

## Introduction to Organic Chemistry I Chemistry 261, Fall 2017

### Instructors

Dr. D. M. Zurcher (C147A Kenan Lab) <a href="mailto:zurcherd@email.unc.edu">zurcherd@email.unc.edu</a> 919-962-2541	Section 003	Tu, Th 9:30-10:45 am	Chapman 211
	Section 002	Tu, Th 2:00-3:15 pm	Genome 200
Dr. M. T. Crimmins (C640 Kenan Lab)	Section 001	Tu, Th 11:00 am -12:15 pm	Chapman 211

### Mentors:

Section 002: TBA

Section 003: TBA

**Prerequisite:** Chem 102 or 102H or equivalent. C- or better required in prerequisite.

**Course credit hours:** 3

### Course Description and Objectives

Welcome to Chemistry 261, which is the first of a two-semester sequence on organic chemistry! Chemistry 261 uses organic chemistry to promote a fundamental understanding of concepts in chemistry and science. Organic chemistry is, simply put, the study of molecules made from carbon. You will find that familiar compounds that have a large impact on our daily lives will appear throughout the class (e.g., Aspirin). The material covered in this class focuses on how chemical structure impacts the properties and reactivity of organic molecules. The course can be challenging at times, but with practice and dedication, I know you can succeed! More specifically during this course, you will:

- Build critical thinking and problem solving skills
- Develop a strong understanding of the three-dimensional structure of organic molecules
- Learn to predict reactivity of organic compounds based on their composition and structure
- Gain insight into how kinetic and thermodynamic parameters control the outcome of organic reactions

### Course Materials

#### Required Materials

Textbook: Organic Chemistry, Paula Bruice; 8<sup>th</sup> Edition

Pearson Mastering Chemistry License

course ID: Section 003 (9:30-10:45 am): MCZURCHER11060

Section 002 (2-3:15 pm): MCZURCHER35113

*i-clicker (i-clicker + or i-clicker 2)*

*HGS Molecular Models*

#### Optional Materials

Organic Chemistry Student Study Guide and Solutions Manual, Paula Bruice

Course Website: sakai.unc.edu Please check the course website frequently as course announcements and resources are posted to this webpage. Practice problems, exams, clicker scores, guided reading notes, etc. are all posted to this site. It is your responsibility to check it regularly.

### Office hours, Q & A Sessions, and E-mail

Office hours are held Mondays 11 am – 12 pm and Thursdays 4-5 pm in C147A or by appointment.

Group question and answer sessions are opportunities to work problems and talk about course content. When and where these sessions will be held are announced each week in lecture.

**Email Policy:** If you need to email me please include “Chem261” and a one-word description in the subject line to help me triage my exploding inbox!

### Keys to Success

#### Practice Practice, Practice

Organic chemistry is a two-semester sequence, which builds sequentially on material presented earlier in the course. *It is essential that you do not fall behind as it becomes difficult to catch up.* The best approach to mastering the material in this course is to keep up daily, therefore you should spend some time every day working on the course. It is significantly better to invest shorter amounts of time every day for seven days than to sit down and spend a large block of time one day a week on this course. Repetition is extremely important.

#### Seek Help Early

If you are having difficulty with the course, get help as soon as possible. Waiting until half way through the semester (or longer) is too late.

### Course Overview

To create an active, engaged learning environment in this class, you will be asked to master some content **before** class by watching video lectures and/or reading. A daily assignment before class through the Mastering Chemistry platform will help you assess your understanding of this pre-class material. During class, you will apply your knowledge by solving problems individually or in small groups. Excellent attendance is required!

Before Class	During Class	After Class
Watch videos/read the textbook	In-class problem solving (i- clicker)	Weekly self-test (Mastering)
Pre-class assignment (Mastering)		

### Course Videos and Textbook (Before Class)

Link to course videos: <https://vimeo.com/album/2496793>

These videos are an excellent introduction to the course content that we will be discussing in class each day. I recommend either watching the videos or reading the specified textbook chapters assigned each day before coming to lecture.

