

ORGANIC CHEMISTRY II – CHM 2120B

FALL 2016

Professor: Dr. Julian Chan
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D'Iorio Hall (DRO)
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Blackboard: <https://uottawa.blackboard.com/webapps/login/?action=login>

Details and information for the course are located here. Check it regularly.

- Important announcements are posted here.
- Blackboard may also be used to post your unofficial marks.
- Links to videos are also posted on Blackboard (Modules section).

Prerequisite: CHM 1321

Prof. Office Hours: Fridays, 12:00 pm – 1:00 pm

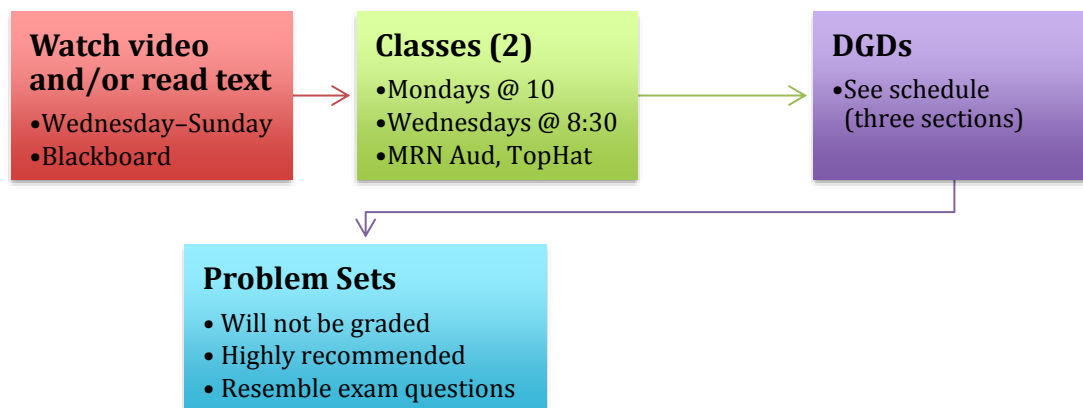
T.A. Office Hours: T.B.A.

Course format: This course is taught in a flipped classroom format. You will learn much of the basic content by watching a short video (required) and/or reading the textbook (optional) before coming to class. In class, we will work on problem-solving exercises that address key concepts, and look at strategies for tackling complex problems. Lecture notes (partial) will be posted on Blackboard before class. Have these 'skeleton notes' printed out or available in electronic format so that you can fill in the blanks during class. You will finish off each week by completing a problem set (ungraded but highly recommended as they will resemble exam questions) at home to solidify your understanding. Bring questions related to the problem sets to DGDs and/or our office hours.

By learning the easier concepts on your own, then working on more challenging exercises together in class, and wrapping up each week with problems to solidify your understanding, you will be better prepared for exams.

Be advised that the flipped classroom format only works well if you come to class prepared, i.e. you have watched the videos and/or done the suggested readings. This enables you to derive maximum benefit from the in-class problems.

Here's what the weekly schedule looks like:



Classes: Attendance and participation in class is key to your success in the course.

Section B

Mondays	10:00 – 11:30 am	MRN AUD
Wednesdays	08:30 – 10:00 am	MRN AUD

DGDs: You may attend any or all of the DGDs.

Monday	2:30 – 4:00 pm	LPR 155
Tuesday	2:30 – 4:00 pm	SCR 002
Tuesday	5:30 – 7:00 pm	TBT 333

Teaching Assistants:

Madeleine Adam: madam021@uottawa.ca	Luke Farmer: lfarm009@uottawa.ca
Julia Meyer: jmeyer079@uottawa.ca	Christian Tessier: ctess096@uottawa.ca
	Guoxian Zhang: gzhan082@uottawa.ca
(Two <u>DGD</u> TAs, four <u>marking</u> TAs)	Craig Yu: pyu057@uottawa.ca

Assessment:	TopHat* (participation):	10%
	Midterm 1 (cumulative): Wed, Oct 5 , in class	15% – 25%**
	Midterm 2 (cumulative): Wed, Nov 16 , in class	15% – 25%**
	Final Exam (cumulative): T.B.A.	40% – 60%**
		<hr/>
		Total: 100%

* TopHat mark = YourTopHatMark/0.80 (max 100%).

**The weighting that gives you the best result will be used to calculate your final mark.

TopHat: You can register here: <https://app.tophat.com/register>. The course can be found here: <https://app.tophat.com/e/109021> or by searching for CHM 2120B Fall 2016. You will be able to answer Top Hat questions in class via a web browser or by texting your response. A mobile app for Top Hat is also available. More info about Top Hat is posted on Blackboard.

TopHat marks are based on participation (i.e. 100% for an answer, 0% for no answer). Marks are awarded even if you answered incorrectly. Your TopHat mark is calculated as follows: TopHat mark = YourTopHatMark/0.80 (max 100%) (i.e. you can miss up to 20% of TopHat questions without penalty).

TopHat questions will be used starting from the very first class on Wednesday, September 7. However, they will only count for points starting from Monday, September 12 and in every subsequent class.

Bb Problem sets: Keeping up with the problem sets (on Blackboard) is essential for success in the course. No marks are given for completing problem sets, but the midterms and final exam will closely resemble the types of questions featured in these problem sets. Solutions will be made available, but give the questions your best try before checking the answers.

Re-grades: Requests for midterm re-grades must be submitted to me in my office no more than five (5) days from the first day midterms are available for pick-up. Submissions after the deadline will **not** be considered. Please write the question number to be considered at the top of your midterm. The entire exam will be re-graded; your new score could be *lower* than your original score. Do not write anywhere on your midterm. Midterms suspected to have been altered in any way will be referred to the academic fraud committee.

