



COURSE OUTLINE

Course Name: Organic Chemistry 1

Course Number: CHEM 2130

Number of Credits: 4.0

Effective Date: September 2020

Course Description:

This course provides a firm grounding in basic principles and commences with a review of fundamental theories of covalent bonding to understand the structure and shape of organic molecules. By studying of the characteristic reactions of the common functional groups, the fundamental conceptual framework of this branch of science is presented. Examination of the chemistry of the alkanes, alkenes, alkynes is continued from first year chemistry. Alkyl halides, alcohols, aldehydes and ketones, ethers and FT-IR Spectroscopy are now discussed. The importance of stereochemistry is revisited throughout the course. The concepts of molecular conformation as well as handedness of shapes are reinforced. Emphasis is placed on the study of reaction mechanisms and the understanding of reaction pathways as presented in energy diagrams. The relationship between the structure of organic molecules and their reactivity is presented. The role of acid/base chemistry in these reactions is presented throughout. The laboratory component of the course complements the lecture material and gives students experience in using some basic techniques that are employed in modern chemistry laboratories.

School or Centre:

School of Arts and Sciences

Year of Study:

2nd Year Post-secondary

Course History:

New Course

Name of Replacing Course (if applicable):

Course Pre-requisites (if applicable):

CHEM 1223 with a C-

Course Co-requisites (if applicable):

PLAR (Prior Learning Assessment & Recognition)

No Yes (details below):

Instructional Strategies:

The course will be a combination of lectures, discussion, and research in a classroom and laboratory setting.

Course Learning Outcomes:

Upon successful completion of this course, students will be able to:

- apply concepts and knowledge to the chemistry of alkenes, alkyl halides, alkenes, alkynes, alcohols, ethers, aromatics, carbonyl compounds and natural products.
- clearly and correctly draw organic molecules and organic reactions.
- predict reaction products or design synthetic strategies.
- describe the three-dimensionality (shape) of molecules and know the implications of shape in the chemistry of organic materials.
- describe and use spectroscopy and spectrometry to identify organic compounds.
- describe how structure and reactivity of organic compounds are linked.
- develop careful measurement techniques and correct handling of data to solve typical organic chemistry problems.
- work effectively with others in a laboratory situation through team-based learning.
- show technical skills as evidenced by good bench skills (products' purities and yields) and understanding of theory (explanations and answers to assigned questions).
- integrate the connections between organic chemistry and other scientific disciplines (i.e. biology).

Program Learning Outcomes:

If this course is taken as a requirement or an elective in the following second-year University Transfer programs, the learning outcomes are found in the relevant Program Content Guides available at the Counseling and Advising Service areas:

Associate of Science Degree

Associate of Arts Degree

University Transfer Pathway to Health Sciences Certificate

Evaluation/Grading System

Grading System	Specify if 'Other':	Specify Passing Grade:
Letter Grades		D

Components and Weighting of the Assessment/Evaluation Plan:

Type	Percentage	Evaluation Plan (provide a brief explanation for each component especially if value exceeds 35%):
Midterm Exam	20	
Final Exam	30	
Quizzes/Tests	10	
Lab Work	30	
Assignments	10	
	Total	100

Learning Environment/Type

Instruction Type	Hours Per Instruction Type	Comments
L - Classroom	60	
B - Lab (Computer, Chemistry...)	60	
	Total	120

Resource Material(s):

Resources are items in addition to tuition that the student is responsible for purchasing. Course resource information will be supplied by the department/instructor.

Course Topics:

- structure and bonding
- polar covalent bonds
- acids and bases
- alkanes and cycloalkanes
- organic reactions
- alkenes
- alkynes
- stereochemistry
- alkyl halides
- structural determination
- alcohols
- ethers and epoxides
- aldehydes and ketones
- carboxylic acids, esters, amides and nitriles

VCC Education and Education Support Policies

There are a number of **Education** and **Education Support** policies that govern your educational experience at VCC, please familiarize yourself with them.

The policies are located on the VCC web site at:

<http://www.vcc.ca/about/governance--policies/policies/>

To find out how this course transfers, visit the BC Transfer Guide at www.bctransferguide.ca.

FOR COMMITTEE USE ONLY

Approved by Curriculum Committee:		Approved by Education Council:	
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