

Chemistry 20482 – Basic Organic Chemistry II – Spring 2017

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Dr. Earley's Schedule				
	M	T	W	R
9:00am				
9:30am				
10:00am			Organic	
10:30am			Lab.	
11:00am		Office		Office
11:30am		:		:
12:00pm		Hours	Office	Hours
12:30pm		Basic	Hours	Basic
1:00pm		Org II		Org II
1:30pm		Office Hrs		Office Hrs
2:00pm		Molec.		Molec.
2:30pm		of		of
3:00pm		Life		Life
3:30pm		Office Hrs		Office Hrs
4:00pm				

Additional office hours available by appointment

Texts

- **Required:** *Organic Chemistry*, by David Klein; Wiley, 2012. Either the 1st or 2nd edition is acceptable.
- **Optional:** Any type of molecular model kit.

Prerequisites

Students are expected to have successfully completed the equivalent of one semester (4 credit hours) of a college-level Organic Chemistry for science majors, which will typically be CHEM 20481.

Course Description

This course is a continuation of CHEM 20481, and emphasizes reactions and mechanisms of organic compounds. The order of topics will NOT follow the order in the textbook due to our need to cover those topics which were not covered in 20481. Infrared and ultraviolet spectroscopy will NOT be covered in the lecture portion of this course, but instead is covered in CHEM 30475 & 30476 (Organic Chemistry I & II Laboratories). If you are not getting this information in lab, please see me to make arrangements to cover this material.

Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Understand the key principles of nuclear magnetic resonance spectroscopy (both ^1H and ^{13}C NMR). Analyze NMR spectra to elucidate the structure of simple organic compounds and draw NMR spectra of a known compound.
2. Recall the chemistry of benzene and aromatic compounds (including heterocyclic aromatic compounds) and define aromaticity. Students will be able to describe features that impact issues of regioselectivity and reactivity.
3. Name aromatic compounds and amines using IUPAC substitutive nomenclature.
4. Recall the chemistry of amines including their reactions and synthesis.
5. Recall the chemistry of enols and enolates and apply this knowledge to the synthesis of unsaturated carbonyl compounds.
6. Understand and apply stereochemical principles to multi-step problem solving.
7. Recognize and understand the importance of organic chemistry in their own lives and society in general.
8. Perform a 1-3 step retrosynthetic analysis of a target material and subsequently describe details (including key reagents and conditions) of the how the target may be synthesized from the starting material.
9. Possess the background knowledge and problem solving strategies necessary to succeed in subsequent courses in either Organic Chemistry or Introductory Biochemistry

Grading

Grades for this course will be based on the results of three examinations worth 100 points each, and one 100 point cumulative final. Tentative dates for these examinations are given in the lecture outline below. Grades will be based on the scale given below. Grades will not be curved or arbitrarily adjusted in any manner, and extra credit will not be given.

Grading Scale		
Lecture Examinations	3 x 100 pts	300 pts
Cumulative Final	100 pts	100 pts
Total		400 pts

Grade	A	B+	B	B-	C+	C	C-	D	F
%	90-100%	88-89%	82-88%	80-81%	78-79%	72-78%	70-71%	60-70%	<60%

Attendance

Attendance in lecture is optional, but strongly encouraged. Students are responsible for all material presented in lecture whether or not they are present. If you must miss class for an extended period, please see me.

Homework

Homework problems from the textbook will be assigned periodically and should be completed in a timely fashion. Questions on assigned problems may be asked either during office hours or during lecture. While these will not be graded, organic chemistry is best learned by doing problems. Simply watching me go over problems in lecture will not prepare you adequately for exams.

Examinations

The format of examinations will be varying combinations of multiple choice, true/false, short answer, and drawing chemical structures. For most examinations in organic chemistry, the common types of questions are as follows.

1. Be able to convert between the name and structure of organic compounds.
2. Understand fundamental properties of various functional groups (polarity, acid/base, ...).
3. Interpret simple ^1H and ^{13}C NMR spectra.
4. Be able to predict the major organic product(s) expected from chemical reactions.
5. Be able to predict reasonable starting materials and synthetic procedures (reaction conditions, which may include multiple steps) used to prepare given compounds.
6. Draw the mechanism for a chemical reaction using the curved arrow formalism.

If you are unable to attend any examination during the regularly scheduled time, you must contact Dr. Earley BEFORE the examination is given to arrange a makeup examination. Makeup examinations must be completed within one week of the scheduled examination date, and will only be given for legitimate, documented excuses. All makeup exams must be completed *before* the start of finals week.

The final examination is scheduled for Thursday, May 11 at 1:00pm. The final examination will be cumulative, but will emphasize material covered after the last regular examination. This examination will only cover the lecture portion of the course.

Office Hours

Office hours are listed near the top of this syllabus. If you would like to meet with me outside of these normal times, see me before or after class (or email or call) and we can set up additional time to meet.

University Policy/General Information

I have posted a page containing various University policy statements (Academic honesty, Students with disabilities, etc.) and other general information (email accounts, posting of grades, etc.) on my website. This information should be considered as part of this syllabus and is available at:

<http://delta.stark.kent.edu/chemistry/KSU/UniversityPolicy>

Content and Homework

We will be skipping over large sections of the textbook that are not critical to the course objectives. In addition to the assigned homework at the end of each chapter, I strongly encourage all students to work through the "SkillBuilder" and "Conceptual Checkpoint" problems within the body of each chapter.

Tentative Schedule

(All dates listed below are tentative and are subject to change).

Week Beginning ...	T	R
Jan 16	Ch. 17	Ch. 17
Jan 23	Ch. 17	Ch. 18
Jan 30	Ch. 18	Ch. 18, 19
Feb 6	Ch. 19	Ch. 19
Feb 13	Ch. 19, Review	Exam #1
Feb 20	Ch. 16	Ch. 16
Feb 27	Ch. 23	Ch. 23
Mar 6	Ch. 23	Ch. 23
Mar 13	Ch. 25	Ch. 25
Mar 20	Ch. 25, Review	Exam #2
Mar 27	SPRING BREAK	
Apr 3	Ch. 24	Ch. 24
Apr 10	Ch. 26	Ch. 26
Apr 17	Ch. 11	Ch. 11
Apr 24	Ch. 27	Ch. 27, Review
May 1	Exam #3	Review

Final examination for this class is scheduled for Thursday, May 11 at 1:00pm.