Chemistry 112A Organic Chemistry
Fall 2015

Contact Information

Instructor: Roy K. Okuda, PhD
Office Location: Duncan Hall 9A (basement)
Telephone: (408) 924-2525
Email: roy.okuda@sjsu.edu
Office Hours: Tues 3:00 to 4:30pm; Wed 10:30am to Noon
Class Days/Time: Lecture TR 9:00am - 10:15am
Classroom: Science 142
Prerequisites: CHEM 1B (with a grade of "C" or better; "C-" not accepted).
Chem 1B may not be taken concurrently with Chem 112A.

Faculty Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on my Canvas page for this course. I will also use the email address listed on your mySJSU account regularly to send information on Chem 112A - make sure your email is current. You are responsible for checking for messages on this email on a regular basis to learn of any updates. Many important files will be posted to Canvas, so be sure you check it frequently. If you are unable to access Canvas, let me know and I will refer you to the help desk.

Course Description

Chemistry 112A is intended for students who are interested in a profession in science, engineering, and related fields. This one-year course sequence (with Chemistry 112B) will introduce you to the concepts that are fundamental to a comprehensive understanding of organic chemistry. This course will stress an understanding of these concepts, as well as their applications. While some memorization of the course material will be required, you will also be expected to apply the underlying principles in the context of problem solving (most notably on exams). An emphasis will be placed on a thorough conceptual and mechanistic understanding of organic reactions. Note that all exams are cumulative for prior material, thus in lecture and exams it is important to recall information that was covered earlier. The final exam will be comprehensive for all material covered this
semester. The Course and Program Learning Objectives below give a comprehensive list of topics covered in Chem 112A.

**Course Goals and Learning Objectives**

- Appreciation for the nature and scope of organic chemistry.
- Application of key concepts from general chemistry including electronegativity, bonding (ionic and covalent), hybridization of atomic orbitals, and molecular orbital theory to organic systems.
- Draw valence bond and Lewis dot structures for organic species, including formal charges.
- Draw skeletal structures for organic compounds, show stereochemistry clearly.
- Apply acid-base concepts to organic systems; predict ordering of acid or base strength.
- Name alkanes, alkenes, polyenes, alkynes, alkyl halides, aromatic compounds and their various derivatives using systematic (IUPAC) nomenclature.
- Learn common names for some key chemicals.
- Use bond dissociation energies (BDE’s) to calculate reaction energetics.
- Determine oxidation states of organic chemicals.
- Draw reaction mechanisms for polar and radical processes.
- Recognize stereochemistry and be able to apply the Cahn-Ingold-Prelog system to designation of stereochemistry (E/Z or R/S).
- Apply stereochemistry to determination of reaction mechanism.
- Understand the fundamentals of reaction kinetics and be able to apply to the determination of reaction mechanism.
- Learn many of the reactions of alkanes, alkenes, polyenes, alkynes, aromatic compounds, and closely related species. Be able to both predict products and, in many cases, provide probable reaction mechanisms.
- Employ the reactions learned in designing multistep organic synthesis.
- Learn and be able to apply the material presented in Chapters 1-11 and 14-16 in the text (McMurry, 9th edition) as well as additional topics introduced in lecture.

**Program Learning Outcome (PLO)**

Chemistry 112A satisfies the following Program Learning Outcomes for the Chemistry Department:

#2 Demonstrate understanding of core concepts and to effectively solve problems in organic chemistry

**Required Texts/Readings**

**Textbook**

McMurry, John. *Organic Chemistry*, 9th ed., Cengage - The SJSU Bookstore carries the custom SJSU edition bundled with OWL, the online reference tool; this will save you considerably from the complete version of the text. You are welcome to obtain the hardcover 9th edition of McMurry from another bookseller, but be sure it comes with access to OWL. Note this is a brand-new edition of McMurry - I will be using this edition for this course, not earlier editions.
Optional, but highly recommended: A set of molecular models for organic chemistry (a kit by Maruzen is sold by the SJSU Bookstore; other versions may be available from other sources)

Library Liaison
The Chemistry Library Liaison is Jennifer Dinalo (jennifer.dinalo@sjsu.edu)

Course Requirements and Assignments

Catalog Description Continuation of CHEM 112A. Prerequisite: CHEM 1B (with a grade of "C" or better; "C-" not accepted).
You must complete Chem 1B with a grade of "C" or better; you may not take Chem 1B concurrently with Chem 112A! If you are found to not have completed the prerequisite, I may drop you from this course at any time during the semester.

