

# CHEMISTRY 435 and 531 - PHYSICAL ORGANIC CHEMISTRY

## Syllabus, Fall 2010

**description:** *the theory and mechanism of organic transformations. Detailed evaluation of organic structure, including electronic structure; molecular dynamics; symmetry; stereochemistry of reactions; and energetics of reaction paths.*

**prerequisites:** organic chemistry (2 semesters) and physical chemistry (1-2 semesters)

time/place TR 9:30-10:45 AM, recitation W 5:00-6:20 PM, SHLB 2106  
Instructor: S. C. Blackstock, 348-0748, blackstock@ua.edu  
office hours: SHLB 2050 (W 10:30-11:30 or by appointment)  
textbook: *Modern Physical Organic Chemistry* by Anslyn and Dougherty, 2006  
website: [www.bama.ua.edu/~blacksto/CH435\\_CH531/home.html](http://www.bama.ua.edu/~blacksto/CH435_CH531/home.html)

### Tentative Course Schedule

Ch 1 Introduction to Molecular Structure and Bonding	Aug 19, 24, 26, 31
Ch 10 Organic Reactions I (partial)	Sept. 2, 7, 9
<b>Exam 1</b>	<b>Sept 15 5-6:30 PM</b>
Ch 11 Organic Reactions II (partial)	Sept 14, 16, 21,
Ch 15 Thermal Pericyclic Reactions	Sept 23, 28, 30, Oct 5, 7, 12
Ch 6 Stereochemistry	Oct 14, 19, 21
<b>Exam 2</b>	<b>Oct. 20 5-6:30 PM</b>
Ch 2 Molecular Strain and Stability	Oct 26, 28, Nov 2
Ch 7 Reaction Energy Surfaces and Rates	Nov 4, 9, 11
Ch 8 Mechanistic Analysis of Organic Reactions	Nov 16, 18, 23
<b>Exam 3</b>	<b>Nov 24 5-6:30 PM</b>
Ch 5 Acid-Base Chemistry	Nov 30, Dec 2
<b>Final Exam</b>	<b>Dec 8 8:00-10:30 AM</b>

**COURSE OBJECTIVES:** Students who complete this course should have a detailed knowledge of the electronic structure of organic molecules and how that structure affects a molecule's properties and reactivity. Specific learning objectives are provided with the lecture outline and homework assignment for each chapter of material.

**ATTENDANCE:** All students are expected to attend all lectures and recitations. Grade deductions for missed classes may occur.

**HOMEWORK:** All reading and problems assigned at each lecture should be completed by the student by the next lecture. Students are encouraged to discuss the problems with each other, but each student should *individually* solve each problem on paper. Answers to problems will be posted or presented at recitation sessions.

**EXAMS & GRADING:** Three exams (150 pts each), 3 quizzes (50 pts each) and one comprehensive final exam (300 pts) will be given in the course. Graduate students (531 course) will complete a podcast on an assigned topic worth 50 pts. Total points for the courses will be 900 and 950 pts respectively for CH435 and CH531.

**HONOR CODE:** The Alabama honor code applies to all work performed in this course. Homework problems may be discussed openly with other students and reference materials may be consulted at will. However, each student should ultimately write out solutions by herself/himself and in her/his own words. Exams (and any quizzes) are to be taken without any external aids other than those specified by the instructor. All acts of dishonesty in coursework constitute academic misconduct and the Academic Misconduct Disciplinary Policy will be followed in any such event.

**Disability Accommodations:** If you require disability accommodations, please contact Ms. Jackie McPherson in the Department of Chemistry Office (348-5954)