

# Chemistry 330

Fall 2015  
Organic Chemistry I

**Instructor:** John G. Kodet

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Office Hours: MW 2:00-3:00 pm, and by appointment

**Lecture:** MWF 1:00-1:50 pm; Faraday Hall 143

## Required Text

- 1) Carey, F.A. and Giuliano, R.M. Organic Chemistry, 9<sup>th</sup> Edition; McGraw-Hill, 2014

## Recommended Materials:

- 2) Carey, F.A. and Giuliano, R.M. Solutions Manual for Organic Chemistry, 9<sup>th</sup> Edition, McGraw-Hill, 2014
- 3) Molecular Visions Organic Chemistry Molecular Modeling Kit

**On-Line Course Information:** Blackboard (<https://webcourses.niu.edu>)

## Class Format:

The course will be comprised of lectures, in class exams, in class quizzes and online learning tools and assessments. It is important that you attend class as quizzes will be randomly given out. If you miss a class, it is your responsibility to obtain lecture notes and any assigned work. You should check Blackboard each day for postings. Suggested homework from the text will be given for each chapter. Although this will not be graded it is important to complete so that you become familiar with the content of the course for exams.

## Exams and Grades:

The course grade will be assigned base on your point totals for the exams, online homework (Learnsmart) administered through Connect and in-class quizzes. One exam may be dropped for the class and because of this no make-up exams will be given. If you miss an exam a score of 0 will be entered for that exam. The online Learnsmart will be administered through Connect that can be accessed through NIU Blackboard. If more than ten in-class quizzes then

the lowest score(s) will be dropped. All exams will be comprehensive since understanding the material encountered latter in the course will require application of concepts learned previously however emphasis will be given to material covered since the last exam. Exams are closed book and closed note. Textbooks, models, notes electronic devices (including cell phones and laptop computers) are not permitted in the classroom during the exam. Exams much be written using **NON-ERASABLE** black or blue ink. Exams on with white-out was used, are written in red or erasable ink, or written in pencil will not be regraded.

## Final Exam

The 200 point final exam will be comprehensive it will be given on Wed. December 9, Noon-1:50 p.m.

## Point Total

Exams (Best 3 of 4 at 100 points each)	300 points
Learn Smart (100 points total)	100 points
In-class quizzes (50 points total)	50 points
Final Exam	<u>200 points</u>
Total	650 points

## Approximate Grading Scale:

	A (100-87%)	A- (86-85%)
B+ (84-82%)	B (81-73%)	B- (72-70%)
C+ (69-67%)	C (66-55%)	
	D (54-45%)	
	F (44-0 %)	

**Note: by enrolling in this class you are agreeing to take the exams on the scheduled dates.**

## Optional Review Sessions

I will hold an optional study session to review the material and work through problems before each of the exams. The time and location will be announced in class.

## Requests for Regrades

Submissions for regrade will be accepted for one week after the day the exams are distributed in class. The entire test will be regrade. The regraded exams will be returned after the end of the next class period. If the exam pages are altered in any way, the request for regrade will be denied. The instructor may make copies of exam before distributing them to the class.

## Important Dates:

Consult your academic adviser and the NUI website.

Sunday August 30	Last day to drop course via self-service in MyNIU
Friday, September 4	Last day to drop course with approval of major college
Friday, September 11	Last day to change course from credit to audit or audit to credit
Friday, October 16	Last day to withdraw from course

## Tentative Schedule

### Lecture Dates

8/24 – 9/11

9/18

9/14 – 10/5

10/9

10/7 - 10/28

11/6

10/30-11/18

11/20

11/23-12/4

12/9/15

### Chapters

Introduction/ Chapter 1 and 2

Exam 1

Chapter 3, 4, and 5

Exam 2

Chapters 6, 7, 8

Exam 3

Chapters 9, 10

Exam 4

Chapter 11

Final Exam

## Study Groups:

It is encouraged to study in groups. This will make the chemistry experience more enjoyable and you will learn the content better. Explaining to someone else the material will be a great benefit in your own learning as it will be provide different insights on how to tackle the material.

