

# McLennan

C O M M U N I T Y

# COLLEGE

WACO, TEXAS

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## **COURSE SYLLABUS**

## **AND**

## **INSTRUCTOR PLAN**

**Organic Chemistry II**

**Chem 2425\_01**

**Larry D. Benton**

**NOTE: This is a 16-week course.**

**COVID 19 Notice:**

McLennan Community College is committed to providing you with every resource you need to reach your academic goals including your safety. We will continue to monitor the evolving situation with COVID 19 and adjust our safety guidelines to make sure we offer a safe environment for you and our faculty. Please make sure to consult your faculty and the MCC website at <https://www.mclennan.edu/crisis-management/coronavirus-updates/index.html> on any changes to these guidelines.

**Course Description:**

Advanced principles of organic chemistry will be studied, including the structure, properties, and reactivity of aliphatic and aromatic organic molecules; and properties and behavior of organic compounds and their derivatives. Emphasis is placed on organic synthesis and mechanisms. Includes study of covalent and ionic bonding, nomenclature, stereochemistry, structure and reactivity, reaction mechanisms, functional groups, and synthesis of simple molecules. Polymer chemistry will be reviewed. THIS COURSE IS INTENDED FOR STUDENTS IN SCIENCE OR PRE-PROFESSIONAL PROGRAMS.

**Prerequisites and/or Corequisites:**

Prerequisite: CHEM 2423 with a minimum grade of C. Semester Hours 4 (3 lec/4 lab)

**Course Notes and Instructor Recommendations:**

Students are required to have a laboratory notebook. The correct notebook is available in the bookstore. Details will be discussed first day of class.

**Instructor Information:**

Instructor Name: Larry D. Benton

MCC E-mail: lbenton@mclennan.edu

Office Phone Number: 254-299-8195

Office Location: Science Building Room 310

Office/Teacher Conference Hours: Posted by Instructors Office

Other Instruction Information:

**Required Text & Materials:**

Text Book

Title: Organic Chemistry

Author: Bruice

Edition: Eighth Edition

Publisher: Pearson

ISBN: 9780134042282

Lab Book

Title: Macroscale and Microscale Organic Experiments

Author: Kenneth L. Williamson/Katherine M. Masters

Edition: 7th Edition

Publisher: Cengage

ISBN: 9781305577190 (Rental)

ISBN: 9780357686850 ( eText)

ISBN: 9781305577190 (Hardcover Purchase)

I recommend purchase of the hardcover version of these books to add to your personal library for future reference. The lab manual will be used for both fall and spring semesters of this course and Chem 2425.

**MCC Bookstore Website:** <http://www.mclennan.edu/bookstore/>

**Methods of Teaching and Learning:**

This class consists of 3 hours per week of lecture and 3.75 hours per week of laboratory experimentation. The lecture portion of the class will be a mixture of PowerPoint presentations, problems worked on the whiteboard, and open discussion. Problems worked will be real world chemical problems that are solved to explore the nature of organic chemical mechanisms. Homework problems will be assigned. A research paper and poster which will be counted as a test score will be required. Students will find assignments and instructor communications on Brightspace.

The laboratory portion of the class is conducted with each student experiencing hands on experimentation in the lab. The student's review of the lab experiment prior to execution will be required, therefore, students should be prepared to be quizzed over the lab experiment prior to execution of the experiment. Students may be required to work individually or in groups. Learning to work cooperatively in the laboratory setting is an important aspect of the lab.

**Course Objectives and/or Competencies:**

Lecture:

Upon successful completion of this course, students will:

1. Correlate molecular structure with physical and chemical properties of aliphatic and aromatic organic molecules.
2. Predict the mechanism and outcome of aliphatic and aromatic substitution and elimination reactions, given the conditions and starting materials.
3. Predict the chirality of reaction products based on enantiomeric and diastereomeric relationships.
4. Describe reaction mechanisms in terms of energetics, reaction kinetics, and thermodynamics.
5. Use spectroscopic techniques to characterize organic molecules and subgroups.
6. Emphasis is placed on synthesis of organic chemicals reaction pathways and reaction mechanisms.

Lab:

Upon successful completion of this course, students will:

1. Perform chemical experiments, analysis procedures, and waste disposal in a safe and responsible manner.
2. Utilize scientific tools such as glassware and analytical instruments to collect and analyze data.
3. Identify and utilize appropriate separation techniques such as distillation, extraction, and chromatography to purify organic compounds.
4. Record experimental work completely and accurately in laboratory notebooks, and communicate experimental results clearly in written reports.
5. Correlate molecular structure with physical and chemical properties of aliphatic and aromatic organic molecules.
6. Predict the mechanism and outcome of aliphatic and aromatic substitution and elimination reactions, given the conditions and starting materials.
7. Predict the chirality of reaction products based on enantiomeric and diastereomeric relationships.
8. Describe reaction mechanisms in terms of energetics, reaction kinetics, and thermodynamics.
9. Use spectroscopic techniques to characterize organic molecules and subgroups.

