

Chemistry 3393B Medicinal Chemistry Winter 2026

Course Outline

1. Course Information

Course Information



CHEM 3393B is an in-person course that in addition to in-person lectures and tutorials, follows lesson plans and learning activities using the OWL Brightspace class page (westernu.brightspace.com).

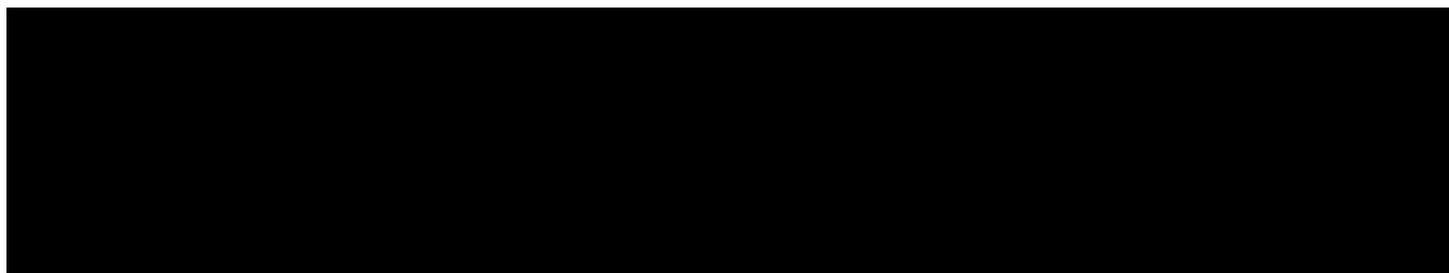
Success in CHEM 3393B requires the student to follow lesson plans and complete learning activities, in addition to attending in-person sessions.

Prerequisite(s): [Chemistry 2213A/B](#) or [Chemistry 2283G](#).

Extra Information: 3 lecture hours. Grade 12U Biology, or a Year 1 University Biology course is highly recommended as preparation for this course.

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for this course or written special permission from the Department of Chemistry to enroll in it, you may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on your academic record.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



Questions related to course material can be posted on the CHEM 3393B OWL Communications → Discussions Forums. Administrative questions of a general nature may be posted in the ‘Administration’ forum. Resource room hours will be available through CHEM 3393B OWL Zoom or in-person and will be announced in advance. If these approaches to answering your question are unsuccessful, please email the course instructor **from your Western email account** with “CHEM 3393B” in the subject line. Email sent from accounts other than Western will not be responded to.

News and updates will be posted as Announcements on OWL Brightspace. This is the primary method by which information will be disseminated to everyone in the class. Please remember that it is your responsibility to check the class page on a regular basis.

3. Course Syllabus, Schedule, Delivery Mode

Course Description: Explore the molecular basis of small molecule drug design and drug action. Topics include the classification of drugs, binding of drugs with biomolecules, effect of structure on drug action, metabolism of drugs, and discovery and optimization of drugs.

Course Topics

Medicinal chemistry is a broad topic that spans many disciplines. Since this is a chemistry course, we will focus primarily on the chemical aspects of drugs and less on the biological and clinical aspects. Topics covered will include:

- Drugs and the body (textbook chapters 1-4 and 6-11)
 - What are drugs?
 - What are the common drug targets?
 - How are drugs transported and metabolized?
- Discovery and optimization (textbook chapters 12–18)
 - Generation of lead compounds
 - Optimization of pharmacodynamics and pharmacokinetics
 - Chemical & process development, synthesis methods
 - Computational approaches to drug discovery
- Selected topics (time-permitting; various textbook chapters and supplemental information)
 - Antibiotics (*e.g.* β -lactams, macrolides)
 - Opioids (*e.g.* morphine, heroin, fentanyl)
 - Cholinergic system and chemical weapons
 - The discovery of sorafenib
 - Peptide drugs for diabetes

Learning Outcomes

Broadly speaking, a student receiving credit for the course will be expected to demonstrate competence in their ability to:

- Describe the role of medicinal chemists and chemistry in drug design.
- Explain and apply chemical principles, laws and theories.
- Critically analyze and solve Medicinal Chemistry problems.

