Advanced Organic Chemistry Laboratory (CHMD92H3)
Summer 2019
University of Toronto at Scarborough

Welcome to CHMD92! This lab course will build on your previously learned organic and analytical chemistry lab skills and expose you to some of the green chemistry integrated modern synthetic methods. Through these short research projects, you will be exposed to the art of multistep synthesis pertaining to the chemistry of pharmaceutically active agents and naturally occurring substances. Prerequisites for this course include one of either CHMC41H3, CHMC42H3, or CHMC31H3.

Lab Schedule: Tuesdays and Thursdays, 10-4 pm, location EV 123

Course Instructors:
Dr. Marco Zimmer-De Iuliis (Weeks 1-6)
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Office Hours: TBA
Office Location: EV546

Dr. Nirusha Thavarajah (Weeks 7-12)
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Lab Instructors:
Kimia Moozeh (Weeks 1-6)
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Soha Ahmadi (Weeks 7-12)
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Learning Outcomes:

By the end of this course, students should be able to:

- Plan and execute both single step and multistep organic syntheses following procedures published in the primary literature.
- Troubleshoot and propose solutions to problems encountered during an experiment.
- Use the vocabulary of organic chemicals, reactions and techniques found in modern chemistry labs.
- Carry out modern laboratory techniques such as: setting up reactions under an inert atmosphere and determining reaction yields using an internal standard.
- Became more familiar with modern organic chemistry instruments, such as HPLC, GC, GC-MS, and NMR.
- Analyze spectroscopic data for both known and unknown organic structures, including mixtures of substances.
- Analyze practical data and write accurate and complete scientific reports disseminating your findings.

Website: Class announcements will regularly be sent via Quercus (https://q.utoronto.ca/).

Lab Manual: There is an inaugural lab manual for this course that you can purchase through EPSA.

Textbook: There is no required text for this course; however, the following book is recommended and is on reserve in the library:

- Microscale Organic Laboratory with Multistep and Multiscale Synthesis, Dana W. Mayo, Ronald M. Pike, David C. Forbes., 5th ed., Wiley

Recommended Websites:

The following websites may be of use to you while preparing for new experiments and writing your formal reports, these links will be also posted on a Blackboard course web-page:

- Virtual Textbook of Organic Chemistry
  http://www.cem.msu.edu/~reusch/VirtualText/intro1.htm
- Interactive Tutorials
  http://www.cem.msu.edu/~reusch/VirtualText/Questions/problems.htm
- Access to a free copy of ChemDraw – a chemistry drawing software
  https://login.library.utoronto.ca/cgi-bin/go_log.pl?url=http://www.chem.utoronto.ca/library/reg.php
- Proton chemical shifts
  http://www.chem.wisc.edu/areas/reich/handouts/nmr-h/hdata.htm
- Not Voodoo – a site devoted to demystifying the organic chemistry techniques
  http://chem.chem.rochester.edu/~nvd/
- Video on some simple laboratory techniques
  http://webapps.utsc.utoronto.ca/chemistryonline/solubility.html

Method of Evaluation:

Your grade in this course will be determined as follows:

Graded Item	Weight	Comments
Lab Performance	30%	Includes pre-lab assignments, notebooks, products, performance in the lab
Presentations	60%	Four oral reports, each worth 17.5%

Accessibility:

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the Access*Ability* Services Office as soon as possible. I will work with you and Access*Ability* Services to ensure you can achieve your learning goals in this course. Enquiries are confidential. The UTSC Access*Ability* Services staff (located in S302) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations (416) 287-7560 or ability@utsc.utoronto.ca.

Academic Integrity:

Academic integrity is one of the cornerstones of the University of Toronto. It is critically important both to maintain our community which honours the values of honesty, trust, respect,

fairness and responsibility and to protect you, the students within this community, and the value of the degree towards which you are all working so diligently.
According to Section B of the University of Toronto's Code of Behaviour on Academic Matters http://www.governingcouncil.utoronto.ca/policies/behaveac.htm which all students are expected to know and respect, it is an offence for students to:

- To use someone else's ideas or words in their own work without acknowledging that those ideas/words are not their own with a citation and quotation marks, i.e. to commit plagiarism.
- To include false, misleading or concocted citations in their work.
- To obtain unauthorized assistance on any assignment.
- To provide unauthorized assistance to another student. This includes showing another student completed work.
- To submit their own work for credit in more than one course without the permission of the instructor.
- To falsify or alter any documentation required by the University. This includes, but is not limited to, doctor's notes.
- To use or possess an unauthorized aid in any test or exam.

There are other offences covered under the Code, but these are by far the most common. Please respect these rules and the values which they protect. Offences against academic integrity will be dealt with according to the procedures outlined in the Code of Behaviour on Academic Matters.

Turnitin.com:

Please note that this course will be using Turnitin.com for all papers and presentation. Students will be required to submit their course work to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site.