

**Course Syllabus for Advanced Organic Chemistry II**  
**CHEM 5322 (CRN 26131)/CHEM 6322 (CRN 26132)**  
**Spring Semester 2014**

Meeting time: MWF, 8:30 – 9:20 am  
Location: Liberal Arts Bldg. 208  
Instructor: Dr. Katja Michael  
Office: CCS 2.0414  
Email: [kmichael@utep.edu](mailto:kmichael@utep.edu)  
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 and reaction mechanisms. 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 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 into target molecules. Students will also be given the opportunity 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

1/22/2014	First day of instruction
2/5/2014	Census day
3/10/2014 – 3/14/2014	Spring break, no classes
3/24/2014	Midterm exam
3/31/2014	Cesar Chavez Day
4/4/2014	Course drop deadline
4/18/2014	Spring study day, no classes
5/7/2014	Last class
5/9/2014	Dead Day
5/12/2014, 10:00 am	Final Exam

Grading: Students will be graded based on their midterm exam (25%), their daily quiz performance (25%) their presentation and research proposal (25%) and their final exam (25%).