

Chemistry 2213a Course Outline 2023 Edition

Organic Chemistry for Life Sciences

Course Website

A common OWL website has been created for all students enrolled in Chemistry 2213a and is the primary link for the Chem 2213a 2023 version. It is your responsibility to check OWL (<http://owl.uwo.ca>) on a regular basis for news and updates. The missing of critical information due to failure to check OWL cannot be used as a basis for appeal.

Lecture notes and other resources will be made available through OWL. Students are responsible for embellishing their own notes.

Instructor and Lecture* Information

Lecture Section	Time and Room	Instructor	Email
200	MWF 12:30 – 1:20 NCB 101	Professor Mark Workentin (he/him/dad)	Use Message in OWL
201	MWF 1:30 – 2:20 NCB 101	Still Professor Workentin (sorry about this!)	Use Message in OWL

Get to know me beyond the “classroom”: follow me on Instagram: [@WorkentinChem](#)

***We will meet 3 times a week IN CLASS during the lecture time. The plan is to try to use one session per week for an active learning sessions (tutorials). These will start the week of September 18. These will only work if you do assigned problems.**

Email Policies

Please use the *Message* tab in OWL to contact your instructor. Use your Western email account ALWAYS, including when registering in WileyPlus! Communication from a non-uwo.ca address will not be answered and your [@uwo.ca](#) address allows me to link your work to my gradebook

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I acknowledge that Western University is located on the traditional lands of the Anishinaabek (Ah-nish-in-a-bek), Haudenosaunee (Ho-den-no-show-nee), Lūnaapéewak (Len-ahpay-wuk) and Attawandaron (Add-a-won-da-run) peoples, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum. This land continues to be home to diverse Indigenous peoples (e.g. First Nations, Métis and Inuit) whom I recognize as contemporary stewards of the land and vital contributors of our society.

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This Chemistry-Progress Pride logo is used with permission of the University of Michigan and is partially credited to artist John Megahan. It combines the Progress Pride flag with the periodic table. The Progress Pride flag was designed by Daniel Quasar, who identifies as queer and nonbinary. It combines the traditional gay pride flag with the white, pink, and light blue reflect the colors of the transgender flag, and brown and black stripes representing people of colour. The idea of “you are welcome here” is to highlight that **we are committed to ensure #orgo2213 is a safe place for all.**

Course Materials

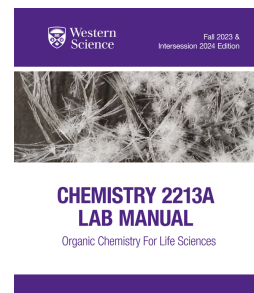
In addition to resources on OWL the following materials are key resources for success in #orgo2213:

Required course materials:

1) **Organic Chemistry for Life Sciences Chemistry 2213a Lab Manual - Fall 2023 and Intersession 2024 Edition \$71**

Available from the Bookstore- price is set by the department not me!

SKU: 9781533962768



2) eTextbook:– **list price: \$94 – Klein, Organic Chemistry, 4th Edition Integrated E-Text Reg Card w/WileyPLUS 180 Semester Set – this has the permanent ebook that will be used for CHEM 2223B.**

ISBN:

9781119863885

SKU:

CEB_BUNDLEID=20000065

(a hard copy is also available, but is more expensive, if you prefer that)

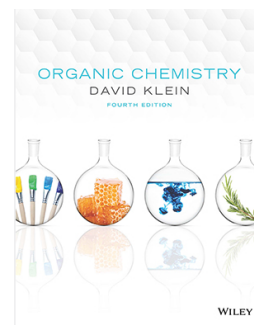
SBN:

***Key code access available from Western Bookstore:

<https://bookstore.uwo.ca/>.****

Author: David Klein Publisher: Wiley, Edition: 4th

See OWL for more details



3) Optional but highly, highly, highly recommended material:

(you can use these on tests of knowledge and the final exam).

- Molecular Model Kit, the Flex Molecular Visions Model kit by Darling
- **Same as you used in first-year chemistry.**
- **SKU:** 0964883716 (available from Western Bookstore: <https://bookstore.uwo.ca/>.)