**Course Outline or Schedule:**

All take home tests, reports, and lab notebooks will have a due date assigned. Late submissions will not be accepted (No Exceptions).

Week 1	Review Instructor Plan, Lab notebook expectations, Review Chapter 13 and 14
Week 2	Chapter 9
Week 3	Chapter 10
Week 4	Test Over Chapter 9 and 10
Week 5	Chapter 11
Week 6	Chapter 12
Week 7	Chapter 12, Test over Chapters 11 and 12
Week 8	Spring Break
Week 9	Chapter 15
Week 10	Chapter 16, Test on Chapters 15 and 16
Week 11	Chapter 17
Week 12	Chapter 18
Week 13	Test Chapters 17 and 18, Chapter 19
Week 14	Chapter 19, Chapter 27

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Week 15      Chapter 27

Week 16      In Class Test Chapters 19 and 27

**Course Grading Information:**

Your course grade will be based on the points received from the exams, the final, the lab grades, class participation (attendance and involvement in class) and the periodic exercise problems. There will be a take home exam after each chapter (100 points per exam). Four in class exams will be given. A single comprehensive Make-up exams will be offered the last day of the semester. The final will be a 100 point comprehensive final and will be given on the final exam date. There will not be a makeup test for the final exams. There will not be homework exercise problems, although suggested problems will be provided to the student. The lab grade will consist of a required typed report for each lab, and the lab notebook that will be kept. The complete lab report and the lab notebook are due at the beginning of class on the Thursday after the lab work is performed. Further information on the content and format for the lab book and the lab report will be discuss during the first day of lab. The lab notebook will be grade based on the outlines provide to the student based on FDA and EPA requirements for current Good Laboratory Practices and current Good Manufacturing Practices (cGLP and cGMP).

The Research Project will require planning a method to synthesize an organic compound which will be randomly drawn from a pool of compounds, synthesizing the compound, characterizing the compound and the synthetic method, and presenting the work in a formal poster session scheduled to be held as MCC Scholars' Day.

Your grade will be calculated using the following breakdown:

<b>Take Home Exams</b>	<b>20%</b>
<b>In-class Exams</b>	<b>40%</b>
<b>Lab Notebook</b>	<b>10%</b>
<b>Lab Report</b>	<b>10%</b>
<b>Research Project</b>	<b>10%</b>
<b>Finals Exam</b>	<b>10%</b>

Your course letter grade will be based on the following scale: 90% or more of the total points will guarantee a grade of "A"; 80% or more guarantees "B"; 70% or more guarantees "C"; 60% or more guarantees "D"; below 60% of the total may result in an "F".

**Late Work, Attendance, and Make Up Work Policies:**

Make-up labs are not available. Attendance policy will follow McLennan Community College attendance policy. Review MCC policy on attendance at the link below.

**Student Behavioral Expectations or Conduct Policy:**

If there is any evidence of cheating on any homework, quiz, test, or final, you will receive a zero for that item and cannot make it up or replace it and it cannot be dropped. Tobacco and tobacco product use is prohibited inside college buildings. This includes smokeless products as well as cigarettes, pipes, and cigars.

Safety equipment must be worn at all times: long pants/skirt (covering at least the top half of the calf), apron or lab coat, hair back, safety goggles, and, if necessary, gloves. No open-toed shoes, shoes with holes in them, shoes that leave the top of the foot exposed, hats of any sort, shorts, food or drink are allowed. Safety is the MOST important part of lab. Students must abide by the general safety regulations as described in the chemistry 1411 laboratory manual.

Please read and abide to the General Conduct Policy in the Highlander Guide.

**[Click Here for the MCC Attendance/Absences Policy](https://www.mclennan.edu/highlander-guide/policies.html)**

**(<https://www.mclennan.edu/highlander-guide/policies.html>)**

Click on the link above for the college policies on attendance and absences. Your instructor may have additional guidelines specific to this course.

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## ACADEMIC RESOURCES/POLICIES

### **Accommodations/ADA Statement:**

Any student who is a qualified individual with a disability may request reasonable accommodations to assist with providing equal access to educational opportunities. Students should contact the Accommodations Coordinator as soon as possible to provide documentation and make necessary arrangements. Once that process is completed, appropriate verification will be provided to the student and instructor. Please note that instructors are not required to provide classroom accommodations to students until appropriate verification has been provided by the Accommodations Coordinator. For additional information, please visit [www.mclennan.edu/disability](http://www.mclennan.edu/disability).

