Welcome to Chem 2003B! Please read and keep this course outline handy, because it is an official document that contains important course information.

Modifications due to COVID-19

Chem 2003B is intended to be an in-person course. Up until Western’s anticipated return to in-person learning on January 31:

• Chem 2003B classes are expected to be held synchronously online through Zoom during the regularly scheduled times. Office hours will also be held online through Zoom. Details of the zoom meetings for both will be forwarded as an announcement via OWL prior to the first day of classes.

• Experiment #1, which starts on January 24, will be online and asynchronous. It is currently unknown if Experiment #2 will be online or in-person. An alternative schedule for online delivery of Experiment #2 in that eventuality is provided in the Laboratory Sections and Schedule section below.

In the event of a COVID-19 resurgence after the return date of January 31 that necessitates the course delivery moving away from face-to-face interaction, the course will pivot to online learning, either synchronously or asynchronously. Details will be provided as needed. The grading scheme will not change. Any remaining assessments will also be conducted online if necessary.

The Midterm Tests and the Final Exam are currently scheduled to be in-person assessments. In the event that one or more of these assessments need to be conducted online due to COVID-19, they may be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide personal information (including some biometric data) and the session will be recorded. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western’s Remote Proctoring website at: https://remoteproctoring.uwo.ca

Prerequisites and Antirequisites

Prerequisite: Chem 1301A/B and 1302A/B, or the former Chem 1100A/B and 1200B, or the former Chem 1050. Antirequisites: Chem 2213A/B, 2223B, 2273A, 2283G.
Unless you have either the prerequisites 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.

**Accessibility**

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 Services for Students with Disabilities (SSD) at 661-2111 ext. 82147 if you have questions regarding accommodation.

**Support Services**

Learning-skills counsellors at the Student Development Centre (http://www.sdc.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.

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

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

The website for Registrarial Services is http://www.registrar.uwo.ca.

**Course Website**

News and updates will be posted on OWL (http://owl.uwo.ca). This is the primary method by which information will be disseminated to everyone in the class.

**Learning Outcomes**

Broadly speaking, a student receiving credit for the course will be expected to demonstrate competence in his or her 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 his or her time.

Class and Instructor Information

<table>
<thead>
<tr>
<th>Section</th>
<th>Time (MWF)</th>
<th>Room</th>
<th>Instructor</th>
<th>Office</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>11:30 – 12:20</td>
<td>Online Via Zoom</td>
<td>Dr. James Wisner</td>
<td>CHB 215</td>
<td><a href="mailto:jwisner@uwo.ca">jwisner@uwo.ca</a></td>
</tr>
</tbody>
</table>

If you find yourself not understanding the lectures, assigned readings, or problems, please visit the Online Resource Room (see below) or set up an appointment with me by sending me an email from your Western email account with the term CHEM2003 in the subject line. Questions related to course material can also be posted on the OWL discussion board.

Office Hours

Prof. Wisner will hold help/office hours via Zoom for the entire term. Details regarding dates/times and zoom information will be forwarded as announcements through OWL/email contact.

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 (Print ISBN: 9780321937711; eText (180-Day) ISBN: 9780133867299. 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.

Laboratory Sections and Schedule

Laboratory sections are shown below. You must attend the section in which you are registered. There are no labs during the week of February 21. Please follow the schedule carefully, because there are no make-up labs. A missed lab will result in a mark of zero unless academic accommodation has been granted.

<table>
<thead>
<tr>
<th>Experiment</th>
<th>Odd-Numbered Lab Sections</th>
<th>Even-Numbered Lab Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Recrystallization and Determination of Melting Point</td>
<td>Online. Week of January 24.</td>
<td></td>
</tr>
<tr>
<td>2. Separation of a Two-Component Mixture by Extraction</td>
<td>Week of February 7</td>
<td>Week of February 14</td>
</tr>
<tr>
<td>3. TLC Analysis of Spinach Pigments</td>
<td>Week of February 28</td>
<td>Week of March 7</td>
</tr>
<tr>
<td>4. Acetylation, Oxidation, and Hydrolysis of Carbohydrates</td>
<td>Week of March 14</td>
<td>Week of March 21</td>
</tr>
<tr>
<td>5. Fats, Oils, Soaps, and Detergents</td>
<td>Week of March 28</td>
<td>Week of April 4</td>
</tr>
</tbody>
</table>

