

Chemistry 2370B
Organic and Inorganic Structure Elucidation
Winter 2026

Course Outline

1. Course Information

Course Information

[REDACTED]

Prerequisite(s): (Chemistry 2213A/B or Chemistry 2273A) and (Chemistry 2211A/B or Chemistry 2271A)

Unless you have either the prerequisites for this course or written special permission from the Department of Chemistry to enroll in it, you may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on your academic record. This decision may not be appealed.

2. Instructor Information

[REDACTED]

[REDACTED]

[REDACTED]

3. Course Syllabus, Schedule, Delivery Mode

Course Description: Structure determination using common spectroscopic methods including vibrational and nuclear magnetic resonance spectroscopy as well as mass spectrometry.

Course Topics

- Molecular Formulae (Chapter 1)
- Mass Spectrometry (Chapter 3)
 - Instrumentation, molecular weight determination, exact mass, isotopic clusters
- Infrared Spectroscopy (Chapter 2)
 - Brief review of theory and important functional group frequencies and trends, interpretation of spectra
- NMR Spectroscopy (Chapters 5-9)
 - Properties of magnetic nuclei and basic instrumentation, essential features of ^1H NMR spectra chemical shifts, ^{13}C and other heteronuclear NMR spectra, spin-spin coupling, magnitude of J, analysis of first order spectra, complex multiplets, chemical and magnetic equivalence and second order effects, OH/NH and dynamic processes, correlation spectroscopy

Learning Outcomes

Upon completion of Chem 2370, students will be able to....

- Recognize the importance of spectroscopy in underpinning chemistry and the physical sciences
- Think critically about, explain, integrate, and apply spectroscopic principles and theories
- Recognize the diagnostic features of a variety of spectroscopic techniques
- Elucidate the structure of a compound using a variety of spectroscopic techniques
- Identify advantages and shortcomings in spectroscopic techniques

Mode of Delivery: This course (lecture) will be delivered in-person.

Important Dates:

Jan 5th – First Day of Class

Feb 6th – Test #1

Feb 16th – 20th – Reading Week

Mar 11th – Test #2

Apr 8th – Last Day of Class

Apr 12-30th (Exact date TBA by Registrar) – Final Exam

4. Course Materials

All course material will be posted to OWL: <https://westernu.brightspace.com/>

Textbook and Other Learning Materials

Required textbook: Pavia, Lampman, Kriz, Vyvyan **Introduction to Spectroscopy**, 5th Edition, CENGAGE Learning, 2015. This book is available through the Bookstore as a paper book (\$153) or 180-day eBook (\$80). An older edition can be used. The book is also on short-term reserve at Taylor Library.

Second-hand or older editions will be sufficient.

Other Reading

There are many spectroscopy websites, and these are particularly useful:

General Spec: www2.chemistry.msu.edu/faculty/reusch/VirtTxtJml/Spectrpy/spectro.htm#contnt

Reich's NMR site: www.chem.wisc.edu/areas/reich/chem605/index.htm

Notre Dame spectral problems: <https://structureworkbook.nd.edu>

Students are responsible for checking the course OWL site (<https://westernu.brightspace.com/>) regularly for news and updates. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course OWL site, they can seek support on the [OWL Brightspace Help](#) page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

5. Methods of Evaluation

Grading Scheme and Assessment Dates

The overall course grade will be calculated as listed below:

Assignments (5)	20%
Midterm Tests (2)	35%
Final Exam	45%

Assignment Due Dates

Assignments will be due on the specified dates below. Details will be provided on Brightspace.

Monday, Jan 16th

Friday, Jan 30th

Wednesday, Feb 25th

Friday, Mar 6th

Wednesday, Mar 25th

Term Test Dates

Term tests will occur *during normal class time (10:30 - 11:20 am) in a location to be announced* on the specified dates below.

Feb 6th – Test #1

Mar 11th – Test #2

Use of Generative AI Tools

The use of generative AI tools (e.g. ChatGPT, Copilot, Gemini) are prohibited during tests and exams. Using such tools to complete assignments is prohibited since the purpose of assignments is to develop skills to independently analyze/predict spectroscopic data.

General information about missed coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs*, posted on the Academic Calendar:

https://uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage: https://registrar.uwo.ca/academics/academic_considerations/
All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

Missed tests. Students who miss a test for any reason do not need to apply for academic consideration, submit documentation, or contact the instructor. As an *incentive* for writing as many tests as possible, only the tests with a percent mark higher than that of the final exam will count toward the course grade, while the weight of all other (written or missed) tests will be automatically transferred to the final exam. There are no make-up tests.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request **without supporting documentation** in this course. However, the following assessments are excluded from this and, therefore, always require formal supporting documentation:

- Examinations scheduled during official examination periods (Defined by policy)

When a student *mistakenly* submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those in the **Coursework with Assessment Flexibility** section below, the request cannot be recalled and reapplied. This privilege is forfeited.

