Course Information
Organic Mechanism and Structure (CHEM 513-01W)
(This is a Web-based course)

COURSE SYLLABUS: Spring Semester, 2022

INSTRUCTOR INFORMATION

Instructor: Allan D. Headley
Main Chemistry Office Phone: (903) 886-5392
Office Fax: (903) 468-6020
University Email Address: allan.headley@tamuc.edu
Preferred Form of Communication: email
Available for virtual office hour via Zoom in D2L: MWF, 10:00 – 11:00 am; and TR, 1:30 pm – 3:30 pm.

Text: Your basic text is "Perspectives on Structure and Mechanism in Organic Chemistry" Felix A. Carroll, 2nd edn., 2010. Wiley & Sons, Inc., Company, Hoboken, New Jersey. ISBN: 978-0-470-27610-5

Course Objectives and Description: In this course, the analysis of the stereochemistry and different conformations of molecules is covered. In addition, the analysis of the different methods used for studying reaction mechanisms, including isotope effects, Linear Free Energy Relationships (LFER) is covered and applied to understand the mechanisms of substitution, addition, elimination, and pericyclic reactions. The formation and reactivity of different types of reactive intermediates, including carbocations, carbanions, radicals and carbenes are also studied. This course is designed to develop and improve the student's ability to understand recently published manuscripts that relate to the various aspects covered in the course.

University Policies, Procedures, Statements and Notifications:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/

Important Dates: Visit the following website for important university dates:
http://www.tamuc.edu/admissions/registrar/academicCalendars/default.aspx

EXAMINATIONS

First Exam: Week of February 14, 2022
Second Exam: Week of March 21, 2022
Third Exam: Week of April 18, 2022
Final Exam: Week of May 9, 2022

Each midterm exam is worth 100 points (20% of your final grade); 10% of your grade will come a written research project; the final exam is worth 30% of your final grade.

TECHNOLOGY REQUIREMENTS

COURSE REQUIREMENTS

Minimal Technical Skills Needed

It is expected that students will have a basic knowledge of the internet and how to interface with D2L Brightspace, our learning management system (LMS). In addition, students must have the ability to scan written work and convert it to a pdf format for upload to D2L. There are many free applications, such as Camscanner, that are available that can be downloaded to smart phones, which will allow students to scan a document and convert it to a pdf format for upload to D2L.

Instructional Methods

There will not be scheduled online lectures, but lecture videos and PowerPoints of lectures will be posted each week on D2L. Students are responsible to view these lecture videos, along with reading the required material in the textbook.

TENTATIVE SYLLABUS

Week of	TOPICS TO BE COVERED	READING ASSIGNMENT
Jan 10	Introductions and course descriptions	
Jan 17	Stereochemistry and conformers of molecules	53 – 100
Jan 24	Stereochemistry and conformers of molecules	113 – 169
Jan 31	Reactive intermediates	253 – 278
Feb 7	Reactive intermediates	278 – 305
Feb 14	**Exam #1**	
	Reactive intermediates	305 – 321
Feb 21	Methods of studying reaction mechanisms	322 – 341
Feb 28	Methods of studying reaction mechanisms	341 – 370
Mar 7	Methods of studying reaction mechanisms	370 – 404
Mar 14	**Spring break**	
Mar 21	**Exam #2**	
Mar 28	Acid-base catalyzed reactions	413 – 564
Apr 4	Substitution reactions	453 – 506
Apr 11	Substitution reactions	469 - 544
Apr 18	**Exam#3**	
	Addition reactions	551 – 627
Apr 25	Elimination reactions	633 - 687
May 2	Pericyclic reactions	697 – 778
May 9	**Final Exam***	

*Check examination schedule: http://appsprod.tamuc.edu/Schedule/Schedule.aspx

Reference Books

- Modern Physical Organic Chemistry, By Eric V. Anslyn, Dennis A. Dougherty - University Science (2006) - ISBN 1891389319

- Jerry March, *Advanced Organic Chemistry: Reactions, Mechanisms, and Structure,* fourth edition, John Wiley & Sons, **1992**.
- Thomas H. Lowry and Kathleen Schueller Richardson, *Mechanism and Theory in Organic Chemistry*, third edition, Harper & Row Publishers, **1987**.
- Advanced Organic Chemistry, Parts A: Structure and Mechanisms, by Francis A. Carey 2008, published by Springer, ISBN: 978-0-387 44897-8
- Advanced Organic Chemistry, Parts B: Reactions and Synthesis, 5th Edn. by Francis A. Carey 2008, published by Springer, ISBN: 978-0-387 44897-8
- Hehre, W. J.; Shusterman, A. J.; Huang, W. W. "A Laboratory Boon of Computational Organic Chemistry," Wavefunction, Inc., 1996 (ISBN 0-9643495-8).
- Hehre, W. J.; Shusterman, A. J.; Nelson, J. E. "The Molecular Modeling Workbook for Organic Chemistry," Wavefunction, Inc. CA. 1998 (ISBN: 1-890661-06-6).
- Hehre, W. J "A Guide to Molecular Mechanics and Quantum Chemical Calculations," Wavefunction, Inc., 2003 (ISBN:1-890661-18-X).
- "Getting Started With Spartan," 3rd Edition (Spartan Student Edition), Wavefunction, Inc.,2002-2004 (ISBN:1-890661-25-2).
- Isaacs, N. C. *Physical Organic Chemistry*; John Wiley & Sons: New York, 1987.
- Smith, M. B. *Organic Synthesis*, McGraw-Hill, 1994.
- Ritchie, *Physical Organic Chemistry - The Fundamental Concepts*, 1975
- Jones, *Physical and Mechanistic Organic Chemistry*, 1984
- Isaacs, *Physical Organic Chemistry*, London, 1990.
- P. Sykes, *Mechanism In Organic Chemistry*, 1965.
- Bernard Miller "Advanced Organic Chemistry, Reaction and Mechanism" 2nd Ed. Prentice Hall, New Jersey, 2003.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

NO make-up exams will be offered. If you miss a midterm for a reason beyond your control, you may request in writing to be excused from that exam providing you have valid written documentation supporting your reason.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

TECHNOLOGY REQUIREMENTS

LMS – myLeo Online – D2L Brightspace

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements.

LMS Requirements:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements
LMS Browser Support:
https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm
YouSeeU Virtual Classroom Requirements:

https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

The Instructor will communicate mostly through myLeo Online Learning Management System, D2L Brightspace with students. As a result, make sure that you have a way to get alerts of announcements that are posted on D2L. The Instructor will also communicate with students via e-mail, so please make sure to check your e-mail daily for important announcements and information about the course.

Technical Support

If you are having technical difficulty with any part of D2L Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here: https://community.brightspace.com/support/s/contactsupport

Interaction with Instructor Statement

The preferred mode of communication is via e-mail and if you have any questions or are having difficulties with the course material, please contact your Instructor; response time is typically within one day. When communicating with the Instructor, ensure that you include your full name, CWID, and course and section number in your e-mail.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook .
http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: Netiquette
http://www.albion.com/netiquette/corerules.html

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity
Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:
Undergraduate Academic Dishonesty 13.99.99.R0.03
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf
Graduate Student Academic Dishonesty 13.99.99.R0.10
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf

ADA Statement
Students with Disabilities
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:
Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library- Room 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu
Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice
Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement
Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.
For a list of locations, please refer to the Carrying Concealed Handguns On Campus

document and/or consult your event organizer.
Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf
Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.