If Experiment #2 is required to be online, then the following schedule would apply:

<table>
<thead>
<tr>
<th>Experiment</th>
<th>Odd-Numbered Lab Sections</th>
<th>Even-Numbered Lab Sections</th>
</tr>
</thead>
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<td>Week of March 28</td>
<td>Week of April 4</td>
</tr>
</tbody>
</table>

All lab-related enquires should be directed to the Chem 2003B Laboratory Coordinator:

- Sandra Zakaria Holtslag  MSA 1235  szakaria@uwo.ca
### Anticipated Class Topics

<table>
<thead>
<tr>
<th>Chapter</th>
<th>General description</th>
<th>Approx. classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Structure and Bonding (review of 1st year; self-study section)</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Acid-Base Reactions (some material from 1st year)</td>
<td>1.5</td>
</tr>
<tr>
<td>3 and 4</td>
<td>Structure of Organic Compounds&lt;br&gt;Functional groups, physical properties, nomenclature, alkanes, cycloalkanes, conformations, isomerism</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Alkenes and Introduction to Reactivity (some material from 1st year)</td>
<td>1.5</td>
</tr>
<tr>
<td>6</td>
<td>Reactions of Alkenes &amp; Alkynes</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Tentative Midterm Test #1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Delocalization, Stability, and Aromaticity (some material from 1st year)</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>Alkyl Halides – Substitution and Elimination</td>
<td>2.5</td>
</tr>
<tr>
<td>9</td>
<td>Alcohols, Amines, Ethers, and Epoxides</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>Tentative Midterm Test #2</td>
<td></td>
</tr>
<tr>
<td>11–13</td>
<td>Compounds with Carbonyl Groups</td>
<td>6</td>
</tr>
<tr>
<td>16</td>
<td>Carbohydrates</td>
<td>3</td>
</tr>
<tr>
<td>17</td>
<td>Amino Acids</td>
<td>2</td>
</tr>
<tr>
<td>20</td>
<td>Lipids</td>
<td>2</td>
</tr>
<tr>
<td>18</td>
<td>Overview of Enzymes and Coenzymes</td>
<td>1</td>
</tr>
</tbody>
</table>

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.

### Evaluation

#### Components

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.

<table>
<thead>
<tr>
<th>Component</th>
<th>Notes</th>
<th>Normal Value</th>
<th>Test 1 Missed</th>
<th>Test 2 Missed</th>
<th>Tests 1+2 Missed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test #1*</td>
<td>Saturday, Feb. 12th, 7:00 - 8:15 pm</td>
<td>20</td>
<td>--</td>
<td>20</td>
<td>--</td>
</tr>
<tr>
<td>Test #2*</td>
<td>Saturday, Mar. 19th, 7:00 - 8:15 pm</td>
<td>25</td>
<td>35</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Scheduled by the Registrar</td>
<td>40</td>
<td>50</td>
<td>65</td>
<td>85</td>
</tr>
<tr>
<td>Laboratory</td>
<td>Five experiments (3.00 each)</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

* Tentative dates and times.
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 they were legitimately missed.

**There are no make-up labs or tests.** See Missed Course Components for more details.

**To obtain credit for the course, all three 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.

**Tests and examinations in this course will be conducted using a remote proctoring service, such as Proctortrack.** By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide personal information (including some biometric data) and the session will be recorded. More information about this remote proctoring service is available in the Online Proctoring Guidelines at the following link:

https://www.uwo.ca/univsec/pdf/onlineproctorguidelines.pdf

**Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service.** Information about the technical requirements are available at the following link:

https://www.proctortrack.com/tech-requirements/

**Important Legalities**

It is Department of Chemistry policy that any student repeating a chemistry course must repeat the entire course, including the lab component. There are no lab exemptions.

