Chemistry 14D: Organic Reactions - Winter 2018 (v. 38/39)

Instructor:  Dr. Steven A. Hardinger   harding@chem.ucla.edu
Office: Young Hall 3077C   Office hours: Monday and Tuesday 10:00 - 10:50 AM
                                   Wednesday 9:00 - 10:50 AM

Teaching Assistants: Tyler Benton, Janna Berman, Cooper Jamieson, Marcus Jellen, Sepand Nistanaki, Roy
Pan, Ishika Saha, Evan Timpy, and Ben Wigman.
   Email addresses, office hours, etc. on course web site

What Is This Course About?
   Organic reactions, nucleophilic and electrophilic substitutions and additions; electrophilic aromatic
   substitutions, carbonyl reactions and catalysis.

Summary: The reactions by which one organic molecule is converted into another.

What Tools Will I Need?
• Chemistry 14D Lecture Supplement, 5th edition: Copies of PowerPoint lecture presentations. The skeleton
  of your lecture notes. Older versions of the Lecture Supplement are not useful.

• Chemistry 14D Thinkbook, 15th edition: Concept focus questions, discussion section problems, and practice
  problems. Older versions of the Thinkbook are not useful.

• Any molecular model kit.

• Web site: http://web.chem.ucla.edu/~harding/index.html   Not the CCLE web site.
   ➢ Announcements and other course materials here.
   ➢ Access to Chemistry 14D Course Discussion Board, a place to post questions and answers.
   ➢ Students who make copious use of the web tools earn higher grades.

• Weekly Course Activities Schedule (next page)

• Four-color pen

• Optional but recommended: Organic Chemistry: Structure and Function, 6th or 7th edition (Vollhardt and
  Schore) and Study Guide.

Exams and Grades
• Midterm exams (100 points each): Wednesdays February 7 and 28, 6:00 - 7:50 PM

• Final exam (200 points): Sunday March 18, 3:30 - 5:30 PM. Not 3:00 - 6:00 PM.

• Extra credit (20 points maximum): Course discussion board, weekly workshops and error bounty. Check
  the course web site.

• A = 100 – 85%; B = 84 – 70%; C = 69 – 50%. More details on course web site. The lowest exam score will
  not be dropped.

• Exams cannot be taken at an alternate time or date. There will be no make-up exams, unless you have
  presented a superior and documented reason. This reason must be presented before the exam is given,
  except for serious medical emergencies.

• If you wish to request an accommodation due to a suspected or documented disability, please contact the
  UCLA Center for Accessible Education (CAE) as soon as possible at A255 Murphy Hall, (310) 825-1501,
  (310) 206-6083 (telephone device for the deaf). Website: www.caе.ucla.edu.
<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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<tbody>
<tr>
<td>8 AM</td>
<td>Discussion section 1C (MJ) Geology 4660</td>
<td>Discussion section 1E (ET) Boelter 5419 Discussion section 2C (MJ) WGYoung 4216</td>
<td>Discussion section 1H (BW) Geology 3656</td>
<td>Discussion section 1J (BW) Boelter 5422</td>
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<td>9 AM</td>
<td>Discussion section 2A (ET) Royce 154</td>
<td><strong>Office Hour (Dr H)</strong> WGYoung 3077C</td>
<td><strong>Office hour (BW)</strong> WGYoung 3077F</td>
<td><strong>Discussion section 1K (CJ)</strong> Boelter 5249</td>
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<td>10 AM</td>
<td><strong>Office Hour (Dr H)</strong> WGYoung 3077C</td>
<td><strong>Office Hour (Dr H)</strong> WGYoung 3077C</td>
<td><strong>Office Hour (Dr H)</strong> WGYoung 3077C</td>
<td><strong>Office hour (BW)</strong> WGYoung 3077F</td>
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<td>Office hour (RP) WGYoung 3077F</td>
<td>Office hour (ET) WGYoung 3077F</td>
<td><strong>Office hour (BW)</strong> WGYoung 3077F</td>
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<td>Noon</td>
<td><strong>Chem 14D Lecture 1</strong> WGYoung CS50</td>
<td>Office hour (ET) WGYoung 3077F</td>
<td><strong>Chem 14D Lecture 1</strong> WGYoung CS50</td>
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<td>1 PM</td>
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<td>Discussion section 2B (RP) WGYoung 1044 Office hour (ET) WGYoung 3077F</td>
<td>Discussion section 1F (JB) Math Sci 5203 Discussion section 2D (CJ) WGYoung 1044 Discussion section 2F (IS) WGYoung 3069</td>
<td>Discussion section 2H (MJ) Boelter 5252 Discussion section 1L (TB) Geology 3656</td>
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<td>Office hour (CJ) WGYoung 3077F</td>
<td>Discussion section 2E (JB) WGYoung 1044</td>
<td>Office hour (MJ) WGYoung 3077F Office hour (SN) WGYoung 3077F</td>
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<td>3 PM</td>
<td><strong>Chem 14D Lecture 2</strong> WGYoung CS76</td>
<td><strong>Chem 14D Lecture 2</strong> WGYoung CS76 Office hour (JB) WGYoung 3077F</td>
<td><strong>Chem 14D Lecture 2</strong> WGYoung CS76</td>
<td><strong>Chem 14D Lecture 2</strong> WGYoung CS76</td>
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<td>Office hour (RP) WGYoung 3077F</td>
<td>Discussion section 1D (RP) Math Sci 5203</td>
<td>Discussion section 1G (SN) Math Sci 5128 Office hour (JB) WGYoung 3077F</td>
<td>Discussion section 2G (SN) WGYoung 1044 Office hour (CJ) WGYoung 3077F Office hour (JB) WGYoung 3077F</td>
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<td>5 PM</td>
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<td>Discussion section 11 (CJ) Boelter 4413</td>
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Chemistry 14D Lecture Supplement
- Contains PowerPoint slides used in lecture.
- Is the starting point for your lecture notes → Bring Lecture Supplement to lecture every day.

