

**CONCORDIA UNIVERSITY
DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY**

**CHEM 325
ORGANIC STRUCTURE AND STEREOCHEMISTRY
SYLLABUS – Winter 2018**

GENERAL INFORMATION

Organic Structure and Stereochemistry (CHEM 325) is a one-term course required for all degree programs in chemistry and biochemistry. CHEM 325 requires CHEM 222 (Introductory Organic Chemistry II). It will introduce you to principles of stereochemistry and their relevance to physical properties and reactivities of organic compounds.

INSTRUCTORS	Professor H.M. Muchall Office LOY SP 275.15 Tel. 848-2424 x3342 (I will not return calls.) heidi.muchall@concordia.ca
COURSE FORMAT	Lectures and Laboratory
LECTURE HOURS	Th 18:00 – 20:30
LOCATION	LOY CC-308
Recommended TEXTBOOKS	<i>Eliel, Wilen, Doyle</i> , Basic Organic Stereochemistry, Wiley 2001. <i>Buxton, Roberts</i> , Organic Stereochemistry, Prentice Hall 1996.
Required OTHER MATERIALS	i>clicker (or REEF) molecular model set
COURSE WEBSITE	on Moodle
OFFICE HOURS	Tu/Th 15:00 – 16:00 Plus: drop-in “anytime”: stick your head in to see if I’m available.

COURSE WITHDRAWAL

Students who withdraw from the course must also check-out from their lab section. You may only attend the lab and receive a grade for lab work, if you are registered in the course. **Monday, March 19, 2018 is the last day for academic withdrawal from Winter-term courses.**

LECTURES, READING AND MOLECULAR MODELS

Classroom time is divided between lectures and practice sessions. The lectures are designed to reinforce and clarify textbook material. The (short) practice sessions reinforce the covered material.

It is impossible to describe and explain everything you will learn in this class during the lecture period. **But: there is no one suitable textbook for CHEM 325!** The basic *Eliel* is too extensive, *Buxton* too short. A combination of both is suggested for this course. A list of (strongly) suggested reading, from these and further textbooks that are available in the library (on reserve), is provided on Moodle. Come to class prepared: complete reading the relevant textbook material before the lecture. Take lecture notes and work through them after the lecture. Re-read the textbook material and add key ideas to your notes. Here is something you might want to try: keep a CHEM 325 journal: write a few lines on a topic covered in class right after the relevant lecture. The idea is this: just because I might be able to explain well does not mean so can you without practice. You need practice in it, and writing those few lines is the first step in that practice. If you leave it until the evening or the next day, the “links” your brain created during my explanations in the lecture will already be gone again!

Stereochemistry is a 3-D subject. Build molecular models for a better understanding! You need to find a molecular model set you are comfortable with; different model sets are available from the University Bookstore.

COURSE OBJECTIVES

- To provide you with an introduction to symmetry.
- To raise your awareness for the three-dimensional properties and behaviour of molecules.

COURSE OUTLINE

- 1 Stereoisomerism
- 2 Configurational Analysis
- 3 Asymmetric Induction
- 4 Stereoselective Synthesis
- 5 Conformational Analysis

A detailed list with keywords for every topic can be found on Moodle. The slides used during class are also posted, as pdf, for you to print and bring to class to annotate. It is not useful to print the slides too small! I suggest one slide per printed page.

EXAMINATIONS

There will be three (3) formal examinations:

1. a Midterm Exam (in-class, molecular models allowed) on **March 8, 2018**.
2. a Lab Exam (in-class) on **April 5, 2018** (see below).
3. the Final Exam after the end of classes, arranged by the Examinations Office.

If you are absent from the midterm and/or the lab exam, you 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 Professor as soon as possible but **no later than one (1) week after the Exam**. The Department determines the validity of the absence. A make-up exam will **only** be offered for the Lab Exam, and only if the absence is valid. If you lack an excuse or if your excuse is not valid, you will receive a mark of zero for the Exam. In case of a valid absence for the midterm exam, the final grade for the course will be based on the marks obtained in the clicker sessions, the final exam and the lab.

CLICKER SESSIONS

In this approach to problem-solving, you will use clickers to answer multiple choice questions for understanding of concepts. Sessions will be marked: 1 point per correct answer. To account for absences, a “maximum achievable” points mark will be set 10% below the “maximum possible” points mark. We will use i>clickers (available in the Loyola campus bookstore), and you will need to register your clicker through the MyConcordia portal. Alternatively, you can obtain an i>clicker REEF subscription. Much information on this is provided on the Moodle course site (read before you use REEF!). There you can also find short lecture summary files with ideas on how to study for the i>clicker sessions.

Be on time for class! Clickers will (mainly) be used at the start of a class.

