

**CONCORDIA UNIVERSITY
DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY**

**CHEM 426/626
REACTIVE INTERMEDIATES**

SYLLABUS – Fall 2017

GENERAL INFORMATION

Reactive Intermediates (CHEM 426/626) is a one-term course available to both senior undergraduate and graduate students. It is offered as “Advanced Topics in Chemistry” and as such requires a solid organic chemistry background. CHEM 324 (Organic Chemistry III) and CHEM 325 (Organic Chemistry IV) are prerequisites, and CHEM 293 (Spectroscopy of Organic Compounds) is highly recommended. This course offers an introduction to reactive intermediates with an emphasis on structure and stability as found in modern (Physical) Organic Chemistry. The material covered is applicable in chemistry and biochemistry alike.

INSTRUCTOR	Professor H.M. Muchall Office LOY SP 275.15 Tel. (514) 848-2424 x3342 (I will not return calls.) heidi.muchall@concordia.ca
COURSE FORMAT	Lectures
LECTURE HOURS	Wednesday/Friday 11:45 – 13:00
LOCATION	LOY CC 301
COURSE WEBSITE	on Moodle
OFFICE HOURS	Mo 15:00 – 16:00 Drop-in “anytime”: just ask if I am available

LECTURES AND READING

There is no single textbook for this advanced course. A list of textbooks that are available in the library, some of which have been put on reserve, is suggested on Moodle, and it is important that you consult these on the different topics covered. The lectures are designed to reinforce and clarify textbook material.

COURSE OBJECTIVES

- To provide students with an introduction to reactive intermediates as found in (organic) chemistry.
- To introduce students to the modern means of detecting and identifying reactive intermediates.
- To raise an awareness of the factors that govern structure and stability that students can apply to the reactions of reactive intermediates.

COURSE OUTLINE

- Chapter 1 Physical Background
- Chapter 2 Radicals
- Chapter 3 Carbenes
- Chapter 4 Carbocations (most likely through student presentations)

A detailed description with key words covered and links to the lecture slides can be found on Moodle. The slides used during class are also posted here, as pdf, for students to print and bring to class to annotate.

PROBLEM SETS

Two (2) problem sets will be distributed during the course of the term. Each of these will have to be solved (each student on his/her own) and returned to the instructor **on a day to be determined**. Late submissions will not be accepted. The Problem Sets will be corrected and marked. Problems and (eventually) their solutions will be posted on Moodle.

EXAMINATION

There will be one (1) formal examination, tentatively scheduled for

November 17, 2017.

If a student is absent from the exam, he/she must produce a written excuse appropriately signed (i.e. by a doctor or an employer) on the appropriate letterhead paper. This letter must be delivered to the instructor as soon as possible but **no later than November 24, 2017**. The Department determines the validity of the absence. If there is no valid excuse, the student will receive a mark of zero for the exam. When the absence is valid, a make-up exam will be offered.

PRESENTATIONS

All students are required to give a short presentation during a lecture period towards the end of the term. The duration will be approximately 15 min. for undergraduates and 30 min. for graduate students, and the topic will be supplied by the instructor probably at the start of October. All presentations will be preceded by an abstract and followed by a discussion period, and all students are required to participate in these.

ACADEMIC HONESTY (*Source: <http://www.concordia.ca/students/academic-integrity.html>*)

Go to the link above and familiarize yourself with what you are supposed to do and what you are supposed to avoid doing.

The most common offense under the Academic Code of Conduct is plagiarism, which the Code defines as “the presentation of the work of another person as one's own or without proper acknowledgement.”

“Work” here could be material copied word for word from books, journals, internet sites, professor's course notes, etc. It could be material for which the words have been changed but whose phrasing still closely resembles that of the original source. It could be the work of a fellow student, e.g., a lab report completed by another student, or unauthorized data for a lab report. It could be a paper purchased through one of the many available sources. “Plagiarism” does not refer to words alone – it also refers to images, graphs, tables and ideas. “Presentation” is not limited to written work. It also includes computer and artistic works. Finally, if you translate the work of another person into English and do not cite the source, this is also plagiarism.

The Academic Code of Conduct can be found in section 17.10 of the undergraduate calendar (<http://www.concordia.ca/academics/undergraduate/calendar/current/17-10.html>). Any form of cheating, unauthorized collaboration, copying or plagiarism found in this course will be reported to the Dean's office.

As part of CHEM 426/626, you are **required** to attend a seminar and pass a quiz on avoiding plagiarism and other forms of academic dishonesty, offered by the Department of Chemistry and Biochemistry. If you have already attended the seminar and achieved 100 % (110 points) on the quiz **within the past five (5) years (i.e. Fall 2012 or more recently)**, you have fulfilled the requirement. You are exempt, if you can locate your ID in the pdf file located on the Departmental web site (<http://www.concordia.ca/content/dam/artsci/chemistry/docs/compliance-list.pdf>).

The aim of the seminar and quiz is to clarify which academic practices are considered unacceptable by the Department of Chemistry and Biochemistry. The seminar will be offered during the third week of classes (see the appendix for the dates and times offered); the quiz is online, can be accessed through the MyConcordia portal (on Moodle, choose CHEM 101 under Specialized Chemistry Sites) and can be taken from after the seminar up to the deadline announced on the CHEM 101 site, but preferably as soon as possible. **If you do not attend the seminar and/or do not pass the quiz (the passing mark is 100 %), your course grade will be lowered by one full letter grade with an incomplete (INC) notation.** Please refer to the academic calendar section 16.3.6 on how to remove the INC and restore the proper course grade.

COURSE GRADE

The final grade of the course is based on the marks obtained in the problem sets, the exam and the presentation. The composition of the final grade is as follows:

Problem Sets	40 % (20 % each)
Exam	40 %
Presentation	20 %

The minimum passing mark is 50 % (D-) for undergraduates. For graduate students, C and F rules (<http://www.concordia.ca/academics/graduate/calendar/current/academic-regulations.html>) apply.

The grading scales (percentage to letter grade) follow (normal rounding applies):

	UGrad CHEM 426	Grad CHEM 626
100-90	A+	A+
89-85	A	A
84-80	A-	A-
79-77	B+	B+
76-73	B	B
72-70	B-	B-
69-67	C+	C
66-63	C	
62-60	C-	
59-57	D+	F
56-53	D	
52-50	D-	
<50	F	

In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

H.M. Muchall, August 2017

Appendix**Seminar on academic conduct**

Date (Fall 2017)	Time	Room
Monday, Sept. 25	16:45-17:45	CC-111
Tuesday, Sept. 26	16:45-17:45	CC-111
Wednesday, Sept. 27	16:45-17:45	CC-111
Wednesday, Sept. 27	20:45-21:45	SP-S110
Thursday, Sept. 28	16:45-17:45	CC-111
Thursday, Sept. 28	20:45-21:45	HB-130
Friday, Sept. 29	16:45-17:45	CC-111

To make sure you reserve a seat for your preferred slot, please sign up outside SP 201.01 (Departmental office). Only sign up in one of the boxes provided; do not use any blank space to sign up. The number of sign-up boxes corresponds to the number of seats available in the room.