Chem 14D Course Thinkbook ("reader")
- Lists suggested reading and problems from textbook and ancillaries.
- Concept Focus Questions (CFQs): These are designed to help you focus on key concepts and organize your study of course material.
- Contains Discussion Section Problems (DSPs) for discussion section → Bring Thinkbook to discussion every day.
- Practice Problems (PPs): You should explore as many of these as you can. Many of these practice problems were drawn from old exams to give you a feeling for style and format of exam questions.
- There is no better way to learn organic chemistry than to do as many problems as possible. Experience has shown that students who make copious use of the workbook earn higher grades.

Discussion Section Activities  Discussion sections and office hours start after lecture on Weds January 10.
- Why? → A time to further explore lecture topics and focus on difficult details.
  → Develop problem-solving skills.
- Discussion section activities may include DSPs (written by the instructor). These problems are included in the course Thinkbook. TAs will use problems in discussion, based upon their assessment of your learning needs.
- Solutions will be available on the course web site about one week after the corresponding topic is covered in lecture. Unlike the problems in the course Thinkbook or text, DSPs are presented without solutions immediately available to encourage your thorough consideration of the problem before turning to the solutions. Consider this format as exam practice!
- Discussion section attendance is not mandatory but experience has shown a strong correlation between active attendance, mastery of the course material, and a good grade.

Discussion Section Attendance: Correlation with Final Course Grades

- Attendance = Taking notes, asking questions, solving problems, thinking.  Attendance ≠ Sleeping, doing LS homework, passive listening, or playing cell phone games.
- You may attend any discussion section that you wish. However, because course enrollment is very high, you may be asked to return to your assigned section if sections become too crowded.
Learning Assistant-Guided Workshops

- Develop organic chemistry problem solving techniques by working in Learning Assistant-guided peer groups.
- Meets weeks 2 through 10 in the Science & Engineering Library Research Commons (Boelter 8251).
- Schedule will be posted on the course web site.

Read about these other topics on the Chemistry 14D web site

- Course philosophies and inspirational quotes:
  - "Genius is 1% inspiration and 99% perspiration."
    -- Thomas Alva Edison, 1903
  - "If there is no struggle there is no progress."
    -- Frederick Douglass, 1857
  - "We choose to go to the Moon in this decade and do the other things, not because they are easy, but because they are hard."
    -- John F. Kennedy, 1962

- Exam and Study Hints  Study organic chemistry for at least one hour every day that ends in –day
  Advice from previous (successful) students (on course discussion board)
  - Start studying and seek help ***early*** in the quarter
  - Instructor and Teaching Assistants’ office hours, discussion sections, and email addresses
  - Course announcements
  - Organic Chemistry Tutorials
  - Old Exams  Five quarters worth!
  - Bruincast lecture videos  Not an excuse to avoid lecture.
  - Illustrated Glossary of Organic Chemistry  >2100 illustrated and hyperlinked entries
  - And all sorts of other good stuff!

