Organic Chemistry II, Chem 2202, Spring 2017
Instructor: Mr. Harry Gottlieb, M.S.
Office: BE126B (tba via Blackboard: Doodle vote!)
E-mail: harryg@temple.edu, Phone: 215-204-1637
Lecture TR 5:30-6:50 PM, BE164 [note room #]
Recitation (BE413): R 4:00-4:50 PM

Organic Chemistry II has an associated lab course, Chem 2204; for which you register separately. While the courses are usually taken concurrently, credit and grades are earned independently.

Course Prerequisites: Successful completion of Organic Chemistry I (2201, 2211, or 2921) (or a TU-recognized equivalent) with a minimum grade of C.

Learning Goals and Objectives:
This course aims to increase your understanding of organic chemistry and to develop critical skills (planning, studying, learning, organizing, inferencing and strategizing). Specific objectives are to learn:

- Properties of aromatic and carbonyl compounds, carbohydrates, and amino acids;
- Three-dimensional shapes of simple organic molecules and how shape affects reactivity;
- Key organic reaction mechanisms in order to understand and accurately predict outcomes;
- To apply molecular orbital analysis to structures and reaction mechanisms;
- Common names, preparation, and characteristic reactions of oft-encountered groups: aromatic rings, aldehydes, ketones, carboxylic acids, and carboxylic acid derivatives;
- Systematic naming of aromatic and carbonyl compounds, drawing structures from names;
- To apply data from analytical methods to elucidate simple organic structures; and
- To apply learnings from Chem 2201-2202 to simple, multi-step organic transformations.

Student Learning Outcomes (students will be able to):

- Recognize aromatic compounds, aldehydes, ketones, carboxylic acids, common carboxylic acid derivatives, and learn the shape as well as the reactivity of each functional group;
- Construct three-dimensional models of these organic compounds;
- Understand mechanisms including: electrophilic aromatic substitution, nucleophilic addition to carbonyl compounds, addition-elimination reactions with acid derivatives;
- Follow synthetic applications and biosynthetic analogies of Chem 2201-2202 reactions;
- Systematically name simple organic compounds; recognize synonymous chemical names; know how to proceed in more complex cases, and understand that standards evolve;
- Solve structural puzzles presented as simple spectral data interpretation; and
- Employ your understanding of reactants, reagents, and conditions to hypothesize likely products, and use data presented to choose among them.

Textbook: D. Klein, Organic Chemistry, 2nd edition, Wiley, 2014 (ISBN 9781118978474 or 9781118978467 or 9781118967171) is required. It is sold in the bookstore as a package: textbook (hard cover or loose-leaf), e-book, iWileyPlus®organic online homework, plus lab text for Chem 2204. The solutions manual (recommended) may be purchased at the bookstore or online www.wiley.com/college/sc/student/chemistry. A molecular model kit (bookstore ~$21 or the student club (TU Chemistry Society, BE228, $15) is strongly recommended. Model sets, wherever purchased, may be sold to the student club at the end of the spring semester. “Organic Chemistry” 5th Ed., WWNorton by Jones and Fleming (ISBN 978-0-393-91303-3) provides more depth and may be purchased through the bookstore or online (http://books.wwnorton.com/books/Organic-Chemistry/). Copies of these texts and answer books are on reserve at Paley Library.
DRAFT Syllabus

**Blackboard™:** Check that you can access our Blackboard™ (Bb hereafter) section. Announcements and e-mails will be sent out via Bb, so check Bb and your Temple e-mail account at least three times a week. Most presented material, messages, and schedule adjustments will be posted on Bb and/or announced in class. Exam and quiz scores will be posted there, so that you can compare your scores to your classmates' results. Answer keys and supplemental instructional material may be posted on Bb and will be announced.

**Attendance:** Attend and engage in both lecture and recitation. Solo and group quizzes may be given in either and may be unannounced. While I do post covered slides after lecture, your notes should also include items worked at the board, projected, or discussed. Investing 2-3X class time (7-11 hr/week) outside class in reading, reviewing, and working problems is advised to retain material for the final and beyond; few earn good-to-excellent grades with less.

**Academic Integrity and Student Conduct:** Exhibit academic integrity and adhere to the Student Conduct Code (http://policies.temple.edu/getdoc.asp?policy_no=03.70.12). Students found cheating will fail the course and will be reported to the Dean Office in the College of Science and Technology; consequences are dire. Don't cheat or ignore cheating. Cheating may be detected during or after tests, quizzes or homework are turned in. I work to help you succeed and try to ensure that every student has an equal opportunity to do so.

