

Chemistry 2310
Organic Chemistry I, Fall 2008

Instructor: Dr. Bradley S. Davidson
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Meeting Time/Place: MWF 10:30 – 11:20 am, Eccles Business 215; R 3:30 – 4:20 pm, Old Main 225

Problem Session (optional): TBA

Office Hours: MWF, 9:00 – 10:00 am; T, 1:30 – 2:30; or by appointment

Course Web Pages: Blackboard

Materials: Text – "Organic Chemistry," Paula Yurkanis Bruice, Prentice Hall. USU Custom Ed or 5th Ed (2007).
Study Guide and Solutions Manual by Bruice.
Model Kit – Available in Chem Stores (1st floor of Widtsoe). (recommended)

Tentative Course Outline and Exam Schedule:

Week	Dates	Quiz	Chapter(s)
one	8/25 – 8/29	Pre	Introduction, Chapter 1
two	9/3 – 9/5	1	Chapter 1
three	9/8 – 9/12	2	Chapter 2
four	9/15 – 9/19	3	Chapter 3
five	9/22 – 9/26		Review (9/22), Exam 1 (9/24), Chapter 4
six	9/29 – 10/3	4	Chapter 4, Chapter 5
seven	10/6 – 10/10	5	Chapter 5, Chapter 6
eight	10/13 – 10/16		Chapter 6, Review (10/15), Exam 2 (10/16)
nine	10/20 – 10/24	6	Chapter 7
ten	10/27 – 10/31	7	Chapter 7, Chapter 8
eleven	11/3 – 11/7	8	Chapter 8, Chapter 9
twelve	11/10 – 11/14		Chapter 9, Review (11/13), Exam 3 (11/14)
thirteen	11/17 – 11/21	9	Chapter 10
fourteen	11/24	10	Chapter 10
fifteen	12/1 – 12/5	11	Chapter 11, Review (12/5)
sixteen	12/8		Final Exam (9:30 – 11:20 am)

Assessment:

Assessment involves measuring student progress as well as teaching effectiveness. The following assessment strategies have been incorporated into this course.

- A pre-test/post-test approach will be used to measure comprehension and teaching of important concepts. The pre-test will be administered through Blackboard and must be taken on your own time. The fifteen multiple choice questions of the pre-test will reappear in the final, in slightly altered form, to assess teaching and learning progress during the semester. If weaknesses are observed in specific subject areas, teaching methods will be reevaluated. Although no formal points will be awarded, you must take the pre-test before you will be permitted to take course quizzes.
- Student evaluations will be used to evaluate course/instructor strengths and weaknesses. In addition to the standard end-of-course evaluation, a midterm questionnaire will be circulated to assess teaching/learning strategies. Constructive suggestions are welcome anytime.

General Learning Objectives for 2310

- Be able to describe atomic and molecular structure and bonding, and properly represent organic molecules.
- Be able to classify organic compounds by structure, use the IUPAC nomenclature, and identify conformational effects in organic compounds.
- Be able to write the mechanisms for reactions of alkenes and be able to predict the products of reactions of alkenes.
- Be able to draw and interpret reaction coordinate diagrams, and be able to relate the energetic changes associated with chemical reactions to equilibrium constants and rate; be able to differentiate kinetic versus thermodynamic control of reactions.
- Be able to identify the types of isomerism in organic compounds, to identify and classify chiral centers, and explain the physical and chemical consequences of chirality.
- Be able to correctly represent the structures and bonding of alkynes, and be able to write the mechanisms for reactions of alkynes and predict the products of such reactions.
- Be able to identify compounds in which resonance is important, to predict the effect of resonance on the stability of compounds and reactive intermediates, and be able to draw resonance structures.
- Be able to identify conjugated pi systems and to explain the effect of conjugation on molecular structure and reactivity; be able to predict the products of reactions of dienes.
- Be able to write the mechanism for radical reactions of alkanes, and to predict the products of such reactions.
- Be able to write mechanisms for substitution and elimination reactions, and to predict the effect of nucleophile, leaving group, and solvent on the relative rates of S_N1 versus S_N2 reactions, and $E1$ versus $E2$ reactions, as well as on the relative rates of substitution versus elimination.

