

CHEM 222 - ORGANIC CHEM 1

Professor

Office:

Telephone:

Email:

Lecture:

Office Hours:

Also by email appointment. *Please include "CHEM 22204" in the subject line*

Recitation Instructors:

Office Hours:

Email:

Office Hours:

Email:

Office Hours:

Email:

Office Hours:

Email:

Office Hours:

Email:

Student Volunteers:

Email:

Office Hours:

Phones (texting) and computers (unless used for taking notes) must be turned off during the Lecture, Exams and Recitations.

A student taking a four credit course that meets for four hours a week should expect to spend an additional eight hours a week on coursework outside the classroom.

Textbook and Course Materials:

1. David Klein, Organic Chemistry, Second Edition, John Wiley & Sons is required. A complete online version of the textbook is included with Wiley Plus.
2. A PRS transmitter "i-clicker", which will be used for in-class discussions and quizzes.
3. Wiley Plus online HW- register from BB
4. A set of *molecular models* is highly recommended. It is often difficult for students to learn how to visualize a molecular structure in three dimensions. Models will almost certainly help. If you want to take a look at models before buying some, come by the my office.

Website:

Materials related to this course, including this syllabus, announcements, course documents, exam keys, and grades will be posted on Blackboard

Be sure to check and update your email address associated with Blackboard.

Prerequisite: "C" or better in CHEM 104 or equivalent or permission of the instructor.

It is suggested that you review your general chemistry notes, especially topics on periodic trends, atomic structure and acids and bases at the beginning of the course.

Course Objective:

Chem 222 is the first semester of organic chemistry and is designed to follow a one-year course in general chemistry. It assumes a general knowledge of atomic structure, chemical bonding, acids/bases, reaction stoichiometry, equilibria, transition states, and free energy.

Most biological processes involve organic chemistry; understanding most biological processes at the biochemistry level requires knowledge of organic chemistry. While the second semester course (CHEM 224) will focus much more on synthetic chemistry and on the organic chemistry of biological processes, CHEM 222 will provide you with a strong introduction to the basic principles of organic chemistry related to process involved in life and society.

- How to name compounds and how to "build" compounds from their names?
- How to recognize and predict common bonding patterns; how to predict molecular structure from a formula?
- How to predict the shapes of organic molecule, including those capable of existing in multiple forms (conformations)?
- The properties, importance, and reactivity of some common functional groups: alkanes, alkenes, alkynes, alkyl halides, aromatic compounds, alcohols.
- How to predict whether reactions will occur and how fast they might occur; reaction transition states; reaction intermediates such as carbocations and free radicals?
- The fundamentals of organic synthesis (how to construct larger, more complex structures through controlled application of organic reactions).
- The importance of stereochemistry.

Overall, the study of organic chemistry teaches as skill set and a logical pattern of thinking that is prized in many fields.

Goals & Objectives:

GOALS: The student will develop an understanding of-

1. Bonding and three-dimensional structure of carbon based compounds.
2. Nomenclature of organic compounds
3. Organic chemical reactions and their mechanisms.

OBJECTIVES: At the end of the class the student will be able to-

- ___ demonstrate a knowledge of the hybridization of the carbon atom
- ___ demonstrate a knowledge of the three dimensional nature of carbon based compounds
- ___ identify and name organic compounds, using the proper nomenclature
- ___ draw structures (condensed and structural) of compounds
- ___ demonstrate an understanding of chirality and stereochemistry
- ___ demonstrate a knowledge of free radical reactions
- ___ demonstrate a knowledge nucleophilic substitution reactions
- ___ determine which substitution mechanism is operating (S_N1 or S_N2)
- ___ demonstrate a knowledge of elimination reactions
- ___ determine which elimination mechanism is operating (E1 or E2)
- ___ predict the products of reactions
- ___ write a reaction scheme to produce desired product
- ___ understand how stereochemistry affects reactions

Recitation: Recitations will focus on problem solving and reviewing material that is being covered in class. You will have a 20 minute quiz during some recitations. See weeks that list (Quiz) below them on page 6.

Recitations are Mandatory

*Note: CHEM 223LB - ORGANIC CHEM 1 (LAB) is a parallel but separate course.
If you have questions, contact the lab instructor*

Grading: Grades will be based upon: 730 points

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|----------------------------------|---------|---|
| Clicker questions | 70 pts | (total clicker points will be scaled to 70 pts) |
| Electronic Homework (Wiley Plus) | 70 pts | (total Online HW points will be scaled to 70 pts) |
| Recitation Participation | 30 pts | (Participate in 12 of the 15 recitations) |
| Quizzes (4x 15) | 60 pts | |
| Midterms (3 x 100) | 300 pts | |
| Comprehensive Final | 200 pts | |