Rough Outline of Course Topics

Module	Description	Text Sections	Rough # Classes*
Refresher	Structure and Bonding (review of 1 st year; self-study sections) (including self-study- See lesson Nomenclature)	Chapter 1/2	0.5
1	Anatomy of an Organic Molecule	Chapter 2	1.5
2	Organic Molecules as Acid-Base Reactions (some material from 1 st year)	Chapter 3	2
3	Fundamentals of Organic Structure (primarily from 1 st year) Structure of Alkanes, Cycloalkanes,	4.3, 4.6-4.14	4
4	Isomerism and Stereochemistry (primarily from 1 st year)	5.1-5.3 5.5-5.8 5.11 Parts of 5.4	2
5	Alkyl Halides and Nucleophilic Substitutions and Eliminations	7.1, 7.3-7.8 7.9, 7.11, 7.12	5
Test of Knowledge: Oct. 21 7:30-9:30 p.m.			
6	Addition Reaction of Alkenes	8.1, 8.4-8.8, 8.9 (not homogeneous cat), 8.10, 8.11, 8.	3
7	Aromaticity and Electrophilic Aromatic Substitution	17.1-4 (part), 17.5 18.1-18.6 (reactions 1-6 in review)	2
Study Week October 30-November 5			
8	Alcohols and Phenols Reactivity	12.1-12.6, 12.7, 12.9, 12.10 13.5-6, 13.8, 13.10, 13.11	3
9	Structure Elucidation: IR, ¹³ C-NMR, ¹ H-NMR	IR: 14.1-14.7 (14.6!) NMR: 15	3
10	Chemistry of Aldehydes and Ketones	19.1-19.6 (parts), 19.7, 19.9, 19.10 (parts), 19.11	4
11	Carboxylic Acids and Derivatives	20.1-3 (review) 20.4-20.12	3
Final Exam during the December exam period.			

The final test of knowledge is cumulative.

Rough # of classes indicates how many lecture times. Including tutorials.

Evaluation

The overall course grade, out of 100, will be calculated as listed below. Listed next to the respective components are their maximum contributions toward the course grade.

Component	Notes	% of total grade
Test of Knowledge	Saturday, October 21 7:30-9:30 p.m. Details to follow	25
Final Exam	TBA by the Registrar IN PERSON ON CAMPUS	45
Laboratory	Five experiments (4.00 each)	20
WileyPlus Keeping-up Assignments	Multiple tries- incentive to keep up Must complete 7 out of the 10. Top 7 assignments will be used to determine grade out of 10%	10
#orgo2213islife Social Media/Peer Engagement	Optional. Fun way to engage and earn 3%! details to come Top 5 submissions every week have Quaff with the Prof on-campus coffee	Bonus 3% to Final Grade (deadline Nov. 20, 2023)

Please note that the labs and assignments have built in academic consideration not requiring formal approval or request for academic consideration.

There is no make-up Test of Knowledge. The weight of a missed test will be shifted to the cumulative final examination upon confirmation of absence from your faculty academic counsellor.

To obtain credit for the course, it is necessary to obtain a minimum of 35 points (out of a possible 70) on the major test components *and* a minimum of 10 out of 20 on the laboratory component. The 35/70 will be calculated as follows: [(your grade out of 25 on midterm) + (your grade on final out of 45)] must be equal or greater than 35. *Failure to meet these criteria for passing will result in an INC or a course grade of 40% (or lower) being assessed.*

While 103% is possible, no mark above 100% can be recorded officially on transcript.

Students who miss a laboratory for any reason must contact chem2213lab@uwo.ca. A missed experiment is assigned a grade of zero unless the absence is acknowledged by the laboratory coordinator. They may request a formal note from your faculty's Academic Counselor (see Missed Course Components). Students who miss more than once experiment, whether formally excused or not, will not be given course credit and will be assigned a grade of INC or one no higher than 40%.

All of the components above count for grade calculation; none of the components will be "dropped." Re-weighting of any component will only be done under the circumstances listed below for missed course components.

Laboratory Information and Schedule

Labs are in person and you must attend the section in which you are registered. Each laboratory section has its own OWL site. You will be told the lab location on the lab OWL page.

