

Section II

11. Calendar Description:

This course is designed as a continuation of introductory Organic Chemistry. Students learn nomenclature, structure, and physical and chemical properties of major groups of organic compounds, and differentiate among types of chemical reactions involving organic compounds. Emphasis is placed on the practical applications of organic chemistry to the biosciences and engineering. Lab exercises complement the theoretical components of the course.

12. Provincial Context:

This course meets the following Ministry of Education and Training requirements:

a). **Prior Learning Assessment (PLA)**

Students may apply to receive credit by demonstrating achievement of the course learning outcomes through previous life and work experiences.

This course is eligible for challenge through the following method(s) indicated by *

Challenge Exam	Portfolio	Interview	Other	Not Eligible
*				

PLAR Contact:

13. Employability Skills emphasized in this course

Based on Ministry of Education College Guidelines for Biotechnology Technician Program Standard (1999):

	Personal		Communication		Research		Application
X	Manage time	X	Scientific		Evaluation		Maths
X	Responsibility	X	Interpersonal	X	Organization	X	Computers
X	Adaptability						Critique
X	Collaboration						Innovation
						X	Problem-solving

14. Required Texts, Materials, Resources or Technical Materials Required:

There is no required text for this class. Any college-level organic chemistry text will provide you with the necessary content to support learning in this course. For example *Denniston, Topping and Caret. 2007. General, Organic and Biochemistry. 5th Edition. McGraw Hill Higher Education*. This text (ISBN-13 978-0-07-282847-4) can be ordered new through the bookstore or is available used online. Several other Organic Chemistry texts are also available for review and short-term loan in the library.

The 2010 Organic Chemistry Laboratory Manual will be required.

15. Evaluation Plan

Students will demonstrate learning in the following ways:

Description	Evaluation Methodology	Value	Due date
Assignments, problem sets, workshops, quizzes	Answer keys	Marks assigned will vary; total will equal 25%	Weekly or bi-weekly
Peer-led workshop participation	In-class and workshop collaboration	5%	Periodic
Midterm test	Answer key	15%	Approximately Week 7
Final term test	Answer key	15%	Week 15
Lab assignments	Answer key and rubric	Marks assigned will vary; total will equal 30%	Weekly or bi-weekly
Lab book	Rubric	5%	Weekly
Lab competence	Adherence to instructions, safe lab practices, etc.	5%	Cumulative

16. Other

Please consult the Biosciences Handbook for Students (2009-2010) for information and policies on Course Outlines, Assessment, Evaluation and Grading, Supplemental Exams and Plagiarism and Academic Dishonesty. Briefly:

- ◆ You must always submit your own work for evaluation. The minimum penalty for plagiarism is a mark of 0% on the assignment, report, test, etc.
- ◆ Class assignments and problem sets are due as outlined when the assignment is given. Some assignments may be designed to be completed during class time. If you are absent for the class, you may not make up the assignment.
- ◆ Please advise us in advance if you cannot write a test or exam, or meet deadlines for labs or assignments. However, we reserve the right to refuse to reschedule assessments or accept late labs or assignments. If we accept a late submission, be aware that a penalty (10-50%) will accrue, depending on the circumstances.
- ◆ A supplemental exam is available if you meet the criteria as outlined in the Biosciences Handbook for Students

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Section III

17. Curriculum Delivery, Learning Plan and Learning Outcomes:

COURSE COMPONENTS and CONTENT	RELATED LEARNING OBJECTIVES and EVALUATION CRITERIA	LEARNING ACTIVITIES and RESOURCES
Structural and molecular formulae	The student will be able to draw expanded and condensed structural formulae given a molecular formula, or vice versa.	Through the use of illustrations, models, examples, and laboratory exercises, the student will learn how to carry out these tasks. Published materials (textbook, lab manual), internet websites, media sources and model kits for hands-on activities will augment lecture material. Students will then apply their knowledge to worksheets, problem sets, acquisition of lab skills, and other activities to support learning.
Descriptive terms	The student will be able to use the appropriate descriptive terms, given a structural formula for a compound.	
Identification of the class of organic compound based on the functional group	The student will be able to identify the class of a compound from the functional group present, given the structural formula.	
Nomenclature: IUPAC and common names for the following classes: carboxylic acids, esters, amines, amides and their derivatives	The student will be able to write the IUPAC (systematic) name and for certain classes, simple common names given the structural formulas, and vice versa.	
Trends in physical properties	For the classes listed above, the student will be able to describe the general trends in melting points, boiling points, state, solubility, density, hydrogen bonding within an homologous series (where applicable).	
Chemical reactions: Acid-base reactions, hydrolysis, dehydration, saponification, esterification and others	Given the reaction conditions and the starting compound(s) the student will be able to draw the structure of the product(s) and determine the predominant product (where applicable).	
Stereochemistry	The student will be able to determine if a compound exhibits stereoisomerism, describe relationships among stereoisomers (e.g. enantiomers, diastereomers), name stereoisomers using R-S nomenclature	
Planning synthesis	The student will be able to outline how to prepare a designated compound from given reactants and reagents.	

Practical skills in organic chemistry	The student will be able to perform lab techniques using safe lab practices, and demonstrate lab skills associated with separation of organic compounds, synthesis of organic compounds, and assays of organic compounds for quantity, quality and purity. These include: Refractive Index, Melting Points, Recrystallization, Simple/Fractional Distillation, Liquid-Liquid Extraction, Synthesis and Purification of <i>n</i> -butyl acetate, Synthesis and Purification of acetylsalicylic acid.
Other topics of interest as time permits	