**Disability Resources and Services:** If you have a disability (short- or long-term) that requires an accommodation, alert me privately as soon as possible. Contact Disability Resources and Services (DRS, http://www.temple.edu/disability/, 215-204-1280, 100 Ritter Annex) to coordinate reasonable accommodations for documented disabilities.

**Student and Faculty Academic Rights and Responsibilities:** Freedom to teach and freedom to learn are inseparable facets of academic freedom. The University policy covering these is available here: http://policies.temple.edu/getdoc.asp?policy_no=03.70.02. If you feel that I am creating a problem, please check with me first, as that is not my intention. If speaking with me does not resolve the issue, then speak with the course coordinator (Prof. Steve Fleming, BE344). The coordinator will attempt to mediate, consistent with department policy. Do not expect your instructor to make new policy. If you are having problems with the professional conduct of your instructor, contact the department Chair directly.

**Lecture:** Scan highlighted terms, then read, taking notes, before its lecture coverage (see schedule, p. 4) to help prepare for lecture. If you didn't understand something that you read, lecture should clarify it. If it doesn't, **ask questions** in lecture and/or in recitation; others will also benefit. **Ensure that your cell phone and other electronic devices are OFF during class, quizzes and exams unless you have cleared using it with me in advance** (http://bits.blogs.nytimes.com/2013/05/12/disruptions-even-the-tech-elites-leave-gadgets-behind). **Take notes in class** and review/annotate them as you reread. The more senses you use, the more you recall-associate-and-recommit, the more enduring the memory. Distraction costs.

**Recitation Class:** Having a level layout, recitation may feel more conducive to instructor interaction than a lecture hall; questions are welcome in both. Recitation provides chances to work problems and discuss topics in groups. I encourage students to speak with me after class, in my office [Bb lists scheduled hours (first-come-first-served) plus times I'm available-by-appointment (when I'm not teaching another class and haven't reserved)] and/or by e-mail.
Testing Policy:
You may use your model set during tests, but, except for that, all tests are "closed books." No books, notes, or reference material (beyond the periodic table supplied with the test or hanging on the wall) may be accessed during a test. Giving or receiving information during tests violates the Temple Student Conduct Code (see above, including repercussions). You are responsible for all material and assigned problems in the scheduled chapters, save for any sections that I might specifically exclude. Electronic devices, including, for example, phones, calculators, PDAs, laptops, and tablets must be turned OFF and remain OFF.

1. Visit the restroom before a test starts. Your test is complete when you leave the room.
2. No electronic devices may be used during a test. Calculators are unnecessary here.

Exams: Three exams plus a final (each worth 200 points) will be given in our lecture hall or in recitation. My exam questions relate to material presented in lecture, the text, or assigned homework. The final will likely be an American Chemical Society (ACS) standardized, cumulative exam, covering material from both Organic Chemistry I and II. In addition to the exam guide, the ACS (http://shopping.na1.netSuite.com/s.nl/c.3773982/sc.11/category.191/1) now also has a single-use, online practice exam for $10. Copies of their Official Guide, Preparing for Your ACS Examination in Organic Chemistry are on two-hour reserve in Paley Library or may be purchased ($23 alone or $27 including the online practice exam + shipping) from the ACS (or from Amazon, etc., new or used, prices and condition vary) ISBN 0-9708042-1-0.

Quizzes and Homework: Be prepared for quizzes (individual and group) throughout the semester. They are intended to: help you learn, reward you for staying current, ask you to recall and apply concepts, and prepare you for point-heavier exams. Study with two-to-four peers to help assimilate the material. Teaching another in your study- or recitation-group benefits you both, as there is no surer way to learn a subject than to try to teach it. Two hundred (200) points are available between quizzes and homework (hard copy and online).

Textbook homework assigned by the Coordinator is listed in the Course Schedule (next page). Answers may be found in the Study Guide. Work each problem to actually understand the theory and methods used for its solution. Copying answers from the Study Guide helps no one. Do those you can, reread, try more, then check! To gain traction with the material, work through the assigned problems. Try text-worked problems yourself first, then read the author’s solution. Be ready to discuss the homework when recitation covers the chapter. Experience has shown that students who do more than just assigned problems do best. Ask for help if you need it; it’s available. For full credit, title your homework with the chapter, your and my names; staple each chapter separately. Make a copy for yourself. Hand in at least two problems/section within one week of the conclusion of that chapter’s lecture coverage.

