

Chem 6400 (/4400)\*  
 Fall Semester 2015  
 Room: 425 Classroom South  
 2:30-3:45 p.m. TT

Required Text: Advanced Organic Chemistry, 5th Edition, Part A; Carey and Sundberg

Professor: Dr. A. L. Baumstark (Office Hours-by appointment 404/413-5516); 386 PSC; [abaumstark@gsu.edu](mailto:abaumstark@gsu.edu)  
 Dr. J.Yin (Office Hours-by appointment 404/413-6090); 571 NSC; [junyin@gsu.edu](mailto:junyin@gsu.edu)

| <u>Course Grade:</u>               | <u>Tentative</u>    | <u>Tentative Cutoffs</u> |
|------------------------------------|---------------------|--------------------------|
| Midterm (E)                        | 23%/125 pts.        | A+ = 95% (/94%)*         |
| ACS Exam (Background)              | 14%/75 pts.         | A = 90% (/89%)*          |
| Problem sets, quizzes, etc.        | 18%/100 pts.        | A- = 87% (/85%)*         |
| Formal Final Paper± & Presentation | <u>23%/125 pts.</u> | B+ = 84% (/81%)*         |
| ± due Dec 8                        |                     | B = 80% (/77%)*          |
|                                    |                     | B- = 76% (/73%)*         |
|                                    | 425 max.            | C+ = 71% (/69%)*         |
|                                    |                     | C = 67% (/64%)*          |
|                                    |                     | C- = 62% (/60%)*         |

Note:

- Chapter 1 will not be covered in lecturer; Read Chapter 2 before the first lecture.
- NO make-up exams or quizzes will be given; late homework assignments can result in loss of credit. All exams except ACS are open book.
- Attached Department of Chemistry statement on student integrity also applies to homework for this course.
- Last day to drop with a W is October 13, 2013.
- Expectations and Presentation Evaluation will be appropriate for background of the individual student.

| <u>Date</u><br><u>(Tues)</u> | <u>Tues</u>   | <u>Thurs</u>            |
|------------------------------|---------------|-------------------------|
| Aug 25                       | L ALB         | L ALB                   |
| Sept 1                       | L JY          | L JY                    |
| Sept 8                       | L ALB         | L ALB                   |
| Sept 15                      | L ALB         | L JY                    |
| Sept 22                      | L JY          | L JY                    |
| Sept 29                      | L ALB         | ACS                     |
| Oct 6                        | E (Take-Home) | E (Exam due by 10 a.m.) |
| Oct 13                       | L* JY         | L JY                    |
| Oct 20                       | L JY          | L JY                    |
| Oct 27                       | L ALB         | L ALB                   |
| Nov 3                        | L JY          | L JY                    |
| Nov 10                       | L ALB         | SP                      |
| Nov 18                       | SP            | SP                      |
| Nov 24                       | H             | H                       |
| Dec 1                        | SP            | SP                      |

L = Lecture

E = Take-Home Midterm Exam (Ch. 2-5) (Tentative) Note: After Midterm, special topics will be covered.

ACS = Standardized Background Exam

H = Holiday, no class

\*October 13 Drop Date; See Note 4

SP=Student Presentations

Chemistry Department Student Conduct and Integrity Policy

All tests taken and homework must represent your individual, unaided efforts. To receive or offer information during an examination or on homework assignments is cheating. The use of supplementary materials during tests or on homework assignments is allowed but must be referenced. Use of graded materials from previous terms is not allowed. Students are not allowed to contact faculty or students at other institutions for help. Conduct or actions that disrupt class or test periods or falsification of information related to chemistry courses by any student will be taken as violation of the policies of the Board of Regents of the University System of Georgia and the GSU Student Code of Conduct, Section 6.0. Any suspected offenses may be referred to the Department Chair or the Dean of Students for appropriate disciplinary action.

## Lecture Schedule of Chem 6400/4400 – Mechanistic Organic Chemistry

Textbook: Advanced Organic Chemistry, Part A: Structure and Mechanisms. 5<sup>th</sup> Edition (2007)

| Week | Date        | Instructor | Topic   | Chapter | Home work |
|------|-------------|------------|---|---------|-----------|
| 1    | August 25   | Baumstark  | Stereochemistry   | 2       |           |
|      |             | Baumstark  | Stereochemistry   | 2       | (1)       |
| 2    | September 1 | Yin        | Conformation  | 2       | (1) due   |
|      |             | Yin        | Stereoelectronic effects                                | 2       | (2)       |
| 3    | 8           | Baumstark  | Kinetics  | 3       | (2) due   |
|      |             | Baumstark  | Linear free energy relationships                        | 3       |           |
| 4    | 15          | Baumstark  | Isotope effects   | 3       | (3)       |
|      |             | Yin        | Nucleophilic substitution S <sub>N</sub> 2              | 4       | (3) due   |
| 5    | 22          | Yin        | S <sub>N</sub> 1, carboncation                          | 4       | (4)       |
|      |             | Baumstark  | Nonclassical carbocations,<br>Neighboring group effects | 4       | (4) due   |
| 6    | 29          | Baumstark  | Addition and elimination<br>reactions                   | 5       | (5)       |
|      | October 1   |            | <b>ACS exam</b>   |         | (5) due   |
| 7    | 6           |            | <b>Take home exam</b>                                   |         |           |
|      |             |            | <b>Exam grading, no class</b>                           |         |           |
| 8    | 13          | Yin        | Carbanion , acidity                                     | 6       |           |
|      |             | Yin        | Carbonyl group  | 7       |           |
| 9    | 20          | Yin        | Aromaticity   | 8       |           |
|      |             | Yin        | Aromatic substitution                                   | 9       |           |
| 10   | 27          | Baumstark  | Pericyclic reactions                                    | 10      |           |
|      |             | Baumstark  | Pericyclic reactions                                    | 10      |           |
| 11   | November 3  | Yin        | Free radical reactions                                  | 11      |           |
|      |             | Yin        | Free radical reactions                                  | 11      |           |
| 12   | 10          | Baumstark  | Photochemistry  | 12      |           |
|      |             |            | Student presentation                                    |         |           |
| 13   | 17          |            | Student presentation                                    |         |           |
|      |             |            | Student presentation                                    |         |           |
| 14   | 24          |            | <i>Thanksgiving break, no class</i>                     |         |           |
|      |             |            | <i>Thanksgiving break, no class</i>                     |         |           |
| 15   | December 1  |            | Student presentation                                    |         |           |
|      |             |            | Student presentation                                    |         |           |
| 16   | December 8  |            | <b>Final paper due</b>                                  |         |           |

| Homework | Chapter | Questions                             |
|----------|---------|---------------------------------------|
| 1        | 2       | 1a-f; 2b-g; 3b-e; 13; 14a-d; 25a-f    |
| 2        | 2       | 4a-d; 7a-c, e; 8; 9; 10; 16           |
| 3        | 3       | 2; 4; 7a-b; 11; 12; handout questions |
| 4        | 4       | 2a-g; 3a-d; 9b-c; 12; 13a; 20         |
| 5        | 5       | 1a-c, e-g; 2a, d, f, g; 3; 4; 19; 21a |