

**RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE**

CHEM 214 – ORGANIC CHEMISTRY II – LECTURE ONLY

I. Basic Course Information

A. Course Number and Title: CHEM 214 - Organic Chemistry II – lecture only

B. New or Modified Course: Modified from CHEM 212

C. Date of Proposal: Semester: Spring Year: 2020

D. Effective Term: Fall 2021

E. Sponsoring Department: Science & Engineering

F. Semester Credit Hours: 4

G. Weekly Contact Hours: 4 Lecture: 4
Laboratory: 0
Out of class student work per week: 8

H. Prerequisites: CHEM 211 – Organic Chemistry I or CHEM 213 – Organic Chemistry I – lecture only.

I. Laboratory Fees: No

J. Name and Telephone Number or E-Mail Address of Department Chair and Divisional Dean at time of approval: Ed Carr, Edward.carr@raitanval.edu ; Sarah Imbriglio, Sarah.Imbriglio@raitanval.edu.

II. Catalog Description

Prerequisite: CHEM 211 – Organic Chemistry I or CHEM 213 – Organic Chemistry I – lecture only.

This course is a continuation of Organic Chemistry I. Topics include the study of reaction mechanisms, organic syntheses, UV spectroscopy, the chemistry of aromatic compounds, alcohols, phenols, ethers, carbonyl compounds, amines, and an introduction to organometallic chemistry.

III. Statement of Course Need

- A. This is the second course in a two-semester sequence (Organic Chemistry I and II) that may be required by some transfer institutions.
- B. An Organic Chemistry II Laboratory course is required in most programs. Students using this course to fulfill a RVCC program should take CHEM 213 which includes the lab component, or the lab unit must be taken at a transfer institution.
- C. This course generally transfers as a program requirement and/or a free elective.

IV. Place of Course in College Curriculum

- A. Free Elective.
- B. This course does not meet any RVCC program requirements.
- C. To see course transferability: a) for New Jersey schools, go to the NJ Transfer website, www.njtransfer.org; b) for all other colleges and universities, go to the individual websites.

V. Outline of Course Content

- A. Retrosynthetic Analysis
- B. Alcohols and Phenols
- C. Ethers
- D. Ultraviolet Spectroscopy
- E. Conjugated Dienes
- F. Aromatic Compounds
- G. Aldehydes and Ketones
- H. Carboxylic Acids and Nitriles
- I. Carboxylic Acid Derivatives
 - 1. Acid Halides
 - 2. Acid Anhydrides
 - 3. Esters
 - 4. Amides
- J. Carbonyl Alpha-Substitution and Condensation Reactions
- K. Amines
- L. Introduction to Organometallic Reactions (new)

VI. General Education and Course Learning Outcomes

Outcomes (the term here is synonymous with *instructional objectives* and learning *objectives*) are specific statements about knowledge, competencies, attitudes and/or skills to be acquired by the student upon the completion of the course. The student learning outcomes (SLOs) should be measurable and include an appropriate range of levels from the appropriate domains (cognitive, affective, and psychomotor) described in Benjamin Bloom's *Taxonomy of Educational Objectives*.

A. General Education Learning Outcomes:

At the completion of the course, students will be able to:

1. Demonstrate a knowledge of and the ability to critically analyze the principles of organic chemistry. (GE-NJ 3)
2. Solve quantitative and conceptual problems appropriate to the course material. (GE-NJ 2, 3*)
(*embedded critical thinking)

B. Course Learning Outcomes:

At the completion of the course, students will be able to:

1. Name organic compounds according to the IUPAC nomenclature system and draw molecular structures from the systematic IUPAC names.
2. Use their knowledge of the reactivity of functional groups to predict the products of organic reactions and design rational syntheses of selected compounds.
3. Write detailed mechanisms of selected reactions.
4. Interpret infrared, ultraviolet, mass, and nuclear magnetic resonance spectra.

C. Assessment Instruments

- A. Semester examinations
- B. Cumulative final examination
- C. Quizzes

VII. Grade Determinants

- A. Semester examinations
- B. Cumulative final examination
- C. Quizzes

Primary formats, modes, and methods for teaching and learning that may be used in the course:

- A. Lecture/discussion
- B. Small-group work
- C. Student collaboration

VIII. Texts and Materials

- A. Suggested textbooks
 - Klein, David R, *Organic Chemistry*, latest edition (print or electronic), Wiley.
- B. Other suggested materials
 - Molecular Visions Kit by Darling Models

Please Note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.

IX. Resources: none

X. Honors Options: none