There are prelab technique videos on OWL that must be watched and an online prelab quiz that must be completed before the start of your scheduled laboratory session. These will be available at least one week prior to your lab section. The prelab quizzes are worth 20% of each laboratory and cannot be taken until the videos are viewed.

The Data Sheets provided in the Laboratory Manual are filled out as you perform the experiment and are due at the end of the lab session. If you prepare, attend and participate then you should achieve a very good grade in your labs (the class average is always around 19/20). However, if you come with data sheets pre-filled or copy others work you will get zero on the laboratory and more sanctions are possible. Just come prepared and have fun!

On the weeks that you are not scheduled for a laboratory, use this time to work on course materials or use the Resource Room. Details at start of term.

Lab-related enquires should be directed to the Chem 2213a Laboratory Coordinator:

- Sandra Zakaria Holtslag MSA 1235 (next to year-1 lab) chem2213lab@uwo.ca

You must complete a minimum of 4/5 labs to pass the course, excused or not. If you miss a lab you must contact chem2213lab@uwo.ca.

Please note that there are 3 breaks in the schedule due to the observed day for the National Day for Truth and Reconciliation, Thanksgiving Day, and the Fall study break.

Experiment	Odd-Numbered	Even-Numbered
	Lab Sections	Lab Sections
1. Synthesis, Recrystallization and Determination of Melting Point	Week of September 18	Week of October 2
2. Separation of a Three Component Mixture by Extraction	Week of October 16	Week of October 23
3. Preparation and Tests for Reactivity of Alkyl Halides	Week of November 6	Week of November 13
4. Synthesis of Cyclohexene and Tests for C=C Bonds	Week of November 20	Week of November 27
5. Tests for Carbonyl Compounds	Week of December 4 * 1st half of the lab session	also, Week of December 4 * 2nd half of the lab session

Missed Labs

There are no make-up in-person 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 and no grade will be given for the pre-lab exercises in these cases, unless you contact the lab coordinator at Chem2213lab@uwo.ca for further direction. If the missed lab is due to a reason that is approved by the laboratory coordinator, you will be excused from that lab and the weight of the missed lab will be shifted on to the other 4 labs. **You must complete a minimum of 4/5 labs to pass the course, excused or not.**

You must, as soon as possible, report your absence to chem2213lab@uwo.ca. **Do not report your absence directly to the instructor or your faculty counselling office; contact the lab coordinator as above.** Academic considerations will be handled on a case by case basis.

Tests and exams will contain questions related to the theoretical aspects of the experiments. Students are responsible for the material pertaining to all labs even if you missed the lab.

Resource Schedule

Chem 2213a operates a TA Resource at designated times during the week. The location and times will be announced as we learn details of space allocation will be announced weekly on OWL. Additionally, these same TAs will be engaging on Forums tab on OWL.

Other Missed Course Components

If you are unable to meet a course requirement due to medical/health issues or other serious circumstance:

WileyPlus Module Quizzes (worth 10%)

Do not report missing a deadline for the Module quizzes. There is built in academic consideration. You must complete 7 of the 10. Top 7 will be used in grade calculation. Because these assignments/quizzes are open for at least one week there is NO academic consideration for them being missed beyond the requirement that you must only complete at least 7/10 of them. I recommend doing them all as they will help keep you on track and are good practice for the tests of knowledge.

Missed Tests of Knowledge or Final Exam

There is no make-up for the midterm test of knowledge. If you miss the midterm test of knowledge for an approved reason, then the value of the test will be shifted to the cumulative Final Exam. If you miss the Midterm Test of Knowledge, contact your faculty's Academic Counselling Office as soon as possible. If you do not write the Final they alone will assess your eligibility for consideration to write the Special Exam in January 2024.

You must provide valid medical or supporting documentation to the Academic Counselling Office of your Faculty of Registration as soon as possible. For further information, please consult the University's medical illness policy at https://uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration.pdf

Chem 2213a entrusts the system and your faculty's Academic Counselling Office with the task of assessing your circumstances and deciding whether academic consideration is warranted.

All reasonable requests will be granted. **Do not message your instructor.** I will not respond to emails related to absences or confirm that I have received notification from through Extranet.