- Textbook:** *Organic Chemistry, 7th Edition*, William H. Brown *et al.* (optional)
<http://www.coursesmart.com/> (or www.vitalsource.com)
 You can also get earlier editions of the text or similar textbooks (e.g. *Organic Chemistry* by Klein or Solomons or Wade).
 If you will be taking CHM 3120 (3rd year organic), you can use the text, *Organic Chemistry*, 2nd edition by Clayden, Greeves, and Warren in this course, too.
- Animations:** *Organic Chemistry Flashware* (<http://flashchem.nelson.com/>) animates mechanisms, shows them step by step, and shows the accompanying orbitals.
- Models:** I strongly recommend using “Darling” *molecular models*. These are available in MRN 308 (where the laboratories are held). You can bring your models to the midterms and exam.

Course outline

Review: you are responsible for all material from CHM 1321.

Nomenclature: At nomenclature101.com you can create customized quizzes; you should be able to do quizzes created from the following image:

Create your own quiz

1 Select a question type:

- Identifying the functional groups
- Naming molecules
- Drawing molecules

2 Select structures with:

- No functional groups; alkanes only
- Only one functional group
- More than one functional group
- Stereogenic centres (*R/S*)

3 Select a category of compounds ([More info](#))

<input checked="" type="checkbox"/> Hydrocarbons	<input type="checkbox"/> Oxygen-containing	<input type="checkbox"/> Nitrogen-containing	<input type="checkbox"/> Sulfur-containing	<input type="checkbox"/> Others
<input checked="" type="checkbox"/> Alkanes <input checked="" type="checkbox"/> Alkenes (without <i>E/Z</i> configurations) <input checked="" type="checkbox"/> Alkenes (with <i>E/Z</i> configurations) <input checked="" type="checkbox"/> Alkynes <input checked="" type="checkbox"/> Cyclic compounds	<input checked="" type="checkbox"/> Alcohols <input checked="" type="checkbox"/> Ethers <input type="checkbox"/> Epoxides <input checked="" type="checkbox"/> Aldehydes <input checked="" type="checkbox"/> Ketones <input type="checkbox"/> Acetals <input checked="" type="checkbox"/> Esters <input checked="" type="checkbox"/> Carboxylic acids	<input checked="" type="checkbox"/> Amines <input type="checkbox"/> Nitriles <input type="checkbox"/> Aziridines <input checked="" type="checkbox"/> Nitro groups <input type="checkbox"/> Imines <input checked="" type="checkbox"/> Amides	<input checked="" type="checkbox"/> Thiols <input type="checkbox"/> Sulfides <input type="checkbox"/> Thioesters	<input checked="" type="checkbox"/> Haloalkanes <input checked="" type="checkbox"/> Benzene derivatives <input type="checkbox"/> Non aromatic heterocycles <input type="checkbox"/> Aromatic heterocycles <input type="checkbox"/> Terpenes <input checked="" type="checkbox"/> Acid halides

1. Be sure to **master** the following basics (Smith chapters are in brackets, use the index of other textbooks):
 - a. Formal charge (1.3C)
 - b. Electronegativity (1.12)
 - c. Reaction mechanisms & arrow notation (examples in Chapter 2)
 - d. Resonance (1.6, 16.1-16.9)
 - e. Acids and Bases (Chapter 2)
2. Formation of π bonds and substitution reactions
 - a. E1 (8.1, 8.2, 8.6, 8.7)
 - b. S_N1 (7.5, 7.7, 7.8, 7.13, 7.14, 7.15, 7.16)
 - c. E2 (8.3, 8.4, 8.8, 8.10)
 - d. Alcohol oxidations (12.12)

- e. S_N2 (7.11, 7.12)
 - f. Differentiating between $E1$, $E2$, S_N1 , S_N2 (7.17, 8.9, 8.11)
 - g. Alkynes (11.5)
 - h. Synthesis (7.19)
3. Spectroscopy
- a. Infrared (IR) (13.6-13.8)
 - b. Proton nuclear magnetic resonance (NMR) (14.1-14.10)
4. Carbonyl chemistry
- a. Carboxylic acids, esters, acid chlorides, anhydrides, amides (Chapter 22)
 - b. Acetals and derivatives (21.14-21.16)
 - c. Enols and enolates (Chapter 23, 24-1-24.5)

Learning takes time! I recommend that you spend **2 – 4 hours** studying outside of class per hour of lecture (this means spending **6 – 12 hours per week** on CHM 2120).

Appendix I: Academic Regulation 9.4

This following text will appear on the cover page of all your exams: “Cellular phones, unauthorized electronic devices or course notes (unless an open-book exam) are not allowed during this exam. Phones and devices must be turned off and put away in your bag. Do not keep them in your possession, such as in your pockets. If caught with such a device or document, the following may occur: you will be asked to leave immediately the exam and academic fraud allegations will be filed which may result in you obtaining a 0 (zero) for the exam. By signing below, you acknowledge that you have ensured that you are complying with the above statement.”

Appendix II: University of Ottawa policy on sexual violence

The University of Ottawa does not tolerate any form of sexual violence. Sexual violence refers to any act of a sexual nature committed without consent, such as rape, sexual harassment or online harassment. The University, as well as student and employee associations, offers a full range of resources and services allowing members of our community to receive information and confidential assistance and providing for a procedure to report an incident or make a complaint. For more information, visit www.uottawa.ca/sexual-violence-support-and-prevention.