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 this website: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

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.
Missed Course Components

If you are seeking academic accommodation because of a medical (physical or mental) illness, please begin by contacting the Academic Counselling Office of your home faculty (or affiliated college). Western’s policy on academic accommodation for illnesses can be found at http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf.

All requests for academic accommodation must go through your faculty’s Academic Counselling Office, so please contact them and not your instructor.

If you are unable to meet a course requirement due to illness or other serious circumstances, you must seek approval for the absence as soon as possible. Approval can be granted either through a self-reporting of absence or via the Dean’s Office/Academic Counselling unit of your Home Faculty. For further information, please consult the university’s policy on academic consideration for student absences: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf.

It is the student’s responsibility to make alternative arrangements with their instructor, if necessary, once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a “Recommendation of Special Examination” form must be obtained from the Dean’s Office immediately. For further information please see: http://www.uwo.ca/univsec/handbook/appeals/medical.pdf.

If you are a science student, the Academic Counselling Office of the Faculty of Science is located in WSC 140, and can be contacted at 519-661-3040 or scibmsac@uwo.ca. Their website is http://www.uwo.ca/sci/undergrad/academic_counselling/index.html.

If you are a Brescia student, the Academic Counselling Office is located at The Hive in the St. James Building, and they can be contacted at 519-858-5151 or brescia@uwo.ca. Their website is http://brescia.uwo.ca/thehive.

A student requiring academic accommodation due to illness must use the Student Medical Certificate (http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf) when visiting an off-campus medical facility.

Missed Labs

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 due to a reason that is approved by your faculty’s Academic Counselling Office, the zero will be replaced by a mark of EXCU (excused), which shifts the weight of the missed lab onto all of the other labs.

You must, as soon as you’re able to do so, submit documentation to your faculty’s Academic Counselling Office. If they approve your circumstances, we will be notified.

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.
Missed Test or Final Exam

**Please note that there are no make-up tests.** If your faculty’s Academic Counselling Office has approved your circumstances, the value of the missed test will be reallocated as described in the evaluation scheme.

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 (the name given by the university to a makeup Final Exam) in May.

You may also be eligible to write the Special Exam if you are in a “Multiple Exam Situation” (see http://www.registrar.uwo.ca/examinations/exam_schedule.html).

**How to Achieve Your Goals in Chem 2003B**

1. **Staying on top of the material is the most important thing to do!**

   Organic chemistry is cumulative. Concepts build on top of previously learned concepts. Former Chem 2003B students have said that virtually all of their friends who stayed on top of the material performed well. Likewise, 95% of the students who performed poorly in the course admitted that it was because they either fell behind or didn’t put much effort into the course.

2. **Learn and understand the course material – don't just memorize it.**

   Our studies have shown that students who learn the course material by memorizing it or studying it superficially perform worse than students who examine the material in detail and thoroughly understand it. Learn *why* something is the way it is, not just *what* it is.

3. **Focus on the “big picture” and make connections.**

   Look for similarities between different organic reactions. Use fundamental principles to explain the reactivity of functional groups. How does one chapter relate to the next?

4. **Learn from the textbook and old-exam questions – don’t just figure out what the answer is.**

   When working on questions from the textbook and the old exams, your objective should not be to simply get the answer. Rather, focus on the concepts, the approach, the thought process, how to arrive at the answer, and of course, why the answer is the answer!

5. **Don’t just come to class – get something out of coming to class!**

   Be attentive. Listen. Participate. Think. Write down important points. However, try to avoid spending so much time writing that you’re not thinking.
6. Take an interest in the material, or at least appreciate its importance.

Organic chemistry is the basis for life on earth. Think about all the organic molecules around you, all the enzyme-catalyzed reactions that are taking place inside our bodies, and how a tiny change to a single, simple functional group in a protein could result in a serious disease.

7. If you have questions about the course material, do not wait until shortly before the midterm.

Ask questions as soon as they arise. Take advantage of the Resource Room. Also note that if you wait until just before the midterm, the Resource Room and your instructor will be swamped.

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 paperwork in the Faculty of Science Dean’s Office. 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.