

Chemistry 2003B Course Outline

1. Course Information

Organic and Biological Chemistry for Food Science, Chemistry 2003B, (2024-25).

Lecture: [REDACTED]

Laboratory: See page 3 for the laboratory schedule.

Office hours: [REDACTED]

List of Prerequisites

Chem 1301A/B and 1302A/B, or the former Chem 1100A/B, or the former Chem 1050.

List of Antirequisites

Chem 2213A/B, 2223B, 2273A, 2283G.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

2. Instructor Information

Instructor: [REDACTED]

Email: [REDACTED]

Office: [REDACTED]

Office Hours: [REDACTED]

The instructor is available immediately after lecture to answer questions, time permitting. Office hours will be available by appointment.

Email Policy

- Use your **@uwo.ca** email address and specify **2003B** in the subject line
- In all emails you must **include your Western ID number**
- *Questions regarding lecture material and course content should be posted on OWL Forums*
- Questions that can be answered from the course outline will not be replied to
- Effort will be made to return emails within 3-5 business days. Responses may be delayed depending on the time of the semester (i.e. during the start of the semester, near the midterm, and towards the end of the semester).

Course Website

All course materials, news and course updates will be posted on Western's learning management system, OWL Brightspace (<https://westernu.brightspace.com/>). The OWL course site is the primary method by which information will be disseminated to all students in the class, so you are responsible for checking OWL on a frequent basis. OWL will be used for the following:

- Course Outline
- Announcements
- Lecture Notes
- Accessing Grades
- Downloading and submitting Assignments

If you need technical assistance with OWL, seek support on the OWL Help page. Alternatively, contact the Western Technology Services Helpdesk by phone at 519-661-3800.

3. Course Syllabus, Schedule, Delivery Mode

An overview of the properties and common reactions of selected functional groups and biomolecules, including carbohydrates, proteins, and lipids. Emphasis will be placed on the importance and application of organic chemistry in the food sciences.

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

- Recognize the importance of organic chemistry in everyday life and its interdisciplinary nature.
- Think critically about, explain, integrate, and apply chemical principles, laws, and theories.
- Solve a variety of novel problems, both qualitative and quantitative.
- Safely execute a variety of experimental procedures and explain the theory behind them.
- Use a variety of laboratory equipment and instrumentation.
- Draw scientific conclusions from experimental results or data.
- Examine, integrate, and assess any provided or collected chemical data.
- Communicate scientific thoughts and ideas in writing.
- Obtain, evaluate, and integrate information from various sources, and determine its relevance.
- Analyze and critically assess problems, and take a systematic approach to solving them.
- Prioritize a set of tasks and manage the use of their time.

Lecture Schedule:

Section	Time (MWF)	Room	Delivery mode
█	█	█	█

Laboratory Sections and Schedule:

Laboratory sections are shown below. You must attend the section in which you are registered. Labs take place in [REDACTED]. There are no labs during the week of February 17th. Please follow the schedule carefully, because there are no make-up labs. A missed lab will result in a mark of zero unless academic consideration has been granted.

Experiment	Lab Section 013 Mon. 2:30 pm	Lab Section 021 Tues. 9:30 am
1. Recrystallization and Determination of Melting Point	January 27	January 28
2. Separation of a Two-Component Mixture by Extraction	February 10	February 11
3. TLC Analysis of Spinach Pigments	March 3	March 4
4. Acetylation, Oxidation, and Hydrolysis of Carbohydrates	March 17	March 18
5. Fats, Oils, Soaps, and Detergents	March 31	April 1

Each laboratory section has its own OWL site. For each experiment, watch the technique video and then complete the prelab quiz before the start of your scheduled laboratory session. The video and prelab quiz will be released at least one week prior to your scheduled lab session. The prelab quizzes are worth 20% of each laboratory and cannot be taken until after the prelab videos have been viewed.

More information will be sent out via OWL announcements.

All lab-related enquiries should be directed to the Chemistry 2003B Laboratory Coordinator: [REDACTED]
[REDACTED] The subject line of any lab email is to include Chem 2003B and your lab section.

Anticipated Lecture Topics:

Chapter	General description	Approximate classes
1	Structure and Bonding (review of 1 st year; self-study section)	0
2	Acid-Base Reactions (some material from 1 st year)	1.5
3 and 4	Structure of Organic Compounds (Functional groups, physical properties, nomenclature, alkanes, cycloalkanes, conformations, isomerism)	5
5	Alkenes and Introduction to Reactivity (some material from 1 st year)	1.5

6	Reactions of Alkenes & Alkynes	3
	Tentative Midterm Test #1	
7	Delocalization, Stability, and Aromaticity (some material from 1 st year)	3
8	Alkyl Halides – Substitution and Elimination	2.5
9	Alcohols, Amines, Ethers, and Epoxides	2.5
	Tentative Midterm Test #2	
11 – 13	Compounds with Carbonyl Groups	6
16	Carbohydrates	3
17	Amino Acids	2
20	Lipids	2

In all of the topics, the primary focus is on the *understanding* of the concepts. Please try to garner a thorough, in-depth understanding of the material, because that is what allows success in chemistry.