- Draw scientific conclusions from experimental results or data.
- Synthesize and evaluate information from various sources.
- Communicate scientific thoughts and ideas in writing.
- Develop time management and organization skills.

4. Course Materials

Textbook and Other Learning Materials

The required textbook is *An Introduction to Medicinal Chemistry*, 7th edition, by Graham L. Patrick. You may either rent the e-book or you may purchase the print version.

By purchasing the 7th edition e-book (\$63.00) or print version (\$92.85), you will receive access to additional student resources such as multiple choice questions. The 6th edition is still acceptable for the course content but you will not have access to the additional resources.

https://bookstore.uwo.ca/textbook-search?campus=UWO&term=W2025B&courses%5B0%5D=001_UW/CHE3393B

The textbook's website, which has a collection of student resources such as additional practice questions, is available at the Oxford Learning Link. All additional course material will be posted to OWL Brightspace. **You are required to follow the course content pages on a weekly basis.**

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, out of 100, will be calculated as listed below. Listed next to the respective components are their maximum contribution towards the course grade.

Component	Notes	Value
Assignments	Three assignments throughout the course	30
Participation	Attending and participating in discussions during in-class learning sessions and online forums.	10
Test #1	Friday January 30, 2026 starting at 9:30 am	10

Test #2	Friday March 6, 2026 starting at 9:30 am	10
Final Exam	Cumulative. Scheduled by the Registrar.	40

Assignments are to be submitted through OWL Gradescope. Marks will be deducted for assignments handed in late, at 10% deducted per day. If not submitted within three days of the deadline, the assignment is considered incomplete and a mark of zero is assigned. In the event of academic consideration being granted for a delayed assignment deadline, the latest the assignment can be submitted is three days late. Academic consideration that extends beyond three days results in the assignment being “excused” and the marks distributed onto the remaining assignments.

Participation marks will be assigned based upon your attendance and participation in learning activities and group discussions during our regular Friday class time. In some instances, discussion topics will be assigned with details provided as part of the course content on OWL Brightspace and participation will be through contributions to OWL Discussion Forums.

Tests will be held in-person during regular class times.

Final Exam will be held in-person and is scheduled by the Registrar. The final exam covers all material presented in class, in tutorials and material from the assigned learning activities on the OWL class page.

To be fair to everyone in the class, none of the components will be “dropped,” and it is not possible to have the components reweighted unless academic consideration is approved.

Use of Generative AI Tools

The use of generative AI tools (e.g., ChatGPT, Copilot, Gemini) is prohibited for all CHEM 3393B assignments.

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.

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.

There are no make-up assignments, and it is not possible to reschedule them. Marks will be deducted for assignments handed in late, at 10% deducted per day. If you miss an assignment for any reason, you will be assigned a mark of zero for that assignment. If you receive academic consideration for the missed assignment, an extension may be arranged based upon the length of the academic consideration. If the academic consideration exceeds three days, then the zero will be replaced by a mark of EXCU (excused), which shifts the weight of the missed assignment onto all of the other assignments.

There are no make-up tests. If you receive academic consideration for the missed test, then the value of the test will be shifted to the Final Exam.

If you miss the Final Exam, contact your faculty's Academic Counselling Office as soon as possible. They will assess your eligibility to write the Special Exam (SPC).

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.

Essential Learning Requirements

Even when Academic Considerations are granted for missed coursework, the following are deemed essential to earn a passing grade.

In order to obtain credit for the course, all three of the following requirements must be met:

1. Miss no more than one assignment, whether excused or not. In the event of academic considerations reducing the number of assessments completed successfully below this minimum, you will be required to complete the items missed the next time the course is offered.
2. Obtain a minimum weighted average of 50% on the combined grade for Test #1, Test #2 and the Final Exam.
3. Obtain a minimum of 50 out of 100 on the overall course grade. Students who meet this requirement, but fail to meet one or more of the above requirements, will receive a course grade no greater than 40 out of 100 (even if the calculated course grade is higher) and will not receive credit for the course.

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.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

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/>.