The scheduled time for this course is TR 9:00am to 10:15am in Science 142.

Tentative Course Calendar:
A tentative schedule for the semester appears at the end of this document. Note in particular the dates for the Hour Exams and Final Exam.

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in University Policy S12-3 at http://www.sjsu.edu/senate/docs/S12-3.pdf.

Attendance Policy

You are required to attend every class meeting for this section of Chem 112A. DO NOT enroll in this class if work or other issues prevent you from attending every class meeting. Lectures will supplement information from the textbook. Additionally, a significant amount of information is not from the textbook and will only be covered in lecture. In my experience, students who do not come to class regularly do poorly on exams. Please arrive in time for the 9:00am start of Chem 112A.

Dates for all exams are fixed. Enter these dates on your calendars now and plan to be present.

University policy F69-24: “Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading.”
Grading Policy

GRADING (see below for numerical breakdown and percentages)

There will be 3 "Hour" exams (each approx. 60min) given throughout the semester, each with a maximum score of 150 points. The Final exam will be worth a total of 200 points. You are required to take any two Hour Exams. If you take all 3 Hour Exams, the two highest scores will be used in the calculation of your grade. If you do not take one of the Hour exams, for any reason, this will be the score which will not be used in the grade calculation. The Hour exams will be will be given at the start of the lecture period. Plan to arrive on time when an exam is scheduled, since all exams will be collected at the same time, no extra time is provided if you start late.

The final exam will be comprehensive for all material covered in Chem 112A, and will be worth 200 points. This exam is required for everyone.

Your final grade will be based on:
- 300 points for two Hour exams (2 x 150 points)
- 200 points for the Final (you can't drop the final)

TOTAL 500 points

Grades will be assigned on a "+/-" system. The course grades will be assigned according the following ranges:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>100-97%</td>
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<tr>
<td>A</td>
<td>96-93%</td>
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<tr>
<td>A-</td>
<td>92-90%</td>
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<td>B+</td>
<td>89-87%</td>
</tr>
<tr>
<td>B</td>
<td>86-83%</td>
</tr>
<tr>
<td>B-</td>
<td>82-80%</td>
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<tr>
<td>C+</td>
<td>79-77%</td>
</tr>
<tr>
<td>C</td>
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<tr>
<td>D</td>
<td>66-63%</td>
</tr>
<tr>
<td>D-</td>
<td>62-60%</td>
</tr>
<tr>
<td>F</td>
<td>&lt;59%</td>
</tr>
</tbody>
</table>

Any modifications will be in your favor, but you should not expect significant changes.
Note that the "class average" for a given exam is not necessarily a "C" grade. Grades are assigned by these grade ranges, not by "curves."

It is possible to do poorly on one exam, but you may improve your overall grade by doing well in another exam, especially since one exam is not counted. In assigning grades, only one set of criteria are applied equally to all students in the class - everyone has the same opportunity as everyone else to earn their grade.

Note that "incomplete" grades will only be considered if you have an unexpected situation or emergency that prevents you from finishing the semester. It is required that you have completed most of the course work with a passing grade until that point. A typical situation is a medical emergency that prevents you from taking the final exam - to be considered you must provide information and a means to verify the emergency. Poor performance in the class or inability to keep up with the material is not an acceptable reason for an incomplete or to drop the class.
EXAM POLICIES:

• A "scantron" may be required, I will announce this in class.
• Roll will be taken during exams.
• IDs may be randomly checked so always bring a picture ID.
• Seats will be assigned at my discretion.
• Calculators, computers, cellphones, or any other electronic devices that can photograph, record, and/or transmit images of any kind are NOT allowed at your desk during exams. These must be left in the front of the room. No notes or other sources of information are allowed. Anyone found violating this rule will receive, at minimum, an automatic score of "0 points" for the exam and this exam will be counted as one of the 2 hour exam scores (the second highest score will be dropped). Additional judicial sanctions will apply. See Academic Integrity section below.