- *Guided reading notes* are provided (on Sakai) each day for you to fill out while watching the videos or reading the textbook. These notes point out the key topics of each section. Some but not all of the content will show up in lecture. However, all of the content is important!

## Course Homework (Before Class & After Class)

### Pre-class Assignments

There will be a short assignment in Mastering Chemistry due prior to class that will test your understanding of the reading/video assignment for class. For section 003 the assignment will be due at **9:00 am** and for section 002 it will be due at **1:30 pm**.

### Weekly Self Tests

Online **Self-Tests** will be assigned in Mastering Chemistry at the end of each chapter. These will normally be due at **11:59 pm on Sunday** of the appropriate week. Self-Test problems are much like end-of-chapter problems from the textbook.

- **Please note:** in order to earn credit for your work, you must click the “give up” button on multi-part problems where you do not achieve the correct answer.

**No late submission or makeups will be given for either the pre-class assignment or weekly self-tests.** The Mastering Chemistry clock will be used to determine the submission date/time. This clock may differ from yours, so submit your work well in advance. All graded self-tests are to be worked independently (by you alone) with no collaboration or outside discussion. **Any collaboration will be treated as a violation of the UNC Honor Code.**

### **In-Class Problem Solving (During Class)**

Numerous clicker questions will be posed during class that will test your understanding of the preceding class information or your understanding of the reading/video assignment for the class. Points are awarded based on participation in at least 75% of the questions for the day.

During some class periods, you will work on a set of problems together in groups. The problems will teach you *how to apply* the concepts you learned through class, reading, and videos. You may use your book and other notes to work the problems.

## Course Evaluation and Assessment

The total number of points possible for the course is **450 points**.

Final letter grades will be assigned in accord with the 2000 Educational Policy Committee Report, which describes the meaning of grades as follows:

- |  |  |
|--|--|
| "A": Outstanding mastery of course material    | "B": Superior mastery of course material               |
| "C": Adequate mastery of course material       | "D": Mastery of course material that is unsatisfactory |
| "F": Unsatisfactory mastery of course material |  |

The exact grade cut offs will vary from term to term based on the exam averages, but the historical ranges tend to be A (>93.5), A- (93.4-89.5), B+ (89.4-87.5), B (87.4-83.5), B-(83.4-79.5), C+ (79.4-77.5), C (77.4-73.5), C-(73.4-67.5), D (67.4-59.5), F(<59.4).

### **The breakdown of how the points are distributed:**

#### Midterm Exams – 300 points (100 pts/exam)

Three in-class exams will be given over the semester. You will be graded for your best effort. Your final grade will be calculated two ways (Option A and B in the table below) and the highest grade will be your final grade. Option B calculates your grade by dropping the lowest midterm exam.

Exam #1: Tuesday, September, 19<sup>th</sup>

Exam #2: Tuesday, October, 17<sup>th</sup>

Exam #3: Tuesday, November, 21<sup>st</sup>

*Make-up exams may be given under two circumstances:*

- If you know you will **need** to miss an exam (e.g. for a medical procedure or University sponsored field trip), you may arrange to take the exam early. Arrangements must be made **at least two weeks** in advance.
- Make-ups for exams missed for other reasons will require an official exam excuse. The first exam missed without an official excuse will be counted as your dropped exam. A second missed exam results in a zero for that exam.

#### Final Exam – 100 points

The final exam will be cumulative!

Final Exam for section 003: Tuesday, December 12<sup>th</sup> at 8:00 A.M.

Final Exam for section 002: Saturday, December 9<sup>th</sup> at 12:00 P.M.

