



COURSE OUTLINE

Course Name: Organic Chemistry 2

Course Number: CHEM 2230

Number of Credits: 4.0

Effective Date: September 2020

Course Description:

This second half of organic chemistry continues the examination of the reactions of common functional groups. Aromatic compounds including phenols, aldehydes and ketones, amines, carboxylic acids and their derivatives are studied. Concepts presented in the first half are reinforced. Attention to stereochemistry and regiochemistry are emphasized. Greater skill in designing organic syntheses is developed. To establish the contribution of organic chemistry to other sciences biochemical topics are highlighted. Topics include amino acids, peptides, proteins, phospholipids, terpenes, steroids and nucleic acids. The fundamental concepts of reactivity and functionality are underscored to illustrate their role in the understanding of living materials and processes. NMR Spectroscopy is introduced and the importance of spectroscopic techniques in the analysis of organic compounds is presented. These techniques will be used in the laboratory component of the course.

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 2130 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 aromatics, phenols, ketones, aldehydes, carboxylic acids, esters, amides, acids halide, acid anhydrides and amines to predict reaction products or design synthetic strategies.
- 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 determination
- nuclear magnetic resonance spectroscopy
- conjugated dienes
- benzene and aromaticity
- organic reactions
- phenols
- carbonyl compounds
- aldehydes and ketones
- carboxylic acids and nitriles
- carboxylic acid derivatives
- nucleophilic acyl substitution reactions
- carbonyl alpha-substitution reactions
- carbonyl condensation reactions
- amines
- biomolecules including carbohydrates, amino acids, peptides, proteins, lipids, heterocycles, and nucleic acids

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: