COURSE NUMBER: CHEM 2423

COURSE TITLE: Organic Chemistry I Laboratory

CREDIT HRS: 4 LECTURE HRS: 3 LAB HRS: 3 CLN/REC HRS. 1

PRE-REQUISITE: CHEM 1412

CO-REQUISITE: Concurrent enrollment in CHEM 2423 (lecture and recitation). You may repeat this course only once after receiving a grade, including W.

COURSE DESCRIPTION:
This course consists of a study of carbon chemistry that considers covalent bonding, nomenclature, stereochemistry, structure and reactivity, reaction mechanisms, functional groups and introductory synthesis. Laboratory experiments develop organic techniques and reinforce lecture material.

TEXTBOOK:
ISBN: 978-0-7380-6601-1

SUPPLIES:
Goggles, gloves, and aprons that meet the safety requirements of the Chemistry Department. Lab or normal eyeglasses are insufficient protective devices and will not be allowed. A Lab Notebook, as preferred by your instructor.

LEARNING OBJECTIVES:
Upon successful completion of the course students should be able to do the following:

1. Using critical thinking, analyze an aromatic organic compound from any functional group or class and compose an acceptable IUPAC name or generate a structure from a given IUPAC name, and predict the chemical and physical properties of aromatic and multifunctional compounds. (Critical Thinking and Communication Skills)


3. Recognize and utilize the major reaction mechanisms: electrophilic aromatic substitution, nucleophilic aromatic substitution, benzyne, carbonyl addition, carbonyl addition-elimination, electrophilic addition, elimination, oxidation-reduction, free radical for the prediction of organic reaction products. (Critical Thinking and Communication Skills)

4. Utilize principles of kinetics, thermodynamics, and equilibria in the qualitative and quantitative prediction of reaction completion and product ratios. Reactions will also be
evaluated relative to stereochemistry, regioselectivity and chemoselectivity. (Critical
Thinking and Communication Skills)

5. Identify and predict the stability of reactive intermediates i.e. carbocations,
carbanions and free radicals and discuss their structure, methods of stabilization
and role in the context of a given reaction mechanism. (Critical Thinking,
Communication Skills, and Empirical/Quantitative)

6. Use knowledge of acid base-theories to justify and predict proton transfer
reactions and evaluate the possibility of carbanion generation from a given
molecule. (Critical Thinking, Communication Skills, and Empirical/Quantitative)

7. Using critical thinking, analyze spectroscopic data; infrared, mass spectral, H-1
and C-13 Nuclear Magnetic resonance and ultraviolet-visible; for the elucidation
of molecular structure. Relate specific spectral attributes to particular molecular
features of a given molecule. (Critical Thinking, Communication Skills, and
Empirical/Quantitative)

8. Safely work in teams in the laboratory to formulate and conduct experiments for
reasonable multi-step syntheses of organic compounds from specified starting
materials; qualitatively, quantitatively, and critically analyze lab data and
communicate results using both written and electronic formats. (Critical Thinking,
Communication Skills, Empirical/Quantitative, and Teamwork)

COURSE FORMAT:
May include but not limited to lectures, transparencies, videos, computer software,
demonstrations, hands-on exercises, and student presentations.

METHOD OF EVALUATION:

Lecture average = 70% final grade Lab
average = 20% final grade Recitation = 10%
final grade
100% course grade for 4 college credits

Your laboratory instructor will advise, by written addendum, of the specific aspects of the
grade policy that apply to your lab section. The policy of the Chemistry Department
mandates that 20% of your final grade in the Chem 2423 block (lecture, lab, and
recitation giving you 4 college credits in a lab science) will be based upon your final lab
grade. Components of the lab average may include, but are not restricted to lab reports,
prelab assignments, lab quizzes, lab practicum or safety presentations.

RECITATION:
Recitation is a component of this course that enhances critical thinking and problem solving.
This component will include, but is not limited to, some hands-on activities as well as group
activities/discussions, and writing.

ATTENDANCE POLICY: Students should attend all laboratory classes. There are NO
make-up labs. Absences will be averaged as a zero. The lowest grade will be dropped. If four
or more labs are missed, the final lab average will be 0.00% at the end of the
semester. The instructor may bar students who miss the prelab lecture or who are not
properly prepared to perform a lab from performing the lab in question. Students who elect
to stop attending lab should officially drop this course. Please see the schedule of classes for
the last day to withdraw. Religious Holy Days: refer to Chapter 6 Procedures, section 23 in
the current CCCCD Student Handbook.

**ADA STATEMENT:**

It is the policy of Collin County Community College to provide reasonable and appropriate accommodations for individuals with documented disabilities. This College will adhere to all applicable Federal and State laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student’s responsibility to contact the ACCESS Office (room G-200, Spring Creek Campus) or 972-881-5898, in a timely manner if he/she desires to arrange for accommodations.

**ACADEMIC ETHICS:**

The college may initiate disciplinary proceedings against a student accused of scholastic dishonesty. Scholastic dishonesty includes, but is not limited to, statements, acts, or omissions related to applications for enrollment or the award of a degree, and/or the submission of material as one’s own work that is not one’s own. Scholastic dishonesty may involve one or more of the following acts: cheating, plagiarism, collusion, and/or falsifying academic records.

Cheating is willful giving or receiving of information in an unauthorized manner during an examination, illicitly obtaining examination questions in advance, using someone else’s work for assignments as if it were one’s own, copying computer or Internet files, and any other dishonest means of attempting to fulfill the requirements of a course.

Plagiarism is the use of an author’s words or ideas as if they were one’s own without giving credit to the source, including, but not limited to, failure to acknowledge a direct quotation.

Collusion is intentionally aiding or attempting to aid another in an act of scholastic dishonesty, including but not limited to, providing a paper or project to another student; providing an inappropriate level of assistance; communicating answers to a classmate during an examination; removing tests or answer sheets from a test site, and allowing a classmate to copy answers. Contact the Dean of Students at 972-881-5604 for the student disciplinary process and procedures or consult the CCCCD Student Handbook.