Grading Scale: Over the years, the average GPA for CHEM 251 has ranged from 2.25 to 2.75; the actual average grade in a given course can vary tremendously with the background, talent, and work ethic of students in that course. If your score falls in a given bracket (below), you are guaranteed to receive at least that grade. This is an extremely fast passed course and requires consistent effort throughout the semester. [89.48 will be a A-]

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|-----------|------------------|------------|
| A+ > 95 % | A > 90% | A - > 87 % |
| B +> 85 % | B > 75 % | B - > 70 % |
| C+ > 65 % | C > 60% | |
| D > 55 % | F < 55 % or less | |

Incomplete, P/NP, Add/Drop, Withdrawing: An incomplete (I) grade will only be considered for a student who has completed the majority of the course and is unable to complete the course due to health reasons, military service, hardship or death in the immediate family. The course will follow standard Hunter College policies and deadlines for add/drop, P/NP, and withdrawing.

Policy on Incomplete grade: Incomplete (IN) grade may be given if a student has a reasonable chance of passing the course but cannot complete it because of a valid reason. In order to be considered for the IN grade, students need to present verifiable proof.

Policy on CR/NC grade: The CR/NC request will not be accepted once final exam starts. See the Hunter College Catalog or visit <http://md2.hunter.cuny.edu/webgrade/regmemo.jsp> for College grading policy on CR/NC, INC, WU etc

Exams:

- Exams will draw from lecture, text, and recitation and practice problems or assignments and online HW Wiley Plus. Molecular models may be used during exams. No other notes, materials, or electronic devices are permitted. Phones and computers must be turned off during the exams; no communication of any sort is permitted.
- Missed Exams:** In any class this large, there will be emergencies that cause students to miss exams. In the event of a verified emergency (medical or death in family), the student is to contact Dr. _____ by email and in person as soon as you get back. If, in my judgment, the excuse is valid, I may arrange an alternate exam or I will substitute your final exam percentage for the test grade. If you miss more than one test, meet with me ASAP to discuss your options. I may require you to bring a Proof to document your absence.
- Graded exams will be available outside the office. Any requests for re-grades must be submitted to Dr. _____ or your TA within 48 hours after the Exam is made available. Please note that the entire exam will be re-graded. **Any alterations of exams submitted for re-grade will be treated as academic dishonesty. Random set of exams may be photo copied before returning to students.**

- There will be no re-grade on the Final. **Final will not be returned.** You can visit me in person in Spring 2015 to take a look at your final if you believe a major grading (addition) error has is possible.

Clicker Quizzes:

The PRS “i-clickers” will be used to facilitate classroom discussion as well as to administer short quizzes during many/most lectures on materials presented in the previous lectures or current lecture. You will need to have a PRS transmitter (available through the bookstore); technical instructions will be given in class. During the first week, we will use the PRS “clickers” for several short exercises to make sure every one is ready to use the system.

- **Please register your** on the clicker website. Beginning in the second lecture, we will have a short quizzes in most lectures.
- There are no make-ups for missed clicker quizzes or if your clicker can not join the class.
- **Misrepresentation of identity on a clicker quiz (whether you pretending to be someone else or vis versa) is academic dishonesty.**
- Points you earn over the semester will be scaled to 70 points.
- i>clicker 2 can be purchased at the bookstore.
- If you forget your clicker or you miss a lecture I will not make any adjustments. I try to scale the points at the end of semester to make up for missed lecture or days when your clicker may not have worked.

Electronic Homework: Wiley Plus

The Wiley Plus will be a useful practice/study tool which will be used as an additional learning resource along with Klein’s text. Homework will be scaled to 70 pts. You will be able to attempt each question 3 times with-out penalty and 2 times with a % deduction. You are responsible for completing the assignments by the deadlines (these will show up on the online homework link). You may need to get a little practice using “MarvinSketch” or the embedded drawing software. Please do not leave to work on the online HW till the due date. The last HW will be due during week 15 and will be part of your grade. **Misrepresentation of identity on an online HW (whether you pretending to be someone else or sharing passwords) is academic dishonesty.**

Your overall homework grade will be taken by determining what possible homework points that you earned. That is,

homework grade = (your total homework points/maximum homework points possible) * 70

Some questions may have software problems which your instructor will adjust/ scale at the very end.

Please do not get worked up and spend a lot of time in solving such questions. I will try my best to remove these questions or make an announcement as soon as it comes to my attention.

Academic Honesty:

Any case involving academic dishonesty (see "Code of Conduct" in *Undergraduate Bulletin*) will result in a failing grade for the student(s) involved and will be reported to the Director of Student Judicial Affairs. Any student found cheating will be subject to the penalties stated in the Code of Student Conduct; including, but not limited to, a score of zero on exam, expulsion from the class, or expulsion from the University. If a students is accused of cheating in a lecture course in the chemistry department, the student's case will be submitted to the Office of Student Conduct. If the student is found guilty of cheating on an exam, the student will be given an exam grade of 0 but will be allowed to continue in the course. The student will receive an Academic Sanction. The students grade will be calculated with the zero and the student will be permitted to pass the course with the highest grade possible grade of C (if the student does in fact pass the course). If any student requests a re-grade of a test, that student's future tests will be copied and students will be informed of this policy.