Key Sessional Dates:

Classes begin: January 6, 2025

Reading Week: February 15 – 23, 2025

Classes end: April 4, 2025

Exam period: April 7 – 30, 2024

4. Course Materials

In addition to proper lab attire, the materials below are required and are available at the bookstore.

- *Essential Organic Chemistry*, 3rd edition, by Paula Bruice, eText (180-Day) ISBN: 9780133867275, \$75. Please note that there is no need to purchase the solutions manual, because we have obtained permission from the publisher to post the relevant sections of the solutions manual on OWL free of charge. An older paper version of the text is also fine.
- *Chemistry 2003B Laboratory Manual* (Winter 2025 edition). Old editions may not be used. Students repeating the course will require a new lab manual from the bookstore. SKU: 9781533972293, \$43.35.
- Proper lab attire. This includes an appropriate lab coat, safety glasses, shoes, socks, and pants. Please see the lab manual for further details.

All other course material will be posted to OWL site (<https://westernu.brightspace.com>). Students are responsible for checking the course OWL site on a regular basis 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 Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

Interactive Resources

For assistance with lecture material, practice questions, and sample exams please post to **OWL Forums** for asynchronous feedback. Times for the **resource room** will be posted on the OWL Calendar.

5. Methods of Evaluation

Tests and exams are necessary to assess your mastery of core concepts. The overall course grade, out of 100, will be calculated as listed below.

Component	Notes	Normal Value	Test 1 Missed	Test 2 Missed	Test 1 + 2 Missed
Test #1*	Saturday, Feb. 8 th , 6:00 - 7:30 pm	20		20	
Test #2*	Saturday, Mar. 15 th , 6:00 - 7:30 pm	25	35		
Final Exam	Scheduled by the Registrar	40	50	65	85
Laboratory	Five experiments (3.00 each)	15	15	15	15

* Tentative dates and times. These will not change unless there is an unanticipated conflict.

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

Midterm Exams: No electronic devices or calculators are allowed. You may use:

1. A molecular model set. You can preassemble components if you wish. There is no sharing of molecular models during the exams.
2. One 8.5 x 11" crib sheet, both sides. **Note: a crib sheet is not allowed for the final exam.**

There are no make-up labs or tests. See Missed Course Components for more details. **To obtain credit for the course, all four requirements below must be met:**

1. Obtain a minimum of 50% on the overall course grade.
2. Obtain a minimum of 50% on the laboratory component (7.50 out of 15). This mark is calculated from all five experiments. A missed experiment is assigned a mark of zero unless it has been “excused” (see section on Missed Course Components).
3. Obtain a minimum of 50% on the Examination components of the course overall (i.e. 42.50/85).
4. Miss no more than two experiments, **whether excused or not.**

Students who fail to meet requirements #2, #3 or #4 will receive a course grade no greater than 40% (even if the calculated course grade is higher) and will not receive credit for the course.

6. Student Absences

If you are unable to meet a course requirement due to illness or other serious circumstances, please follow the procedures below.

Assessments worth less than 10% of the overall course grade:

There are no make-up labs, and it is not possible to reschedule them. If you miss a lab for any reason, you will be assigned a mark of zero for that lab. If the missed lab is granted academic consideration then a mark of EXCU (excused) will be given, which shifts the weight of the missed lab onto all of the other labs.

Tests and exams will contain questions related to the theoretical aspects of the experiments. You are responsible for the material pertaining to the missed labs.

Lab reports are due at the end of the lab session. If you do not submit your lab report at the end of the lab session you will receive a mark of zero for that lab report.

Assessments worth 10% or more of the overall course grade:

If you miss a midterm for whatever reason the value of the missed test will be reallocated as described in the evaluation scheme. Please note that there are no make-up tests.

Absences from Final Examinations

If you miss the Final Exam, and Academic Consideration has been granted, you will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a “Multiple Exam Situation” (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

7. Accommodation and Policies

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

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

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 e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely manner.

No electronic devices may be in your possession during tests and exams.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

https://www.uwo.ca/univsec/academic_policies/rights_responsibilities.html

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.

8. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on adding/dropping courses, academic considerations for absences, appeals, 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 and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (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/index.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. You may also wish to contact Accessible Education at:

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

if you have any questions regarding accommodations.

Learning-skills counsellors at the Student Development Centre (<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.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

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

This course is supported by the Science Student Donation Fund. If you are a BSc or BMSc student registered in the Faculty of Science or Schulich School of Medicine and Dentistry, you pay the Science Student Donation Fee. This fee contributes to the Science Student Donation Fund, which is administered by the Science Students' Council (SSC). One or more grants from the Fund have allowed for the purchase of equipment integral to teaching this course. You may opt out of the Fee by the end of September of each academic year by completing the online form linked from the Faculty of Science's Academic Counselling site. For further information on the process of awarding grants from the Fund or how these grants have benefitted undergraduate education in this course, consult the Chair of the Department or email the Science Students' Council at ssc@uwo.ca.