Missed Labs

See Laboratory Section above

Missed Bonus Assignment

This is completely optional.....but submissions must be before the deadline

Mandatory Notice from the Registrar

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. The prerequisite for this class is Chemistry 1301A/B AND 1302A/B. The website of the Registrar is <http://www.registrar.uwo.ca>.

Accessibility

If you require material in an alternate format or if any other arrangements can make this course more accessible to you please see Accessible Education Western (aw@uwo.ca) for resources available:

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

#Orgo2213Wellness

This enabling course covers a lot of material in a single term. It is important to do your best at time management and use all the resources available to keep on top of things. We cover about a chapter of the textbook a week (yikes!) so that we can provide you the tools for other courses in your modules. This is only a course – a great course- but only a course. Western University, and us in chemistry, are committed to a thriving campus; therefore, your health and wellness matter to us!

The following link provides information about the resources available on and off campus to support you: <https://www.uwo.ca/health/>

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Messages to the instructor should only be used for administrative purposes; I will respond to legitimate concerns as quickly as possible. Messages of the following nature will receive no response:

- Questions about course material or how to do a particular problem. Such questions should be addressed in Forums, at the active learning in class sessions, or the TA Resource time.
- Questions that can be answered based on the information found in this course outline, on OWL or within the academic calendar.
- Requests for grade increases, extra assignments, make-up labs (see Laboratory Section).

Scholastic Offenses

Scholastic offences are taken seriously even for laboratory experiments, and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following website:

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

https://uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_chart.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. If needed assessments will be moved on-line. You will be requested to make an ethics affirmation that you will take all tests as directed and not use additional resources of any type.

No electronic devices (phones, calculators, tablets, e-watches, etc.) may be in your possession during the tests/exam.

Student Development Centre

Students are encouraged to make use of the free, study-skills courses and other services, including learning-skills counseling, provided by the Student Development Centre, <http://www.sdc.uwo.ca>

Acknowledgment of the Science Student Donation Fund

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.

Equal Opportunity and Evaluation Policy

The University is committed to academic integrity and has high ethical standards. All students will be treated equally and evaluated strictly using the criteria presented in this course outline and their respective weights. The evaluation is based solely on actual achievement; arguments based on effort, attendance, or personal issues (finance, relationships, etc.) are not entertained.

There is no extra work available for extra credit or to "make up" another grade; we do not offer any extra assignments, essays, experiments, or other work of any kind to any student. Given the liberal grading system with up to 3% bonus possible there will be no "bumping" grades, like from a 79 to and 80 etc.

How to Achieve Your Goals in Chem 2213a- 2023 Ed.

1. **Come to lecture and/or use Module Resources effectively!**

Be attentive in lectures, participate by filling in notes and think (about organic chemistry).

2. **Stay on top of the material. (Read and Write)**

Organic chemistry is cumulative. Concepts build on top of previously learned concepts. Former Chem 2213a students have noted the importance staying on top of the material to perform well in the course. There is a significant curriculum associated with this course, and the pace requires that you keep up-to-date with the material. To help there will be regular WileyPlus Quizzes (assignments) for grades and a test of knowledge.

3. **Learn and understand the course material – don't just memorize it. (Practice!)**

Try reading ahead before lectures. Come to lecture or watch the online material provided. Definitely do the end of chapter problems from text and those provided in the lessons on line- many of the exam questions are based on (or are) these types of problems. Do problems! Do problems! Do problems! Weekly live active learning tutorial sessions will focus on problem solving based on your contributions to discussion in the Forum tab on OWL.

4. **Focus on making connections. (Think! You can DO IT!)**

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?

5. **Learn from the textbook and supplemental questions. (Use Resources)**

When working on questions from the textbook or supplemental problems your objective should be to focus on the concepts, the approach, the thought process, how to arrive at the correct answer and understand why it's the answer.

6. **If you have questions about the course material, address them promptly.**

Ask questions as soon as they arise, post issues (and help) in the peer-to-peer forums, don't be afraid to engage your instructor in lecture, take advantage of the Resource times, don't wait until just before tests.

7. **Have fun! Stay engaged. Orgo is all around us in everything. Orgo is everywhere!**