Chemical Dynamics and Reactivity: Introduction to Organic Chemistry

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| Welcome | F | Aug 29 | Introduction and Chapter 1 (Review General Chemistry) | |
| Week 1 | T | Sep 02 | Ch 1 | (Review General Chemistry) |
| | F | Sep 05 | Ch 2 | (Molecular Representations) |
| Week 2 (Quiz I) | T | Sep 09 | Ch 2 | (Molecular Representations) |
| | F | Sep 12 | Ch 15 | (IR Spectroscopy Portion) |
| Week 3 | T | Sep 16 | Ch 3 | (Acids and Bases) |
| | F | Sep 19 | Ch 3 | (Acids and Bases) |
| Week 4 | T | Sep 23 | Exam-1 | (Friday Schedule) |
| | F | Sep 26 | Holiday | (Wed-Sep 24 to Fri-Sep 26) |
| Week 5 | T | Sep 30 | Ch 4 | (Alkanes) |
| | F | Oct 03 | Holiday | |
| Week 6 (Quiz II) | T | Oct 07 | Ch 4 | (Alkanes) |
| | F | Oct 10 | Ch 5 | (Stereochemistry) |
| Week 7 | T | Oct 14 | Ch 5 | (Stereochemistry) |
| | F | Oct 17 | Ch 6 | (Reactivity and Mechanism) |
| Week 8 | T | Oct 21 | Ch 6 | (Reactivity and Mechanism) |
| | F | Oct 24 | Exam-2 | |
| Week 9 | T | Oct 28 | Ch 7 | (Substitution Reactions) |
| | F | Oct 31 | Ch 7 | (Substitution Reactions) |
| Week 10 (Quiz III) | T | Nov 04 | Ch 8 | (Alkene's-Structure and Preparation-Elimination Reactions) |
| | F | Nov 07 | Ch 8 | (Alkene's-Structure and Preparation-Elimination Reactions) |
| Week 11 | T | Nov 11 | Ch 9 | (Addition Reactions of Alkenes) |
| | F | Nov 14 | Ch 9 | (Addition Reactions of Alkenes) |
| Week 12 | T | Nov 18 | Ch 10 | (Alkynes) |
| | F | Nov 21 | Exam-3 | |
| Week 13 | T | Nov 25 | Ch 10 | (Alkynes) |
| | F | Nov 28 | <i>Thanks Giving Holiday</i> | (Thr-Nov 27 to Sun-Nov 30) |
| Week 14 (Quiz IV) | T | Dec 02 | Ch 11 | (Radical Reactions) |
| | F | Dec 05 | Ch 11 | (Radical Reactions) |
| Week 15 | T | Dec 09 | Ch 15 | (Mass Spectrometry) |
| | F | Dec 12 | Ch 12 | (Synthesis) |
| Week 16 | F | Dec 19 | Final | |
| | | (11.30 am to 1:30 pm) | | |

Quiz (15 points) will be during Recitation [Week- 2, 6, 10 and 14 (first 20 minutes)]

Information to purchase Wiley Plus Codes: Will be Posted on BB

9781118872925 – WileyPLUS All Access Pack with Bb code - This comes with the permanent wiley e-book available on four devices, the wp/bb code, and a printed solutions manual.

9781118935118 – Klein 2e Binder version with Binder Version Solutions Manual and wp/bb code

9781118987063 the all-digital all access pack reg card---- Wiley e-text, wileyplus/blackboard code, and wiley e-text solutions manual.

AccessABILITY info

"In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical and/ or Learning) consult the Office of AccessABILITY located in Room E1124 to secure necessary academic accommodations. For further information and assistance please call (212- 772- 4857)/TTY (212- 650-3230)."

Accommodations are provided for students who are registered with AccessABILIT Services and make their requests sufficiently in advance.

It is recommended that you take "**Quiz during the Recitation**" so that you do not miss the later half of the recitation problem solving session.

You will be **allowed to take exams and finals at "AccessABILITY Center" on the same day and time when the Chem 222 class takes their exam.**

Review Sessions: Special review sessions (1-2 h) will be arranged before midterms and finals. Location and schedule will be posted on the black board and announced in class.

IMPORTANT DATES:

Sep. 3

Last day to drop a full semester course and receive 75% refund

Fall registration ends at 11.59 pm

Sep. 10

Last day to drop for 50% tuition refund

Sep. 18

First Day of Withdrawal with 'W' Grade (No Refund of Tuition)

Nov. 6

Last Day of Withdrawal with 'W' Grade