

Chemistry 20481 – Basic Organic Chemistry I – Fall 2017

Dr. Clarke W. Earley
Kent State University Stark Campus
421 Main Hall
Phone: (330) 244-3421
email: cearley@kent.edu
Web site: <https://delta.stark.kent.edu/chemistry/>

Dr. Earley's Schedule				
	M	T	W	R
9:00am		↑		
9:30am		Organic		
10:00am		Chemistry		
10:30am		I		
11:00am		Lab		
11:30am		↓		
12:00pm		↑		
12:30pm		Office		
1:00pm		Hours		
1:30pm	Office Hrs	↓	Office Hrs	Office Hrs
2:00pm	Organic	Organic	Organic	Organic
2:30pm	I	I	I	I
3:00pm	Office Hrs	Office Hrs	Office Hrs	Office Hrs
3:30pm	Molecules		Molecules	
4:00pm	of Life		of Life	

Additional office hours available by appointment

Texts

- Required: *Organic Chemistry*, by David Klein; Wiley. Either the 1st, 2nd, or 3rd edition is acceptable.
- Optional: Any type of molecular model kit. (This will not be needed until the second half of the semester).

Prerequisites

Students are expected to have successfully completed the equivalent of one year of college-level General Chemistry, which will typically be CHEM 10060 and 10061.

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.

Course Description

This course is the first semester of a two semester sequence designed to provide a solid background in the fundamentals of organic chemistry, with an emphasis of topics of relevance to biochemistry. It should be noted that this course does NOT satisfy the requirements for B.S. Chemistry majors (who are required to take CHEM 30481), but is intended for students majoring in biology, nutrition, B.A. chemistry program, and other related disciplines.

Because many students are only required to take this first semester, we will not be progressing through the book in order, but will skip significant amounts of material so that we can cover more topics directly related to biochemistry. During this semester, several important organic functional groups are introduced, fundamental reaction chemistry of these groups is covered, basic chemical principles (such as stereochemistry) are covered, and the curved arrow

formalism is developed to explain reaction mechanisms. Spectroscopy (IR, UV/Vis, and NMR) will NOT be covered in the lecture portion of this course, but instead will be covered in CHEM 30475 (Organic Chemistry I Laboratory).

Learning Outcomes

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

- Recognize and draw all common functional groups and be able to name compounds containing these units using IUPAC substitutive nomenclature.
- Relate underlying core issues of molecular structure to chemical reactivity and organic reaction mechanism.
- Understand and apply stereochemical principles to multi-step problem solving.
- Recognize and understand the importance of organic chemistry in their own lives and society in general.
- 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.
- 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 the quizzes and examinations. Six quizzes worth 10 points each will be given, and the scores from the best five of these will be used (the lowest quiz score will be dropped). Four regular lecture examinations worth 100 points each and one 150 point cumulative final will also be given. Tentative dates for these quizzes and examinations are given in the lecture outline below. You will be given as much advance notice as possible if any of these dates change. Grades will be based on the scale shown below, and will not be curved or arbitrarily adjusted in any manner. Extra credit will not be given.

Grading Scale

Top five quizzes	5 x 10 pts	50 pts
Lecture Examinations	4 x 100 pts	400 pts
Cumulative Final		150 pts
Total		600 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%

Homework

I will not be requiring any homework for this class. However, I encourage students to work through the “SkillBuilder” and “Conceptual Checkpoint” problems within the body of each chapter of the textbook. In addition, the homework assignments at the end of each chapter labeled “Practice Problems” are recommended.

Examinations

The format of quizzes and exams will be varying combinations of multiple choice, true/false, short answer and drawing of chemical structures and reaction mechanisms. For most exams, the types of questions include the following.

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. Predict the major organic product(s) expected from chemical reactions. You should be able to combine multiple reaction steps.

- Predict the reasonable routes (reaction conditions and/or starting materials) to synthesize specific molecules.
- 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 beginning of finals week.

The final examination is scheduled for Tuesday, Dec. 12 at 1:00pm. This exam will be cumulative, but will emphasize material covered after the last regular examination.

University Policy/General Information

Information on various University policies (Academic honesty, Students with disabilities, etc.) and other general information (email accounts, posting of grades, etc.) is posted on the course website. This information should be considered as part of this syllabus and is available at:

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

Tentative Schedule

To emphasize the biological aspects of organic chemistry, we will be skipping over large sections of the textbook that are not critical to the course objectives. It is anticipated that we will be covering chapters 1-14 and 20-25 this semester. All dates listed below are tentative and are subject to change.

<i>Week Beginning:</i>	M	T	W	R
Aug. 28	Ch. 1	Ch. 1	Ch. 1, 2	Quiz #1, Ch. 2
Sep. 4	Labor Day	<i>Class canceled</i>	<i>Class canceled</i>	Ch. 2
Sep. 11	Ch. 3	Ch. 3	Quiz #2, Ch. 4	Ch. 4
Sep. 18	Ch. 4	Ch. 4	Exam #1	Ch. 5
Sep. 25	Ch. 5	Ch. 5	Ch. 6	Ch. 6
Oct. 2	Ch. 6	Quiz #3, Ch. 7	Ch. 7	Ch. 7
Oct. 9	Ch. 8	Ch. 8	Ch. 8	Exam #2
Oct. 16	Ch. 9	Ch. 9	Ch. 9	Ch. 9, 12
Oct. 23	Ch. 12	Ch. 12	Ch. 12	Quiz #4, Ch. 13
Oct. 30	Ch. 13	Ch. 14	Ch. 14	Ch. 14
Nov. 6	Exam #3	Ch. 20	Ch. 20	Ch. 20
Nov. 13	Ch. 20, 21	Ch. 21	Ch. 21	Quiz #5, Ch. 22
Nov. 20	Ch. 22	Ch. 22	THANKSGIVING BREAK	
Nov. 27	Ch. 22	Ch. 22	Ch. 22	Exam #4
Dec. 4	Ch. 23	Ch. 23	Quiz #6, Ch. 24	Ch. 25

Final examination for this class is scheduled for Tuesday, Dec. 12 at 1:00pm.