permitted only for specific assignments or situations, and appropriate acknowledgment is required. Exams, assignments and quizzes are expected to be completed on our own, with your own knowledge and preparation, without AI assistance. However, other situations such as studying, organizing your notes, and course materials can be made more streamlined, in some cases, using AI.

- **MOBILE DEVICE POLICY**

The use of mobile devices is strictly prohibited unless consent is given by the instructor. This includes texting, photography, videography, voice recordings, searching/browsing the internet, listening to music, and things like these. Cell phones, smart watches, and any similar electronic devices must be turned off and put away during exams and/or quizzes. If they are observed out in a visually accessible place (i.e. between legs, on the floor, etc.), it will be assumed that they are being used to cheat; your exam will be taken away, you will receive a zero score (0 points) for the assignment, and you will be referred to the Office of Judicial Affairs.

- **STUDENT ACADEMIC CONDUCT STATEMENT**

Cheating will not be tolerated. The University regulations are very explicit about academic misconduct, and these regulations will be fully enforced. During this course, a code of honor will apply under which students are to perform their own work on assignments and exams and neither give help to other nor receive help from others or from any unauthorized sources. Students also are expected to help enforce this code. The minimum penalty for cheating will be a zero on the assignment in question. **Maximum penalties, up to university expulsion, will be pursued in extreme or repeat cases.**

UT Tyler Honor Code: Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

- **UNIVERSITY POLICIES**

You may [follow this link](#) or access the University Policies through Canvas.