#### Daily Work – 50 points

You will receive an overall “Daily Work” score based on a mixture of pre-class assignments, in-class participation and problems, and weekly online self-tests. **You will receive full credit for the daily grade component of the course (50 pts) if you collect 80% of the daily work points.**

*For example: if the total daily work points available is 300 and you earn 240 daily work points (and above) you will earn 50 pts toward the daily work component of the final grade. Less than 240 points would earn a proportional score (for example 120 points would earn a final daily work score of 25). Note that the total number of daily work points available will not be determined until the end of the course. **Because there is ample opportunity to collect points, there will be no “make-ups” for clicker questions***

Daily points are earned by completing the following work:

1. Mastering Chemistry Assignments
  - a. Mastering Chemistry Pre-Class Assignments: 1 point/question
  - b. Mastering Chemistry Weekly Self-tests: 1 point/question
2. In-Class problem solving (clicker questions) – 7 points/class
3. Syllabus Quiz – 6 pts

Your grade will be calculated based on the option below which gives you the HIGHEST overall score. If you miss an exam, you will automatically be graded with Option B				
	Option A points possible	Option A % Breakdown	Option B points possible	Option B % Breakdown
Midterm Exams	300 pts	22.2% / exam	200 pts x 1.33	29.6% / exam
Final Exam	100 pts	22.2%	100 pts x 1.34	29.7%
Daily Work Points	50 pts	11.1%	50 pts	11.1%
Total pts	450 pts	100%	450 pts	100%

#### **Honor Code**

Since all graded work (including homework to be collected, quizzes, papers, mid-term examinations, research proposals, laboratory results and reports, etc.) may be used in the determination of academic progress, no collaboration on this work is permitted unless the instructor explicitly indicates that some specific degree of collaboration is allowed. This statement is not intended to discourage students from studying together or working together on practice problems, which are not to be collected.

It is a violation of the Honor Code to fail to comply with exam procedures. Exam procedures will be provided for each exam. These will include when you are allowed to begin the exam, when you should stop working on the exam and how to maintain the integrity of individual performance on the exam. It is a violation of exam procedure to look at another student's exam during the exam period whether you use that information or not. It is also a violation of exam procedure to “allow” another student to look at your exam during the

exam period. Each student is responsible for maintaining the integrity of the exam by protecting their answers.

***Violations of the Honor Code and/or Exam Procedures will be vigorously pursued through the Honor System.***

### Calendar

A detailed course calendar with assignment dates, exams, and daily content can be found on the course website (Sakai) under the "google calendar" tab.

#### DATE

August 22, 24

August 29

August 31

September 5, 7

September 12, 14

**September 19 (Tu)**

September 21, 26

September 28, October 3, 5

October 10

October 12

**October 17 (Tu)**

**October 19**

October 24, 26, 31

November 2, 7

November 9, 14, 16

**November 21 (Tu)**

**November 23**

November 28, 30; December 5

**December 9**

**December 12**

#### BRUICE

Introduction; Chapter 1 *Electronic Structure, Bonding*

Chapter 8 Resonance

Chapter 2 *Acids and Bases*

Chapter 3 *Nomenclature, Alkanes and Cycloalkanes*

Chapter 4 *Stereochemistry*

**Exam I Chapter 1, 2, 3, 4 Bruice**

Chapter 5 *Alkenes: Structure, Reaction Dynamics*

Chapter 6 *Alkenes: Reactions*, Chapter 8 *Additions to Dienes*

Chapter 7 *Alkynes, Synthesis*

University Day: Synthesis workshop

**Exam II Chapter 5, 6, 7 Bruice**

**Fall Break**

Chapter 9 *Substitution Reactions of Alkyl Halides*

Chapter 9 *Elimination Reactions of Alkyl Halides*

Chapter 10 *Alcohols, Ethers, Sulfides and Epoxides*

**Exam III Chapter 9, 10 Bruice**

**Thanksgiving break**

Chapter 12 *Radical Reactions, review*

**Final Exam: section 002-12:00 P.M. Genome 200**

**Final Exam: section 003-8:00 A.M. Chapman 211**

### Disclaimer

Professor Zurcher reserves the right to make changes to the syllabus, including project due dates and test dates (excluding the officially scheduled final examination), when unforeseen circumstances occur. These changes will be announced as early as possible so that students can adjust their schedules.