Spokane Falls Community College

COURSE LEARNING OUTCOMES

Prefix and Course Number:	**CHEM&243**
Course Title:	**Organic Chemistry III**
Version Date: mm/dd/yyyy	**1.21.2021**

Course Learning Outcomes

Upon successful completion of the course, the student will be able to:

1. Apply IUPAC nomenclature rules to the different functional group families, (aldehydes, ketones, carboxylic acids, nitriles, acid chlorides, acid anhydrides, esters, amides and amines) and analyze their chemical and physical properties.
2. Explore the fundamental electronic structure and bonding in carbonyl compounds.
3. Interpret patterns of the reactivity of carbonyl compounds, including the chemical reactivity of the alpha carbon, with weak and strong nucleophiles including organometallic reagents.
4. Evaluate and discuss plausible mechanistic pathways to justify formation of products.
5. Compare and contrast the kinetics and thermodynamics of carbonyl condensation reactions.
6. Evaluate the substituent effects on pK_a and interpret patterns of reactivity on the basis of mechanistic reasoning of carboxylic acids and their derivatives.
7. Design synthesis of complex organic molecules based on the knowledge acquired of the reagents, the general reactivity of functional groups and mechanism.
8. Connect the fundamental properties and reactivity of the different categories of organic molecules to polyfunctional compounds and natural products, lipids, carbohydrates, amino acids, proteins, and nucleic acids.