Chemistry 2273a 2016: Organic Chemistry I: STRUCTURE AND SPECTROSCOPY

Instructor: Dr. Mark S. Workentin ChB 223

Class Times: Mon., Wed., Fri. 9:30-10:20 UCC 37

Office Hours: Open door but better to email me to arrange a time to meet

Course Web-Page: https://owl.uwo.ca/portal

Course E-mail: mworkent@uwo.ca

When sending email to this account use “2273” to start the subject line. Emails from registered students emanating from @uwo.ca accounts will be answered as soon as possible, in class, or something will be posted on WEBCT. Emails from other service providers will not be answered. How am I to know who twofortheroad@gmail.ca is???

Twitter: Follow chemistry @westernuchem or me @WorkentinChem and join the conversations.

Required Materials, Text and other Purchases: Available in the bookstore

  • This is a binder ready version with electronic resources that also gives access to the electronic version of the text.

  Note: This text will be used for Chem 2283g and a text/resource in Chem 3373

Chemistry 2273a will cover approximately chapters 1-7, 15, 16 and smattering from a couple other chapters. Chemistry 2283g covers material from the rest of the text.

• Recommended: Darling Molecular Model Set

• Hard cover laboratory notebook with ruled pages. This book may be shared with other lab courses.

• Safety Glasses with side-panels and laboratory coat. (required, but you should already have them!)

• Laboratory Manual. To be purchased separately. Details TBA.

Evaluation: The final grade for the course will be determined by the following:

Laboratory Mark (Attendance and completion of all laboratory experiments, including reports, is mandatory. See attached schedule) 15% (4 labs)

On-line Assessments- WileyPlus/Orion 10%

Term Test of Knowledge 1, Wed. October 19, 6:30-8:30 p.m. Locations TBA 25%

Term Test of Knowledge 2, Friday, November 11, in class Locations TBA 15%

Final Exam, cumulative: 3 hours, time and location set by Registrar 35%

* you must achieve a passing grade in the labs (7.5/15) and a grade of 38/75 on the three written assessments to pass the course. If these conditions are met a final grade of 45% (or lower) will be assigned.

Accessibility Statement

Please contact the instructor if you require information in an alternate format, or if any other arrangements are needed to make this class accessible to you. Advance notice of planned interruptions will be made in class and by e-mail to @uwo.ca accounts. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.
Rough Lecture Topic Outline:

Material to be included on Midterm Test of Knowledge 1: Chapters 1-5, part of 15

Material to be included on Midterm test of Knowledge 2: Chapters 15, 16

Material to be included on the Final Examination: All of above + Chapters 6 and 7 (and smattering of others as communicated)

Learning Outcomes. Develop an understanding of organic chemical structure and stereochemistry. Relate structure of organic compounds to stability, acidity and basicity. Begin to develop the ability of using spectroscopic techniques (IR and NMR spectroscopy) and Mass Spectrometry to elucidate the structure of organic compounds from spectra. Begin to understand how to show election movement and arrow pushing to predict the reactions of organic compounds by looking at nucleophilic and elimination reactions. In the laboratory you will learn techniques for chemical separation and purification.

Laboratory Schedule

All Labs are carried out in the Chemistry Building Room ChB 074 (lower ground floor). You must attend the laboratory section to which you are registered. If you miss a laboratory, you must see your TA or Prof. Workentin for alternative arrangements as soon as possible after missing the lab.

Laboratory Director: Dr. Chris Levy ChB 117
Laboratory Technicians: Robin Hall ChB 089

Laboratory Teaching Assistants (TAs)
TBA

Section 33: Wednesday 2:30 p.m. – 5:30 p.m.  TAs: TBA
Section 41: Thursday 9:30 a.m. – 12:30 p.m.  TAs: TBA
Section 43: Thursday 2:30 p.m. – 5:30 p.m.  TAs: TBA
Section 45: Thursday 6:00 p.m. – 9:00 p.m.  TAs: TBA
Section 53: Friday 2:30 p.m. – 5:30 p.m  TAs: TBA

To reach your TA by email, please indicate 2273 in the subject line.