Online Homework: WileyPlus is our web-based system. Each chapter’s assignment is found via our section’s WileyPlus Login page (www.WileyPLUS.com, code 557442). Online homework help is available from me or from the Diamond Peer Teacher for Organic Chemistry, Sara Dornblaser, tuf07975@temple.edu. The vendor also has an online help desk for system issues (http://hesupport.wiley.com). The WileyPlus program has a self-assessment tool called Orion that will allow you to see how you are doing throughout the semester. Online homework provides more dependably-rapid feedback than is typical with hard copy. If you have access to it, I recommend it; if it would be an extra and burdensome expense, please get in touch.
**Make-up Exams/Quizzes:** There are no make-up exams or quizzes. I will work with you in the event of a serious, documented problem. Please alert me as far in advance as possible, if you will be unable to attend class on a particular date to help me with scheduling.

**Course Schedule:** This schedule is likely to change; be alert to announced changes.

<table>
<thead>
<tr>
<th>Dates</th>
<th># Pgs.</th>
<th>Chapter</th>
<th>Homework Problems</th>
<th>Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 17</td>
<td>6+5</td>
<td>Orgo I Review; Syllabus, 17.1-17.2</td>
<td>Read syllabus</td>
<td>Entry quiz</td>
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<tr>
<td>Jan. 17, 19</td>
<td>~17</td>
<td>17.3 to 17.7: Conjugated Systems</td>
<td>(17) 1-5,7-19, 32-48</td>
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<tr>
<td>Jan. 19, 24, 26</td>
<td>42</td>
<td>18: Aromaticity</td>
<td>(18) 1-52</td>
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<td><strong>Mon, Jan 30</strong></td>
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<tr>
<td>Jan. 26, 31, Feb.2</td>
<td>57</td>
<td>19: Aromatic Ring Substitution, including sections 23.10 – 23.11</td>
<td>(19) 1-84</td>
<td></td>
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<tr>
<td>Feb. 7</td>
<td>8</td>
<td>Covering chapters 17-19, 23.10-11</td>
<td>(23) 29-33, 68</td>
<td>Exam 1</td>
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<tr>
<td>Feb. 2, 9, 14, 16, 21</td>
<td>53</td>
<td>20: Ketones and Aldehydes</td>
<td>(20) 1-81</td>
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<td>Feb. 21, 23, Feb. 28, Mar 2,7</td>
<td>9</td>
<td>21: Carboxylic Acids and Carboxylic Acid Derivatives</td>
<td>(21) 1-11 (acids)</td>
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<td></td>
<td>50</td>
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<td>(21) 12-80 (derivs.)</td>
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<td><strong>Mar 9</strong></td>
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<td>(midterm progress ratings by Mar 6)</td>
<td>Exam 2</td>
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<td>Mar 13-19</td>
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<td>Mar 21, 23, 28, 30</td>
<td>58</td>
<td>22: Chemistry at the α- position</td>
<td>(22) 1-99</td>
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<td><strong>Wed. March 22</strong></td>
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<td>Apr 4, 6, 11</td>
<td>42</td>
<td>24: Carbohydrates</td>
<td>(24) 1-80</td>
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<tr>
<td>April 11, 13, 18</td>
<td>45 (43)</td>
<td>25: Amino acids (review Chap. 23)</td>
<td>(25) 1-83</td>
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<td><strong>April 25</strong></td>
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<tr>
<td>April 20, 27</td>
<td>40</td>
<td>26: Lipids; review for final</td>
<td>(26) 1-50</td>
<td>[4/27: last lecture &amp; recitation]</td>
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<td>May 2, 3</td>
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<td><strong>Mon May 8</strong></td>
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<td>ACS Final</td>
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<td>3:30-5:30 pm</td>
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**Grading:**
- Exam 1: 200
- Exam 2: 200
- Exam 3: 200
- Final: 200
- Quizzes: 100
- Homework: 100
- Total: 1000

Grades will be based on the natural breaks.

**SCHEDULE REVISION**

**Drop/Add:** You may revise your schedule up through the University's deadline (30-Jan-2017). If you cannot register online but wish to change your course schedule, do so with your academic advisor's help. Approvals required vary depending on when the transaction is being completed. Visit the [Office of the University Registrar](#) website for more information.

Dropping a course results in its deletion from your roster and relieves you of the financial liability associated with that course. If a refund is due, provisions of the refund policy apply.
Withdrawals: Withdrawal is possible after the Drop deadline (Monday 30-Jan). Wednesday, 22-Mar is the latest date to withdraw. Withdrawal (W) is an institutional procedure that does not involve your instructor, though you might check your class standing. It is not complete until the withdrawal form has been signed by Academic Advising and submitted to the Registrar's office. Consult Policy #02.10.14 on Withdrawal and your advisor. If serious circumstances impact all your courses, consider applying for an excused withdrawal with your advisor/program coordinator (http://www.temple.edu/registrar/excusedwithdrawal.asp).