Other Class Policies:

• Audio Recording: audio (only) recording is allowed. Note I do not allow video recording. See also University Policies below.
• Cell Phones: Out of courtesy, turn these off during lectures and exams.
• Computers: You may use your laptop during class lectures only for taking notes or accessing electronic Chem 112A course material as long as they are not distracting (no playing video games or watching videos); computers are not allowed during exams.

• Exam Makeup and Regrade Policy: You are required to take any 2 of the 3 Hour exams given. If an Hour exam is not taken for any reason, that exam will be the one exam score that is not counted. A makeup will only be considered if you miss a second Hour exam due to an unforeseen emergency and provide a verifiable reason. In all cases, you must contact me as soon as reasonably possible. Before any action may be taken, you will be required to provide a verifiable document describing your emergency with the doctor's name and phone number. Note this only applies if you miss a second hour exam.

Absence due to personal or work related issues is not a reason to be excused from an exam. See the course attendance policy.

Any request for a regrade or recalculation of any exam or quiz must be made within one week after the exam is returned in class (if you are not in class the day it is returned, it is your responsibility to obtain your exam from me). No regrades will be considered beyond this time. The exam must be left with me, and I will review the entire exam.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester’s Catalog Policies section at http://info.sjsu.edu/static/catalog/policies.html. Add/drop deadlines can be found on the current academic year calendars document on the Academic Calendars webpage at http://www.sjsu.edu/provost/services/academic_calendars/. The Late Drop Policy is available at http://www.sjsu.edu/aars/policies/latedrops/policy/. Students should be aware of the current deadlines and penalties for dropping classes.
Information about the latest changes and news is available at the Advising Hub at http://www.sjsu.edu/advising/.

**Consent for Recording of Class and Public Sharing of Instructor Material**

*University Policy S12-7*, http://www.sjsu.edu/senate/docs/S12-7.pdf, requires students to obtain instructor’s permission to record the course.

- “Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor’s permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material.”
- “Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent.”

**Academic Integrity**

Your commitment as a student to learning is evidenced by your enrollment at San Jose State University. The [University Academic Integrity Policy S07-2](http://www.sjsu.edu/senate/docs/S07-2.pdf) requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The [Student Conduct and Ethical Development website](http://www.sjsu.edu/studentconduct/) is available at http://www.sjsu.edu/studentconduct/.

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person’s ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSU’s Academic Integrity Policy S07-2 requires approval of instructors.

For Chem 112A, any form of cheating or unfair advantage will be dealt with seriously in this course, and will result in an appropriate penalty. At minimum, an infraction will result in "0" points for that exam and it will count as one of two Hour Exam Scores (meaning the second highest exam score will be dropped); a grade of "F" for the course may also be given. The SJSU "Policy on Academic Dishonesty" as described in detail in the SJSU Catalog will be the guideline for any action taken, and the case will be referred to the SJSU Office of Judicial Affairs. The instructor or the SJSU Office of Judicial Affairs may apply more serious penalties. An infraction may also result in a student's name being placed in a Chemistry Department file and other sanctions.
Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 at http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf requires that students with disabilities requesting accommodations must register with the Accessible Education Center (AEC) at http://www.sjsu.edu/drc/ to establish a record of their disability.

Note that accommodations should be made well in advance of an exam, since both I and the AEC need to make arrangements.

• Emergencies and Building Evacuations

If you hear a continuously sounding alarm, or are told to evacuate the building by an Emergency Coordinator, walk quickly to the nearest exit (facing Tower Lawn). Take your personal belongings as you may not be allowed to return. Follow the instructions of the Emergency Coordinators. Be quiet so you can hear instructions. Once outside, move away from the building. Do not return to the building unless the Police or the Emergency Coordinator announces that this is permissible.

Following are resources that are available to all students. They may apply to this course as well as other courses you are taking.

• General Expectations, Rights and Responsibilities of the Student Policy

As members of the academic community, students accept both the rights and responsibilities incumbent upon all members of the institution. Students are encouraged to familiarize themselves with SJSU’s policies and practices pertaining to the procedures to follow if and when questions or concerns about a class arises. See University Policy S90–5 at http://www.sjsu.edu/senate/docs/S90-5.pdf. More detailed information on a variety of related topics is available in the SJSU catalog, at http://info.sjsu.edu/web-dbgen/narr/catalog/rec-12234.12506.html. In general, it is recommended that students begin by seeking clarification or discussing concerns with their instructor. If such conversation is not possible, or if it does not serve to address the issue, it is recommended that the student contact the Department Chair as a next step.

