Advanced Organic Chemistry I
Chemistry 531
West Virginia University
Fall 2019

Instructor

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Course Website

http://community.wvu.edu/~josbour1/pages/Chem531.html

Office Hours

Tuesday & Thursday 1:00 – 2:00 pm
In general, if my office door is open, feel free to come in with questions. You can also schedule a specific time via email if my regular office hours don't work with your schedule.

Meeting Time

Lecture: MWF 10:30 – 11:20 am in OGH 110

Textbooks

- Modern Physical Organic Chemistry by Anslyn and Dougherty – University Science Books
- Solutions Manual to Accompany Modern Physical Organic Chemistry – University Science Books
- Supplemental Text: Advanced Organic Chemistry Part A by Carey and Sundberg – Available as an eBook via WVU Library.

Course Pre-Requisite

This course is directed toward senior undergraduates and first year graduate students who have completed at a minimum a one-year course in organic chemistry (the equivalent of Chem 233 and 234 at WVU). It is assumed that students have a foundation in introductory organic chemistry including nomenclature, structure and bonding, the curved arrow formalism, and stereochemistry.

Grading

Your course grade will be based on three hourly exams and quizzes. Every exam will each be cumulative in nature, thus, a traditional final exam will not be given.

Periodic take home quizzes will be given throughout the semester. In general, you should expect a quiz approximately every other week.

Recommended homework problems from each chapter will be provided. These homework assignments will not be collected or graded but are critical to ensure that you master the course material.

Exam 1 – 26%
Exam 2 – 26%
Final Exam – 26%
Quizzes – 22%

Grading Scale: A: 90-100, B: 80-89, C: 70-79, D: 60-69, F: <60

Course Advice

The advice below is provided to my sophomore organic chemistry students, but it is useful for you as well.

Exams are designed to test your problem-solving ability, not your ability to memorize the material. Even if you could memorize every single thing presented in the course, you will not perform well on the exams unless you are able to apply the concepts that you learn. Practicing problems is by far the best way to learn the material.

Advice

- Become adept at reaction mechanism and electron-pushing using curved arrows.
- Think about how reactions can be combined in sequence to carry out complex chemical transformations.
- Work as many problems as humanly possible. The problems for every chapter are neatly organized while the questions on the exam are scrambled. I recommend mixing and matching problems when practicing for the exams.

Areas that Commonly Cause Problems:

- Skipping lecture. Even if you get lecture notes online, much of the context is lost.
- Doing problems while looking at the answer key without first attempting the problem on your own.
- Creating your own "rules" for organic chemistry that are not appropriate.
- Failing to keep up. We move at a very fast pace so don't fall behind.

Incomplete Policy

A grade of incomplete is only given in the event of unforeseen, non-academic circumstances that prohibit a student from completing the last course assignment(s) at the end of the semester, as determined by the instructor. Students who are failing a course (exclusive of the incomplete work) may not request an incomplete. The incomplete policy at WVU can be found at: http://catalog.wvu.edu/graduate/advisingcoursesdegrees/advising_and_evaluation/

Academic Integrity

The integrity of the classes offered by any academic institution solidifies the foundation of its mission and cannot be sacrificed to expediency, ignorance, or blatant fraud. Therefore, instructors will enforce rigorous standards of academic integrity in all aspects and assignments of their courses. For the detailed policy of West Virginia University regarding the definitions of acts considered to fall under academic dishonesty and possible ensuing sanctions, please see the West Virginia University Academic Standards Policy (http://catalog.wvu.edu/undergraduate/coursecreditstermsclassification). Should you have any questions about possibly improper research citations or references, or any other activity that may be interpreted as an attempt at academic dishonesty, please see your instructor before the assignment is due to discuss the matter.

Inclusivity Statement

The West Virginia University community is committed to creating and fostering a positive learning and working environment based on open communication, mutual respect, and inclusion.

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in your classes, please advise your instructors and make appropriate arrangements with the Office of Accessibility Services. (https://accessibilityservices.wvu.edu/)

More information is available at the Division of Diversity, Equity, and Inclusion (https://diversity.wvu.edu/) as well.

Chemistry 531 Fall 2019
Tentative Lecture Schedule

I. Review of Sophomore Organic Chemistry

II. Bonding & Intro to Molecular Orbital Theory [MPOC Ch. 1 & Supplements]

III. Thermodynamics [MPOC Ch 2]

IV. Conformational Analysis [MPOC Ch 2]

V. Acids and Bases [MPOC Ch 5]

VI. Stereochemistry [MPOC Ch 6]

VII. Reaction Kinetics [MPOC Ch 7]

VIII. Experiments to Determine Reaction Mechanisms [MPOC Ch 8]

IX. Pericyclic Reactions [MPOC Ch 15 & 16]

X. Nucleophilic Substitution Reactions [CS Ch 5]

MPOC – Modern Physical Organic Chemistry

Tentative Exam Schedule

Exam 1 – Week of 9/30

Exam 2 – Week of 10/28

Final Exam – 12/19 from 2-4 pm (may change due to TA assignments)

Note: While each exam, including the final exam will focus on material covered for that third of the course, each exam is cumulative in nature and you are expected to retain the information that you learned for each exam.