PROBLEM SETS

There will not be formal problem sets or assignments. However, selected problem sets and their answers are posted on Moodle. Work through the problems and pay particular attention to how the information is given in the answers.

LABORATORY EXEMPTION

If you are repeating the course (grade of F or better) and have passed the lab component **within the past two (2) years**, you may request a lab exemption. Applications for the exemption (form available in SP 201.01) must be completed by the end of the first week of term, **no later than 5:00 pm, Friday, January 12, 2018**. Late applications will not be accepted. Signed and completed forms must be returned to **Mrs. Hilary Scuffell, SP 275.01**. You **must** register for the appropriate lab exemption section (56); if you are registered in any other lab section, you will be **required** to complete the lab portion of the course. If you apply late or are denied exemption, you must repeat the lab portion. Partial exemptions will not be given, in particular, lab (reports) and lab exam are linked. If an exemption is granted, your previous lab mark (lab reports and lab exam) will be carried forward.

LABORATORY INFORMATION

The Laboratory Coordinator is **Mrs. Rita Umbrasas, SP 330.1, Tel. 848-2424 x3354**. All technical questions on matters related to the labs (absences, switches) should be addressed to her.

CHEM 325 Laboratories are located at SP 112. **Laboratories start the week of Monday, January 15, 2018**. All students **must** attend the section for which they are registered during this week and a copy of documentation of enrolment in that section must be submitted to the demonstrator or staff member on duty. Switches will be considered only in exceptional circumstances (e.g., course conflict). All requests for section switches must be made to Mrs. Umbrasas. If you are absent from a lab, you must produce a written excuse (analogous to the above section “**Examinations**”). Only one such absence is allowed.

The laboratories are supposed to enhance the lecture material and provide hands-on experience. Do not expect a particular laboratory experiment to be related directly to the material covered in the lectures; some, however, are, and may require you to familiarize yourself with the material before the corresponding lecture. Go to the lecture slides for this and/or the references in the lab manual. **Laboratory performance is graded on the quality of the experimental/computational work (where applicable), the reports and the final lab exam.**

FINAL LABORATORY EXAM

Your lab knowledge will be tested in a written lab exam. The exam will be given in a lecture period on **April 5, 2018**. The passing mark for the lab exam is 50 %. **You will receive an R as course grade should your lab exam be below 50 %**. A passed lab exam counts for 10 % of the final grade. The lab exam is an integral part of the laboratory portion of CHEM 325. As such, it is linked to the labs, i.e., the lab exam will be written in the term the lab is taken.

LABORATORY MANUAL, LAB COATS AND SAFETY GLASSES

The lab manual is

Organic Structure and Stereochemistry, Department of Chemistry and Biochemistry.

The manual is available from the University Bookstore, as are other items such as lab coats and safety glasses, both of which are mandatory.

LABORATORY INSTRUCTORS (DEMONSTRATORS)

Each laboratory section will have one or two demonstrators who are graduate students or staff members of the department. You must know their names and the location of their rooms. You will need to contact them later for matters related to your labs: all questions on procedures or general understanding of lab material must be brought to a TA first. The TAs are listed, with their preferred email addresses, on Moodle.

ACADEMIC INTEGRITY (*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 325, 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. Winter 2013 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, and read the CHEM 101 FAQ section located on the Departmental web site (<http://www.concordia.ca/artsci/chemistry/programs/undergraduate/procedures-forms/chem101-statement-plagiarism-academic-code.html>).

COURSE GRADE

Your final grade in the course is based on the marks obtained in the clicker sessions, examinations and the laboratory, which includes the lab exam. The composition of the final course grade is as follows:

Clicker Sessions	10 %
Midterm Exam	25 %
Final Exam	40 %
Lab Mark	25 % (10 % lab exam, 15 % lab reports)

Separate minimum passing marks are required for the lectures (weighted average) and the laboratory (weighted average). The minimum passing mark for the lecture part is 50 % (D-), for the lab part 60 % (C-). The Minimum passing mark for the lab exam is 50 % (see above). The grading scheme (percentage to letter grade) follows:

Passing Grades:

A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-
100-93	92-86	85-80	79-77	76-73	72-70	69-67	66-63	62-60	59-57	56-53	52-50

Failing Grades:

F	R
<50 (theory)	<40 (theory) or <50 (lab exam) or <60 (lab)

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

Appendix**Seminar on academic conduct**

Date (Winter 2018)	Time	Room
Monday, Jan. 23	16:45-17:45	HC-155
Monday, Jan. 23	20:45-21:45	HC-155
Tuesday, Jan. 24	16:45-17:45	CC-308
Wednesday, Jan. 25	16:45-17:45	HC-155
Wednesday, Jan. 25	20:45-21:45	SP-S110
Thursday, Jan. 26	16:45-17:45	HC-155
Friday, Jan. 27	16:45-17:45	CC-310

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