Evaluation Scheme for Missed Assessments

When a student misses the **Final Exam** and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under [Special Examinations](#)), especially for those who miss multiple final exams within one examination period.

Coursework with Assessment Flexibility

By policy, instructors may deny Academic Consideration requests for the following assessments with built-in flexibility:

Flexible Completion

Assignments. This course has **5** assignments, and the **4** assignments with the highest marks are counted towards your final grade. Should extenuating circumstances arise, students do not need to request Academic Consideration for the first missed assignment. Academic consideration requests will

be denied for the first missed assignment. Academic Consideration requests may be granted when students miss more than 1 assignment, and these additional (2nd, 3rd ...) missed assignments will be reweighted to the final exam.

Deadline with a No-Late-Penalty Period

Assignments. Students are expected to submit each of the 5 assignments by the deadline listed. Should extenuating circumstances arise, students do not need to request Academic Consideration and they are permitted to submit their assignment up to 48 hours past the deadline without a late penalty. Should students submit their assessment beyond 48 hours past the deadline, a late penalty of 20% per day will be applied. If the answers are posted for an assignment, or the assignment has been returned, late assignments will no longer be accepted. Answers will be posted or assignments will be returned no earlier than 72 h after the deadline. Academic Consideration requests may be granted only for extenuating circumstances that started before the deadline and lasted longer than the No-Late-Penalty Period (48 h).

6. Additional Statements

6.1 Religious Accommodation

When a recognized religious holiday or observance conflicts with an examination, test, or other scheduled academic obligation, students must request accommodation via the University's Student Absence Portal (SAP). This request should identify the conflict and specify which course component(s) (e.g. test, midterm, exam) are affected.

Students are encouraged to submit the SAP request as early as possible, but no later than two weeks before any examination, or one week before any mid-term test or quiz, to allow sufficient time for adjustment.

The SAP request serves as official notification to both the course instructor and the Academic Advising Office, in accordance with University policy: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

The Faculty of Science considers religious accommodations as scheduling conflicts. Instructors should provide either a make-up exam or an earlier sitting of the same exam to accommodate the student.

For more information on recognized religious holidays, please visit the Diversity Calendar posted on the Equity, Diversity & Inclusion website - <https://www.edi.uwo.ca>

6.2 Academic Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf.

6.3 General Academic Policies

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

Use of @uwo.ca email: In accordance with policy, https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf, the centrally administered e-mail account provided to students will be considered the individual's official university email address. It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

Requests for Relief (formerly known as “appeals”)

Policy on Request for Relief from Academic Decision:

https://uwo.ca/univsec/pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf

Procedures on Request for Relief from Academic Decision (Undergraduate):

https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf

6.4 Scholastic Offences

Policy on Scholastic Offences:

https://uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_offences.pdf

Procedures on Scholastic Offences (Undergraduate):

https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf

Use of Electronic Devices During Assessments

In courses offered by the Faculty of Science, the possession of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This includes, but is not limited to: mobile phones, smart watches, smart glasses, and wireless earbuds or headphones.

Unless explicitly stated otherwise in advance by the instructor, the presence of any such device at your desk, on your person, or within reach during an assessment will be treated as a *scholastic offence*, even if the device is not in use. Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is your responsibility to review and comply with these expectations.

Use of Generative AI Tools

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is **not permitted** in the completion of any course assessments, including but not limited to: assignments, lab reports, presentations, tests, and final examinations. Using such tools for content generation, code writing, problem solving, translation, or summarization—when not explicitly allowed—will be treated as a **scholastic offence**. If the use of generative AI is permitted for a particular assessment, the conditions of use will be specified by the instructor in advance. If no such permission is granted, students must assume that use is prohibited. It is your responsibility to seek clarification before using any AI tools in academic work.

6.5 Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, requests for relief, exam conflicts, and many other academic-related matters: <https://www.uwo.ca/sci/counselling/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence (GBSV) and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced GBSV (either recently or in the past), you will find information about support services for survivors, including emergency contacts, at:

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. If you have any questions regarding accommodations, you may also wish to contact Accessible Education at

http://academicsupport.uwo.ca/accessible_education/index.html

Learning-skills counsellors at Learning Development and Success (<https://learning.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Additional student-run support services are offered by the USC, <https://westernusc.ca/services/>.