***Detailed learning objectives for each chapter are available on the Blackboard website.

Online links to chemistry materials:

- Bruice textbook website (4th edition). Do the tutorials for each chapter.
wps.prenhall.com/esm_bruice_organic_4/

- Jones and Bartlett Publishers' organic chemistry site, which has files of molecular structures, animations of chemical mechanisms, and much more: www.jbpub.com/organic-online/webhome.htm
- A site with self-tests, message boards, and other helpful organic chemistry study aids: www.chemhelper.com
- Virtual textbook of organic chemistry: www.cem.msu.edu/~reusch/VirtualText/intro1.htm
- Web-sters' Organic Chemistry is a site that has numerous organic chemistry study aids and links to other helpful sites: Chemconnections.llnl.gov/Websters
- Curly Arrows site has mechanism tutorials: www.abdn.ac.uk/curly-arrows/index.shtml
- Los Alamos Periodic Table Site: pearl1.llnl.gov/periodic

Grading Scheme:

Point Distribution: Best two out of three one-hour exams (2×100 pts)
 Best ten out of eleven Blackboard quizzes (10×10 pts)
 Comprehensive Final (200 pts)
 Total Points: 500 pts

Grade Breakdown:

The grade received in the course is based on your performance on the exams, quizzes, and homework. Grades are guaranteed as given below for overall percentage score on all exams. Actual grade ranges may be curved somewhat lower, depending on the overall class average.

A, A-	89% or higher
B+, B, B-	78% or higher
C+, C, C-	66% or higher
D+, D	53% or higher

Procedures:

1. The format of the exams is a combination of multiple choice (30%) and fill-in (70%), where you will be expected to draw chemical structures and explain your answers. The exams are meant to test your *understanding* of the topics covered in lecture, not your ability to repeat memorized problems. Expect some questions that require you to *apply* your understanding to new problems. Practice problems and past exams will be available on the Blackboard site for download. They will provide the best examples of the fill-in questions.
2. There will be no make-up exams. It is possible to take an exam in advance, but only with a valid excuse and prearrangement with me. If you miss an exam without prearrangement, then that will be the exam dropped from your overall score.
3. Addition mistakes or questions over exam grading should be discussed with me within one week following the return of the exam. No point adjustments will be made after this time.
4. Quizzes will be offered through Blackboard (online.uen.org/webct/entryPage.doweбct) and must be taken on your own time. Each quiz will be available from Monday, 10:30 am (MST), until the following Monday, 10:30 am. They will consist of ten multiple-choice questions, chosen randomly from a bank of questions. They will be open-book, with a time limit of 30 minutes, and can be taken as many times as you want, with your highest score being recorded. You will benefit the most from the quizzes if you prepare and try to take them without help from the book or your notes.
5. All answer keys, practice tests, lists of assigned problems, etc. will be posted on the course Blackboard site. Answer keys and practice tests will be available in pdf format, which will require

you to have Adobe Acrobat Reader on your computer. This can be downloaded free at www.adobe.com/products/acrobat/readstep2.html.

6. It is official University policy that unless you have three exams on the same day, you must take the final exam in this course at the officially scheduled time. Permission to take a final at any other time for any other reason can only be obtained from the Dean of Science.
7. The University add/drop policies are described in the Fall Schedule of Classes on pages 104 – 109. August 31st is the last day to add a class without an instructor's signature; students may add courses between September 2nd – 15th only with the instructor's signature. The last day to add is September 15th. Page 107 describe the drop policy. In short, a student may drop a class without any notation on the transcript until September 15th (the first 20 percent of the class). After that date, any drop receives a permanent "W" notation on the transcript. After 60 percent of a class is completed (October 28th), the advisor (not the Dean's Office) must approve of a drop. In addition, the "W" is accompanied by the grade in the class at the time of the drop. Finally, after 75% of a class is completed (November 13th), a student may not drop a class for any reason. The University policy on giving a grade of Incomplete will be strictly followed. See the section on Academic Policies in the Fall Semester Schedule of Classes guide, pages 104 – 109, for current policies.
8. The main function of office hours is to discuss and solve problems that you may be having with the course materials, assigned problems, and concepts presented during lecture. Try to formulate questions in advance. Do not expect a mini review session.
9. All individuals are responsible for understanding the contents of this document.
10. Students with ADA-documented physical, sensory, emotional, or medical impairments may be eligible for reasonable accommodations. Veterans may also be eligible for services. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn, (435)797-2444 voice, (435)797-0740 TTY, or toll free at (800)259-2966. Please contact the DRC as early in the semester as possible. Alternate format materials (Braille, large print or digital) are available with advance notice.

Suggestions:

1. Try not to simply memorize. You will be more successful if you strive to understand the underlying principles.
2. Organize your reactions. Categorize them by reacting functional group, reagent, and product functional group. Look for similarities in mechanism.
3. Make up flash cards with reagents on one side and products on the other and with organic and inorganic reagent on one side and organic reagent and product on the other. Drill yourself.
4. Keep up with lecture and reading materials.
5. Make sure to take the quizzes and do the on-line homework problems! In addition to helping your overall comprehension and exam performance, do not miss easy-to-obtain points.
6. Work the problems! Work the problems! Work the problems! (practice makes perfect)
7. Use the web sites listed above.
8. Study in groups, but make sure everyone contributes.
9. Use molecular models and/or the textbook website to visualize the three-dimensional nature of organic molecules.