

Course Syllabus for Advanced Organic Chemistry II
CHEM 5322 (CRN 27383)/CHEM 6322 (CRN 27384)
Spring Semester 2016

Meeting time: MWF 8:30 – 9:20 am
Location: Classroom Bldg. C204
Instructor: Dr. Katja Michael
Office: CCSB 2.0414
Email: kmichael@utep.edu (preferred method of contacting me)
Phone: (915)747-5240
Office hours: after appointment
Text Book: "Organic Synthesis with Carbohydrates" Geert-Jan Boons, Karl H. Hale,
Blackwell Science, 2000, ISBN 0-6320-4508-6

Course objective: Students will become familiar with aspects of synthetic organic chemistry that involve carbohydrates, but also with general organic chemistry concepts and reaction mechanisms. Many organic reactions, for example the Barton deoxygenation, will be covered in the context of carbohydrate chemistry. The course material goes beyond undergraduate texts, but many of the concepts typically taught at the undergraduate level will be applied in a synthetic and retrosynthetic manner, and in multiple step syntheses. Students will also learn of important properties of saccharides such as configuration, conformation, and stereoelectronic effects. This basic knowledge is key to many of the discussions that follow. Another course objective is to learn about the use of protecting groups, and the functionalization of monosaccharides, which will then lead to the formation of the glycosidic bond, and the preparation of disaccharides and oligosaccharides, as well as glycopeptides. If time permits, some stereoselective natural product syntheses will be discussed, in which carbohydrates are used as chiral starting materials. Their rich stereochemistry can be used to install stereogenic centers stereoselectively into target molecules. Students will also learn how to research and present a scientific topic, and they will learn to propose research ideas that could potentially advance knowledge beyond the current literature. (Presentation topics will be provided.)

Curriculum:

1. Mono- and oligosaccharide: structure, configuration, and conformation
2. Protecting groups
3. Functionalization
4. Oligosaccharide synthesis
5. Various important organic reactions
6. Student presentations on various topics (April, May)

Important Dates and Policies

1/20/2016	First day of instruction of this class
2/3/2016	Census day
2/17/2016	No classes
3/7/2016 – 3/11/2016	Spring break, no classes
3/16/2016	1st midterm exam
3/25/2016	Cesar Chavez Day and Spring Study Day – no classes
4/1/2016	Course drop deadline (last day to drop class with W) According to UTEP and College of Science policies, no requests for a withdrawal will be approved after that date. Students can always petition the Registrar for a complete withdrawal from <u>all</u> courses pending documentation.
5/6/2016	Last class
TBA	Final Exam

Grading: Students will be graded based on their midterm exam (25%), their daily quiz performance (20%) in-class participation (asking questions and verbally responding to questions) (5%), their presentation and research proposal (25%) and their final exam (25%).