

Tentative Course Outline

SC/CHEM 3020 3.0 A F18

Intermediate Organic Chemistry 1

Course Description:

Intermediate topics in NMR spectroscopy and mass spectrometry, carbanion and enol chemistry and introductory heterocyclic chemistry, with biochemical examples. Three lecture hours and one tutorial hour per week. One term. Three credits. Prerequisite: SC/CHEM 2020 6.00 or SC/CHEM 2021 3.00. Course credit exclusion: SC/CHEM 3020 4.00.

Schedule:

Lectures MWF 11:30-12:20 & Tutorials T 18:00-19:00, all in 106 LSB

Detailed Course Content:

- NMR Spectroscopy (3 topics, 3 weeks): advanced NMR (chemical shift factors, complex coupling, diastereotopicity, introduction to advanced techniques, applications to structure determination, conformational analysis and other problems)
- Mass Spectrometry (1 topic, 1 week): cascading fragmentation, rearrangements, multiple isotopic effects
- Carbanion & Related Chemistry (3 topics, 3 weeks): alkylations and acylations of carbanions, C-H acids, enols, enolates, condensation and β -eliminations, Michael additions, tandem reactions, biochemical examples, kinetic & thermodynamic control
- Heterocyclic Chemistry (2 topics, 2 weeks): survey of heterocycles, including biochemically relevant examples, synthesis and reactivity

Texts and other Materials:

There is no one textbook suitable for this course.

Highly recommended: CHEM 3020 Workbook (at the Bookstore) ISBN 9789990299169

Reference sources:

- *Organic Chemistry*, 6th/7th/8th/9th or York Custom ed., L. G. Wade, Jr. with accompanying Solutions Manual by J. W. Simek (available at Steacie Reserves)
- Chapter 22 of this book is included in the York Custom Ed. 2017
- also at Steacie Library:
 - Steacie stacks: QD 251.3 W33 2006 (Wade 6th) & QD 251.3 W33 2006 (Simek 6th)
 - Steacie reserves: QD 251.3 W33 2010 (Wade 7th); QD 251.3 S55 2013 (Simek 8th); QD 251.3 W33 2017 (Wade 9th)
 - one of several alternatives: *Organic Chemistry*, Clayden J. QD 251.3 O64 2001

Please note that Wade problems related to NMR are listed on Moodle.

Other Materials:

Website at moodle.yorku.ca for online course materials, general information and course announcements.

Grading Scheme:

- three midterm tests (tentative dates):
 - Oct 15 on topics 1-3, worth 15%
 - Nov 9 on topics 4-6, worth 15%
 - Dec 3 on topics 7-9, worth 15%
- three-hour final exam (date TBA), worth 40%
- online work (9 quizzes, one per topic, two attempts each):
 - full credit for scores of 80% or better, worth 1% each
 - half-credit for scores of 50-80%, worth 0.5% each
 - 9 credits = 9%
 - the minimum scores may be adjusted
- attendance: 6%

Absence Policy:

- absence from class/tutorial: attendance will be taken and full marks will be given for 80% attendance, with part-marks pro-rated for lower attendance rates
- absence from midterms: the value of the missed midterm will be shifted onto the corresponding section of the final examination
- absence online: no accommodation will be made for missed quiz deadlines unless it can be proven that the absence covered the majority of the time at which the quiz was open; network problems will not be taken into account
- midterm remarking will be possible with one-week request deadlines

Important Information:

Students must make themselves aware of university policies on Academic Honesty/Integrity, Access/Disability, Student Conduct, Religious Observance and other matters. A periodically updated *Information Sheet* summarizing this information can be downloaded* and printed, and the Registrar's Office issues a *list of Religious Observance Days*.‡

* <http://secretariat.info.yorku.ca/files/CourseInformationForStudentsAugust20121.pdf>

‡ <https://registrar.yorku.ca/enrol/dates/religious-accommodation-guidelines-2018-2019>