NOTE: If you go looking for your TA, you are not permitted to enter research labs unless you are properly attired and are wearing safety glasses. These are working labs and with hazardous environments, use caution!
<table>
<thead>
<tr>
<th>Week Starting</th>
<th>Experiment</th>
<th>Report Style</th>
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<tbody>
<tr>
<td>September 12</td>
<td>Check-in and Lab 1: Part A: Thin-Layer Chromatography (TLC ) Analysis of Analgesics</td>
<td>Data Sheet Due: at the beginning of the next lab during the week of Sept. 19</td>
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<td>(first full week!)</td>
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<tr>
<td>September 19</td>
<td>Lab 1: Part B: Thin-Layer Chromatography and Column Chromatography: Extraction and Separation and Plant Pigments</td>
<td>Laboratory Report Due: in class by Friday, Oct. 7</td>
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<td>September 26</td>
<td>Chem 2271A Labs- No organic labs</td>
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<td>October 3</td>
<td>Chem 2271A Labs- No organic labs</td>
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<td>October 10</td>
<td>Lab 2: Liquid-Liquid Extraction – Separation of Organic Acid, Organic Base and Neutral Components of a Mixture</td>
<td>Laboratory Report</td>
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<tr>
<td>October 17</td>
<td>Lab 2 continued: Recrystallization as a means of purification of organic solids</td>
<td>Due: in class by Mon. November 7</td>
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<td>Test of Knowledge</td>
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<td>October 31</td>
<td>Chem 2271A Labs - No organic labs</td>
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<tr>
<td>November 7</td>
<td>Chem 2271A Labs - No organic labs</td>
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<td>November 14</td>
<td>Chem 2271A Labs AND ORGO LABS</td>
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<tr>
<td>Test of Knowledge</td>
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<td>November 14</td>
<td>Lab 3: Practical NMR and IR Spectroscopy and Mass Spectrometry</td>
<td>Note: this will be held in a different lab room TBA</td>
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<td>November 21</td>
<td>Lab 3: Practical NMR and IR Spectroscopy and Mass Spectrometry and Structure Solving Session</td>
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<tr>
<td>November 28</td>
<td>Lab 3, continued: Structure Solving Session</td>
<td>Laboratory Report Due: no later than in class Wed, Dec. 7</td>
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Classes End December 7.
Important Notes Regarding Your Evaluation and Your Responsibilities in this Course:

1) **Prerequisite:** A Mandatory Notice from the Registrar:

"Unless you have either the prerequisites for this course or written special permission from your Dean to enroll in it, you will 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."

**Prerequisites:** Chem 1301A and 1302B (or equivalent) with a minimum mark of 60%.

2) **Missed Work: Midterm Test or Exam:**

Failure to write a midterm test or final exam will result in a zero grade in the course, unless a valid excuse has been filed with the **Dean's Office.** It is the student's responsibility to ensure that medical slips, etc. are filed with the **Dean's Office** and that a copy is sent to your instructor (not your laboratory demonstrator).

   - **Note 1:** If a midterm test is missed for valid reasons, the % will be transferred to the final examination. There are NO alternate midterm tests.
   - **Note 2:** If the final exam is missed for valid reasons, a Special Exam (SPC) may be requested through the Dean's Office. **By University regulation, the SPC will be written on the University approved day.**

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Dean's office as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor 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](http://www.uwo.ca/univsec/handbook/appeals/medical.pdf)

A student requiring academic accommodation due to illness (labs, quizzes assignments, tests, exams), should use the Student Medical Certificate when visiting an off-campus medical facility or request a Records Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found here: [https://studentservices.uwo.ca/secure/medical_document.pdf](https://studentservices.uwo.ca/secure/medical_document.pdf).

Students wishing accommodation for religious, athletic or other special circumstances should consult with the Instructor well in advance of the date in question.

3) It is the policy of this department that when a student takes a test or examination, they have deemed themselves fit to do so. Claims of distress or medical issues after the fact will not be considered for the basis of a grade appeal.

4) **Missed Work: Laboratory**

Failure to complete a laboratory experiment, including the report, will result in a zero grade for the laboratory and potentially jeopardize completion of the course, unless a valid excuse has been filed with the **Dean's Office.** It is the student's responsibility to ensure that medical slips, etc. are filed with the **Dean's Office** and that a copy is sent to your instructor (not your laboratory demonstrator). Once notified by the Dean's Office the instructor will make the appropriate accommodation, such accommodation must be sought in a timely manner by the student.

Only one laboratory may be excused, if more than one complete lab is missed with or without proper legitimate reasons, the course will be deemed incomplete.

5) **Policy on late work:** Laboratory reports have set due dates. A piece of work will not be accepted (that is, it will be given a grade of zero) if it is more than one week late or if graded work has already been returned to the class, whichever is first. Otherwise, laboratory reports will lose 5% per day past the due time/date.
7) **Plagiarism and Cheating**: Chemistry 2273a has a ZERO tolerance for plagiarism and cheating. Cases of cheating or plagiarism may result in a zero grade for Chemistry 2273a and the individual will be reported to the Chair and the Dean who may administer further sanctions.

Plagiarism is a major academic offence: see Scholastic Offence Policy in the Western Academic Calendar.

Students must write their laboratory reports and tests on their own and in their own words and without collaboration unless explicitly allowed by the Instructor. Whenever students take an idea, or a passage from another author or student, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations.

*Whenever possible, tests and exams may be checked with software that checks for unusual coincidences in answer patterns that may indicate cheating.*

8) **Attendance**: Students are expected to attend course lectures and participation in the class is considered to be an integral and essential component of the course. Poor attendance can result in a student being barred from writing the exam following procedures provided in the academic calendar.

A complete listing of your Academic rights and responsibilities may be found on the Registrar's and associated websites, starting at:

http://www.westerncalendar.uwo.ca/