Incompletes: Temple University Policy (#02.10.13) on Incompletes governs this process. An “I” cannot be assigned unless specific requirements have been met and an Incomplete Form, signed by both of us, is submitted before grades are due. An instructor may file a grade of "I" (Incomplete) for a student only if the student has completed the majority of the work of the course at a passing level, and only for reasons beyond the student's control.

For students assigned a grade of "I," all previous scores stand and will be used in calculation of the total score when the course is completed (a default grade must be provided by the instructor in case the student does not complete the course by the due date, which cannot be more than one year). Students wishing to pursue an incomplete must obtain an Incomplete Course Grade Agreement Form that the student and instructor must complete, before presentation to academic advising for final approval.

Organic Chemistry is a fascinating subject. This course builds on Organic Chemistry I; we’ll review that briefly. Check gaps — the final is cumulative. Knowing how to “push electrons” helps in learning information presented this semester. To increase your likelihood of success:

1. Work additional problems — Do more problems than you have time for, beyond assigned ones. Whether from another book, the ACS Guide, or online, additional practice helps.

2. Study regularly — If you fall behind, it's hard to catch up. Many students need to work on organic chemistry 10-15 hours per week outside of class to do well. Some are able to understand the material with 8 additional hours per week. It has been the Coordinator’s experience that: a) paying attention to detail and, b) wanting to learn why things happen, are the most common characteristics of students who do well in Organic Chemistry.

3. Understand both theory and method — You may try to memorize definitions and end-of-chapter summaries, but there is too much material in Chem 2202 to memorize it all.

4. Work together — Study groups are very helpful. Be an active contributor in your group.

5. Seek help immediately if you have trouble — use instructor office hours and additional available time. Don’t wait until the last minute! The course is cumulative; you need to understand material throughout the course to understand later material. If you are too far from land to see which way to go, paddling extra hard may not help as much. Stay in touch.

6. Use the language of Organic Chemistry — Learning Organic Chemistry is like learning a new language. There is fundamental terminology to incorporate into your vocabulary. There are concepts you will learn, then you will be asked to use them to analyze new situations. These types of questions are not handled well by memorization. Unlike many courses, concepts introduced each week remain important during the remainder of the course, including Organic Chemistry I material, which may require recall or revisiting.
HELP!!! Take full advantage of Temple’s academic support services. These include instructor office hours (my full schedule will be posted to Blackboard; you are welcome where I'm not otherwise assigned), and the Center for Learning and Student Success (CLASS, formerly the Math and Science Resource Center [MSRC]) 1810 Liacouras Walk, 2nd floor. CLASS’s services include one-on-one tutoring, computer lab, weekly group tutorials/supplementary instruction, exam review sessions, and a resource library. CLASS is open 6 days a week AND IS FREE. For additional information check http://www.temple.edu/class/.

The reserve desk in Paley Library has several organic chemistry texts and study guides, including Klein and Jones/Fleming, available for limited time checkout. Multiple copies of the American Chemical Society Official Guide Preparing for Your ACS Examination in Organic Chemistry are also on reserve.

On-Line Tools:

- Organic Chemistry Practice Problems at Michigan State University (Excellent): https://www2.chemistry.msu.edu/faculty/reusch/virttxtjml/questions/problems.htm
- Practice Quizzes: http://www.chemhelper.com/practicetests.html
- Electronic Flashcards: https://legacyweb.chemistry.ohio-state.edu/flashcards/
- Notre Dame spectroscopy problems: http://www.nd.edu/~smithgrp/structure/workbook.html

2202 Instructors for Spring 2017 (in alphabetical order)

<table>
<thead>
<tr>
<th>Instructor's name</th>
<th>Office #</th>
<th>Email address</th>
<th>Lecture Schedule</th>
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</thead>
<tbody>
<tr>
<td>Steve Fleming</td>
<td>BE344</td>
<td><a href="mailto:steve.fleming@temple.edu">steve.fleming@temple.edu</a></td>
<td>9:00-9:50 am MWF</td>
</tr>
<tr>
<td>Harry Gottlieb</td>
<td>BE126B</td>
<td><a href="mailto:harryg@temple.edu">harryg@temple.edu</a></td>
<td>5:30-6:50 pm TTh</td>
</tr>
<tr>
<td>Serge Jasmin</td>
<td>BE444</td>
<td><a href="mailto:sjasmin@temple.edu">sjasmin@temple.edu</a></td>
<td>1:00-1:50 pm MWF</td>
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<tr>
<td>Robert Rarig</td>
<td>BE202</td>
<td><a href="mailto:rarig@temple.edu">rarig@temple.edu</a></td>
<td>2:00-3:20 pm TTh</td>
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</tbody>
</table>