Homework to complete before next lecture

- Explore course web site
- Starting reading textbook. Get page assignments from Thinkbook.
- Read Concept Focus Questions (Thinkbook) and PowerPoint slides (Lecture Supplement) before lecture. Reading before lecture makes lecture content more meaningful.
### Chemistry 14D Winter 2018 Lecture and Exam Schedule

*Suggested reading, practice problems, etc. can be found in the course Thinkbook.*

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topic</th>
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<tbody>
<tr>
<td>January 8</td>
<td>Course Introduction</td>
</tr>
<tr>
<td>January 10</td>
<td>Lecture 1: Ionic Substitution Reactions - $S_N2$ Part 1</td>
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<tr>
<td>January 12</td>
<td>Lecture 2: Ionic Substitution Reactions - $S_N2$ Part 2</td>
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<td>January 15</td>
<td>Martin Luther King, Jr. Holiday - Campus closed</td>
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<tr>
<td>January 17</td>
<td>Lecture 3: Ionic Substitution Reactions - $S_N2$ Part 3</td>
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<td>January 19</td>
<td>Lecture 4: Ionic Substitution Reactions - $S_N2$ Part 4</td>
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<td>January 22</td>
<td>Lecture 5: Ionic Substitution Reactions - $S_N2$ Part 5</td>
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<td>January 24</td>
<td>Lecture 6: Carbocations</td>
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<td>January 26</td>
<td>Lecture 7: Ionic Substitution Reactions - $S_N1$ Part 1</td>
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<td>January 28</td>
<td>Lecture 8: Ionic Substitution Reactions - $S_N1$ Part 2 and Focused Mini-Review</td>
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<td>January 31</td>
<td>Lecture 9: Elimination Reactions Part 1</td>
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<td>February 2</td>
<td>Lecture 10: Elimination Reactions Part 2</td>
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<td>February 5</td>
<td>Lecture 11: Addition Reactions of Carbon-Carbon Pi Bonds Part 1</td>
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<tr>
<td>February 7</td>
<td>Lecture 12: Addition Reactions of Carbon-Carbon Pi Bonds Part 2</td>
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<td>February 7</td>
<td><strong>Exam 1  6:00 – 7:50 PM   Covers Lectures 1 - 10</strong></td>
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<td><strong>Location: Check the course web site</strong></td>
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<td>February 9</td>
<td>Lecture 13: Addition Reactions of Carbon-Carbon Pi Bonds Part 3</td>
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<td>February 12</td>
<td>Lecture 14: Electrophilic Aromatic Substitution Part 1</td>
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<td>February 14</td>
<td>Lecture 15: Electrophilic Aromatic Substitution Part 2</td>
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<td>February 16</td>
<td>Lecture 16: Radicals Part 1</td>
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<td>February 19</td>
<td>Presidents Day Holiday - Campus closed</td>
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<td>February 21</td>
<td>Lecture 17: Radicals Part 2</td>
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<td>February 23</td>
<td>Lecture 18: Carbonyl Chemistry Fundamentals Part 1</td>
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<td>February 26</td>
<td>Lecture 19: Carbonyl Chemistry Fundamentals Part 2</td>
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<td>February 28</td>
<td>Lecture 20: Carbonyl Chemistry Addition Reactions Part 1</td>
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<td>February 28</td>
<td><strong>Exam 2  6:00 – 7:50 PM   Covers Lectures 10 - 17</strong></td>
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<td><strong>Location: Check the course web site</strong></td>
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March 2  No lecture - Relax after two evening exams!
March 5  Lecture 21: Carbonyl Chemistry Addition Reactions Part 2
March 7  Lecture 22A: Carbonyl Chemistry Addition Reactions Part 3
         Lecture 22B: Carbonyl Chemistry Substitution Reactions Part 1
March 9  Lecture 23: Carbonyl Chemistry Substitution Reactions Part 2
March 12 Lecture 24: Carbonyl Chemistry Substitution Reactions Part 3
March 14 Lecture 25: Enolates Part 1
March 16 Lecture 26: Enolates Part 2
------- Lecture 27: Enols and Enamines - Not covered this quarter

Final Exam - Sunday March 18, 3:30 - 5:30 PM  Not 3:00 - 6:00 PM

Covers Lectures 18 - 26 (Part A) -- or -- Lectures 1 - 26 (Part B)  You choose!

Location: Check the course web site