Advanced Organic Chemistry Part A — Chem 241

Instructor: Severin T Schneebeli
Email: Severin.Schneebeli@uvm.edu
Office: Cook A332
Phone: (802) 656-0252
Office Hours: 9:30–10:30 am MW / Other times by appointment only
Class Meetings: 8:30–9:20 am MWF, Angell B203
Meeting Dates: 25 Aug – 3 Dec 2014
UVM Holidays: Classes will not be held on: 1 Sept and 26–28 Nov 2014

Learning Objectives:

The primary goal of this course is to advance your understanding of molecular interactions and chemical reactions to a point where comprehension of the primary chemical literature becomes possible. Key learning objectives are (i) being able to predict the 3D-structures and reactivities of molecules, (ii) understand how molecules interact with each other in 3D-space and (iii) use this knowledge to derive reaction selectivity.

Recommended Texts / On reserve at the UVM Bailey/Howe Libray:

(1) Carey, F. A., and Sundberg, R. J. *Advanced Organic Chemistry, Part A: Structure and Mechanism*, 5th ed., ISBN: 978-0-387-68346-1.

(2) Carey, F. A., and Sundberg, R. J. *Advanced Organic Chemistry, Part B: Reactions and Synthesis*, 5th ed., ISBN: 978-0-387-68354-6.

(3) Grossman, R. B. *The Art of Writing Reasonable Organic Reaction Mechanisms*, 2nd ed., ISBN: 978-1-4419-3016-3.

500-Point Grading Scale:

Problem Sets	150 points	10 sets — assigned weekly
Examination 1	100 points	6:00–8:00 pm, 1 Oct 2014, location TBD
Examination 2	100 points	6:00–8:00 pm, 12 Nov 2014, location TBD
Final Examination	150 points	7:30–10:15 am, 12 Dec 2014 in Angell B203

Please note: The final examination will be cumulative!

Problem Sets:

Ten problem sets will aid you in learning the class material and will prepare you better for the exams. They will be given weekly on Monday and are due **BEFORE CLASS** the following Monday. All problem sets should be uploaded online to the UVM blackboard system at bb.uvm.edu. No problem sets will be assigned with a due date of Labor Day (1 Sept) or during any of the exam weeks (29 Sept, 10 Nov, and 1 Dec).

Course Grading:

Course grading will be structured according to the 500-point scale (*vide supra*). Failure to complete an assignment in a timely fashion will result in a numerical score of zero. Proposals for "extra credit" will not be considered.

Academic Conduct:

Cheating or plagiarism will be condisered grounds for failing the course (a numerical score of zero). All graded assignments must be your own work. Cases of cheating or plagiarism will lead to further disciplinary action, which may include dismissal from the University according to the rules set forth in the University of Vermont's Code of Academic Integrity: http://www.uvm.edu/~uvmppg/ppg/student/acadintegrity.pdf

Course Topics:

1. Review of bonding and reactivity
2. Principles of Stereochemistry
3. Frontier Molecular Orbital Theory
4. Conformational Analysis
5. Stereoelectronic Effects
6. Transition State Theory
7. Functional Group Manipulations
8. Pericyclic Reactions
9. Cycloaddition Reactions
10. Aromaticity
12. C=X Electrophiles
13. Enolate / Enamine Chemistry
14. Aldol Reactions
15. Organocatalysis
16. Artificial Enzymes
17. Rearrangements
18. Oxidation / Reduction
19. Organometallics
20. Free Radical Reactions
21. Photochemistry
22. Protecting Groups
23. Retrosynthetic Strategy

Please note: This is a very ambitious and tentative list of topics. Chances are, some of the areas in the right-hand column will have to wait until Chem 242 or Chem 251 in the Spring semester. Lectures and topics will be adjusted according to time considerations.

Religious Holidays:

Students have the right to practice the religion of their choice. If you need to miss class to observe a religious holiday, please submit the dates of your absence to me in writing by the end of the second full week of classes. You will be permitted to make up work within a mutually agreed-upon time.

Student Learning Accommodations:

In keeping with University policy, any student with a documented disability interested in utilizing accommodations should contact ACCESS, the office of Disability Services on campus. More information (including contact information) can be found online at www.uvm.edu/access. ACCESS works with students and faculty in an interactive process to explore reasonable and appropriate accommodations via an accommodation letter to faculty with recommended accommodations as early as possible each semester.

Promoting Health & Safety:

The University of Vermont's number one priority is to support a healthy and safe community. If you have any concerns whatsoever regarding anybody's health and/or safety, please contact UVM's center for Health and Wellbeing. More information can be found online at http://www.uvm.edu/~chwb/. If you would like to remain anonymous, you can report your concerns online at http://www.uvm.edu/~dos/.