CHEM/CHEMBIO 40A3 – Natural Products  (Updated Aug. 10th/2016)

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Office Hours:  Wednesday 2:30-3:30 or by appointment.

Outline: The course will cover a description of the basic building blocks and reaction mechanisms involved in the biosynthesis of naturally occurring compounds. The goal of the course is to provide students with a sound understanding of the structure and origin of these natural products and to introduce specific molecules that are of current interest in the field of chemical biology. We will also briefly discuss the biological target and mechanism of action of compounds of interest as well as details of structure-determination and chemical synthesis where appropriate.

Prerequisites:  CHEM 3OA3 (Org. Chem) or CHEMBIO 3OA3 (Bio-organic). (Note OR).

Text:
There is no official course textbook. General introductory material can be found in the following sources. More specialized books will be referenced in class however most of the latter material will be taken from the last few years of the chemical-biological literature. Lecture notes are available on Avenue-to-Learn course link. .
Natural Products: the Secondary Metabolites, James R. Hanson, RSC (2003).
Chemical Aspects of Biosynthesis, John Mann, Oxford (1994).

Assessment
Assignments (2)  0%
Mid Term  25%
Literature research report  25%
Final exam  50%

Assignments: A series of questions designed to apply the concepts presented in class. These are for practice only and answers will be posted before the mid term.


Mid-Term:  Duration of 50 mins, to be held on Monday, Oct. 24th during the regular scheduled class. Students who miss a mid-term test for a valid reason AND who have the Dean’s permission (see below) will have their final exam increased by the value of the term test.
**Missed Assignments and Tests:** Failure to hand in an assignment, literature research report or write a term test will result in a zero grade, unless a valid reason has been filed with and accepted by the Associate Dean's office. **It is the student's responsibility to ensure that medical slips, etc. are filed with the Dean.** The instructor will not make any exemption decisions under any circumstances.

**Individual Inquiry-based literature research and report:** Students will select (or be assigned) a natural product from the recent literature that exhibits valuable biological properties. The review will cover the occurrence/isolation of the natural product, its known or postulated biosynthesis, a discussion on its mechanism of action at the molecular level and a discussion of its chemical synthesis. The format will become clear as the course progresses. Report due Dec. 7th at 4:30pm (deliver to ABB-262).

**Final:** Scheduled examination to take place in December. A passing grade must be attained in the final examination to pass the course.

**Academic dishonesty:**
Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty, please refer to the Academic Integrity Policy, specifically Appendix 3, located at http://www.mcmaster.ca/senate/academic/ac_integrity.htm

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one’s own or for which other credit has been obtained. For example, submitting someone else’s lab report and results.
2. Improper collaboration in group work. For example, submitting assignments containing answers generated by a group.
3. Copy or using unauthorized aids in tests and examinations.