

**UNIVERSITY OF CALGARY
FACULTY OF SCIENCE
DEPARTMENT OF CHEMISTRY
COURSE SYLLABUS
SPRING 2018**

1. Course: CHEMISTRY 357, Industrial Organic Chemistry for Engineers

L01:

LEC	DAYS	TIME	ROOM	INSTRUCTOR	OFFICE	EMAIL	OFFICE HOURS
L01	TRF	8:00-9:50	ICT 116	Dr. Ashley Causton	SA 144A	acauston@ucalgary.ca	TBA

Desire 2 Learn (D2L) Site: CHEM 357 L01 - (Spring 2018) - Industrial Organic Chemistry for Engineers

2. Course Description: The hybridization of the carbon atom and covalent bonding. Typical reactions of alkanes, alkenes, alkynes and industrial applications. Substitution; halogenation, nitration and oxidation of aromatic hydrocarbons; polymerization and industrial applications. Functional groups and their reactions; oxidation, reduction, addition and elimination reactions, industrial applications.

3. Recommended/ Required Textbook(s): None

4. Topics Covered-CHEM 357 Industrial Organic Chemistry for Engineers:

Basic Organic Nomenclature and Terminology

Chemical Bonding

Isomerism

Physical Properties (intermolecular forces and conformational analysis)

Kinetics, Thermodynamics & Equilibrium

Curly Arrows & Reaction Mechanisms including:

- Radical reactions
- Acid base chemistry
- Addition reactions
- Substitution reactions
- Elimination reactions
- Aromatic substitution reactions

Polymers

- Types of synthetic polymers
- Selected reactions of:
 - Alcohols, phenols & thiols
 - Ethers & epoxides
 - Carbonyl containing compounds
 - Amines & other nitrogen containing compounds