## Outcome Expectation Statement

After this course students should be able to:

- Draw Lewis dot structures, calculate formal charge, understand atom electronegativity and how it created dipoles in bonds, determine the shape of a molecule from its Lewis dot structure, identify different functional groups, and know common bonding situations for 1<sup>st</sup> and 2<sup>nd</sup> row elements
- Identify  $\sigma$  and  $\pi$  bonds, identify the hybridization of any given atom in a molecule, identify the molecular orbital occupied by electron pairs, and identify the orbitals involved in a given bond.
- Know trends in bond strength and lengths for common bonds, recognize constitutional isomers, and be able to generate them from a given empirical formula, calculate degree of unsaturation, recognize and produce organic molecules drawn in shorthand, examine the structure of a compound and determine the intermolecular forces that are operating, and understand relative physical properties and how they relate to intermolecular forces.
- Name simple organic molecules using the IUPAC system
- Recognize compounds that exist as cis-trans isomers and compare stabilities, use Z and E descriptors, determine the conformations about a C-C single bond and estimate relative energies, determine types and relative amounts of strain present in cyclic molecules, draw the two chair conformations of cyclohexane derivatives, these two conformational isomers.
- Identify chiral compounds and stereocenters, designate chiral center as *R* or *S*, understand the relative properties of enantiomers, recognize *meso*-stereoisomers, determine the stereochemical relationship between two compounds, understand chiral separation techniques, and draw and use Fischer projections
- Draw important resonance structures for any molecule and assign the relative importance of such structures
- Understand Bronsted acid-base theory, write an acid-base reaction, recognize Lewis acid and Lewis bases, understand the meaning of  $K_a$  and  $pK_a$  values and use them to predict equilibrium of an acid-base reaction and understand how structure affects acidity
- Draw the mechanism for the  $S_N1$  and  $S_N2$  reactions, recognize various nucleophiles and leaving groups and understand the factors that control their reactivity, understand the factors that control the rates of the two substitution reactions, understand the importance of stereochemistry in the substitution reactions and apply this knowledge to predict products from a reaction mixture.
- Draw the mechanism for the E1 and E2 reactions, understand the factors that control the rates of the two elimination reactions, understand the implications of stereochemistry in elimination reactions, and apply this knowledge to predict products (resulting from either substitution or elimination) from a reaction mixture.
- Using substitution and elimination chemistry to understand how to interconvert a variety of functional groups, including alcohols, ethers, esters, alkyl halides, amines, hydrocarbons, nitriles, phosphorous and sulfur compounds, alkenes, alkynes, ketones, aldehydes, epoxides, and cyclopropanes.

**Student Code of Conduct:** <http://www.niu.edu/communitystandards/pdf/SCC.PDF>

## **Academic Dishonesty (cheating)**

Academic dishonesty includes looking at another student's exam during a testing session, allowing another student to copy your work, use of unauthorized materials such as notes, crib sheets, textbooks, prohibited electronic devices such as smart phones, cell phones, I-pads or programmable calculators that contain stored equations, formulas or text during an exam. Violation of any of these will result in assignment of a score of zero for the exam, quiz or assignment in question. **Academic dishonesty in any form will not be tolerated and may result in failure of the entire course.**

## **Notification of Services for Students with Documented Disabilities**

NIU abides by Section 504 of the Rehabilitation Act of 1973 which mandates reasonable accommodation by provide for qualified students with disabilities. If you have a disability and may require some type of instructional and/or examinations accommodation, you will need to register with the Center for Access-Ability Resources (CAAR), the designated office on campus to provide services and administer exams with accommodations for students with disabilities. The CAAR office is located on the 4<sup>th</sup> floor of the University Health Services building (815-753-1303). Accommodations are not retroactive. Please contact me early in the semester so that I can provide or facilitate in providing accommodations you may need. You must for each exam have a form filled out about 10 business days in advance to be sure to have a CAAR test time appointment.