

Instructor- C. J. Abelt **E-mail-** cjabel@wm.edu **Office-** ISC 1039A **Phone-** 221-2677

Required Text: B. Miller, *Advanced Organic Chemistry*, 2nd Ed. A molecular model kit is recommended. Handouts will supplement the text.

Topics:

- Chapter 1. Introduction; Strain and Reactivity (5 classes)
Handouts – writing mechanisms, molecular mechanics
- Chapter 2. Electrocyclic Reactions (5 classes)
Handouts – MO theory, Huckel MO theory, Stereochemistry
- Chapter 3. Cycloaddition and Cycloreversion Reactions (4 classes)
Handout – Kinetic Isotope Effects

Test 1: Monday, September 26, Chapters 1-3

- Chapter 4. Sigmatropic Reactions (3 classes)
- Chapter 5. Linear Free-Energy Relationships; Solvent Effects (2 classes)
Handout – Transition State Theory
- Chapter 6. Migrations to Electron-Deficient Centers (3 classes)
- Chapter 7. Neighboring Group Effects and “Nonclassical” Cations (3 classes)

Test 2: Friday, October 28, Chapters 4-7

- Chapter 8. Rearrangements of Carbanions and Free Radicals; ESR; CIDNP (6 classes)
Handouts – Baldwin’s Rules, ESR of Organic Radicals, CIDNP
- Chapter 9. Carbenes, Carbenoids, and Nitrenes (5 classes)
Handouts – Singlet and Triplet Carbenes, ESR of Triplet Carbenes
- Chapter 10. Photochemistry (3 classes)

Final Exam (Test 3): Monday, December 5, 9:00 - 12:00 AM, Chapters 8-10

Problem Sets: Assignments will include some problems from the book and some from other sources. **Working problems is the best way to learn the material.** You may work on assignments with classmates, so long as you work together on each problem.

Exams: Exams will focus on problem solving and will be similar to problem sets.

Grading:

Problem sets	8@25 points
Midterm exams	2@250 points
Final exam, not cumulative	<u>1@300 points</u>
	1000 pts total

Office Hours: By appointment or just drop by.

Chem 403W: Students who plan to satisfy a chemistry writing requirement should meet with me and agree on a topic before Fall Break. The outline is due by the end of October, and a rough draft is due before the end of classes.