Students with questions or who require assistance with disabilities involving physical, classroom, or testing accommodations should contact:

[disabilities@mclennan.edu](mailto:disabilities@mclennan.edu)

254-299-8122

Room 319, Student Services Center

### **Title IX:**

We care about your safety, and value an environment where students and instructors can successfully teach and learn together. If you or someone you know experiences unwelcomed behavior, we are here to help. Individuals who would like to report an incident of sexual misconduct are encouraged to immediately contact the Title IX Coordinator at [titleix@mclennan.edu](mailto:titleix@mclennan.edu) or by calling Dr. Drew Canham (Chief of Staff for Diversity, Equity & Inclusion/Title IX) at (254) 299-8645. Individuals also may contact the MCC Police Department at 299-8911 or the MCC Student Counseling Center at MCC at (254) 299-8210. The MCC Student Counseling Center is a confidential resource for students. Any student or employee may report sexual harassment anonymously by visiting <http://www.lighthouse-services.com/mclennan/>.

Go to McLennan's Title IX webpage at [www.mclennan.edu/titleix/](http://www.mclennan.edu/titleix/). It contains more information about definitions, reporting, confidentiality, resources, and what to do if you or someone you know is a victim of sexual misconduct, gender-based violence or the crimes of rape, acquaintance rape, sexual assault, sexual harassment, stalking, dating violence, or domestic violence.

**Student Support/Resources:**

MCC provides a variety of services to support student success in the classroom and in your academic pursuits to include counseling, tutors, technology help desk, advising, financial aid, etc. A listing of these and the many other services available to our students is available at <http://www.mclennan.edu/campus-resource-guide/>

College personnel recognize that food, housing, and transportation are essential for student success. If you are having trouble securing these resources or want to explore strategies for balancing life and school, we encourage you to contact a Success Coach by calling (254) 299-8226 or emailing [SuccessCoach@mclennan.edu](mailto:SuccessCoach@mclennan.edu). Students may visit the Completion Center Monday-Friday from 8 a.m.-5 p.m. to schedule a meeting with a Success Coach and receive additional resources and support to help reach academic and personal goals. Paulanne's Pantry (MCC's food pantry) provides free food by appointment to students, faculty and staff based on household size. Text (254) 870-7573 to schedule a pantry appointment. The Completion Center and pantry are located on the Second Floor of the Student Services Center (SSC).

**MCC Foundation Emergency Grant Fund:**

Unanticipated expenses, such as car repairs, medical bills, housing, or job loss can affect us all. Should an unexpected expense arise, the MCC Foundation has an emergency grant fund that may be able to assist you. Please go to <https://www.mclennan.edu/foundation/scholarships-and-resources/emergencygrant.html> to find out more about the emergency grant. The application can be found at [https://www.mclennan.edu/foundation/docs/Emergency\\_Grant\\_Application.pdf](https://www.mclennan.edu/foundation/docs/Emergency_Grant_Application.pdf).

**MCC Academic Integrity Statement:**

Go to [www.mclennan.edu/academic-integrity](http://www.mclennan.edu/academic-integrity) for information about academic integrity, dishonesty, and cheating.

**Minimum System Requirements to Utilize MCC's D2L|Brightspace:**

Go to <https://www.mclennan.edu/center-for-teaching-and-learning/Faculty-and-Staff-Commons/requirements.html> for information on the minimum system requirements needed to reliably access your courses in MCC's D2L|Brightspace learning management system.

**Minimum Technical Skills:**

Students should have basic computer skills, knowledge of word processing software, and a basic understanding of how to use search engines and common web browsers.

**Backup Plan for Technology:**

In the event MCC's technology systems are down, you will be notified via your MCC student email address. Please note that all assignments and activities will be due on the date specified in the Instructor Plan, unless otherwise noted by the instructor.



**Email Policy:**

McLennan Community College would like to remind you of the policy (<http://www.mclennan.edu/employees/policy-manual/docs/E-XXXI-B.pdf>) regarding college email. All students, faculty, and staff are encouraged to use their McLennan email addresses when conducting college business.

A student's McLennan email address is the preferred email address that college employees should use for official college information or business. Students are expected to read and, if needed, respond in a timely manner to college emails.

**Instructional Uses of Email:**

Faculty members can determine classroom use of email or electronic communications. Faculty should expect and encourage students to check the college email on a regular basis. Faculty should inform students in the course syllabus if another communication method is to be used and of any special or unusual expectations for electronic communications.

If a faculty member prefers not to communicate by email with their students, it should be reflected in the course syllabus and information should be provided for the preferred form of communication.

**Email on Mobile Devices:**

The College recommends that you set up your mobile device to receive McLennan emails. If you need assistance with set-up, you may email [Helpdesk@mclennan.edu](mailto:Helpdesk@mclennan.edu) for help.

**Forwarding Emails:**

You may forward emails that come to your McLennan address to alternate email addresses; however, the College will not be held responsible for emails forwarded to an alternate address that may be lost or placed in junk or spam filters.

**Disclaimer:**

The resources and policies listed above are merely for informational purposes and are subject to change without notice or obligation. The College reserves the right to change policies and other requirements in compliance with State and Federal laws. The provisions of this document do not constitute a contract.