Student Technology Resources

Computer labs for student use are available in the Academic Success Center at http://www.sjsu.edu/at/asc/ located on the 1st floor of Clark Hall and in the Associated Students Lab on the 2nd floor of the Student Union. Additional computer labs may be available in your department/college. Computers are also available in the Martin Luther King Library.

A wide variety of audio-visual equipment is available for student checkout from Media Services located in IRC 112. These items include DV and HD digital camcorders; digital still cameras; video, slide and overhead projectors; DVD, CD, and audiotape players; sound systems, wireless microphones, projection screens and monitors.
SJSU Peer Connections

Peer Connections, a campus-wide resource for mentoring and tutoring, strives to inspire students to develop their potential as independent learners while they learn to successfully navigate through their university experience. You are encouraged to take advantage of their services which include course-content based tutoring, enhanced study and time management skills, more effective critical thinking strategies, decision making and problem-solving abilities, and campus resource referrals.

In addition to offering small group, individual, and drop-in tutoring for a number of undergraduate courses, consultation with mentors is available on a drop-in or by appointment basis. Workshops are offered on a wide variety of topics including preparing for the Writing Skills Test (WST), improving your learning and memory, alleviating procrastination, surviving your first semester at SJSU, and other related topics. A computer lab and study space are also available for student use in Room 600 of Student Services Center (SSC).

Peer Connections is located in three locations: SSC, Room 600 (10th Street Garage on the corner of 10th and San Fernando Street), at the 1st floor entrance of Clark Hall, and in the Living Learning Center (LLC) in Campus Village Housing Building B. Visit Peer Connections website at http://peerconnections.sjsu.edu for more information.

SJSU Writing Center

The SJSU Writing Center is located in Clark Hall, Suite 126. All Writing Specialists have gone through a rigorous hiring process, and they are well trained to assist all students at all levels within all disciplines to become better writers. In addition to one-on-one tutoring services, the Writing Center also offers workshops every semester on a variety of writing topics. To make an appointment or to refer to the numerous online resources offered through the Writing Center, visit the Writing Center website at http://www.sjsu.edu/writingcenter. For additional resources and updated information, follow the Writing Center on Twitter and become a fan of the SJSU Writing Center on Facebook. (Note: You need to have a QR Reader to scan this code.)
SJSU Counseling Services

The SJSU Counseling Services is located on the corner of 7th Street and San Fernando Street, in Room 201, Administration Building. Professional psychologists, social workers, and counselors are available to provide consultations on issues of student mental health, campus climate or psychological and academic issues on an individual, couple, or group basis. To schedule an appointment or learn more information, visit Counseling Services website at http://www.sjsu.edu/counseling.

Advice for Students Taking Chem 112A (FROM other students!):

Over the years, I have asked students who have done well in Chem 112A and 112B what their "secrets" are - here are the most common responses:

-keep up with the course, don't ever fall behind
-attend every lecture and take copious notes (listen for hints)
-read the text before and after each lecture
-copy (by hand) your lecture notes soon after the class
-work the problems immediately after they are discussed in class (there is no way to catch up if you try to do this just before the exam); do ALL of the problems in the book and provided problem sets and in-class problems
--don't memorize answers to specific problems; you need to understand how to determine the answer from principles since questions can be posed in different ways (you need to be able to answer questions that look different from ones in problem sets).

-DO NOT wait until just before the exam to start learning the material!

You will likely hear much griping about how "difficult" O-chem is, but you typically don't hear from the students who follow the advice above and do well in the class. I can't promise success for everyone, but you will very likely do much better if you follow all of these tips listed.

I will occasionally post problem sets and other information on the Chem 112A Canvas site (see "Files") - check this page periodically.

MY BEST ADVICE TO YOU:
If you feel at some point in the semester that you are "lost" or not doing as well as you like, come see me or take advantage of the available Resources listed below immediately for assistance. If you wait until right before an exam or until the last few weeks of classes, it will be very difficult to catch up due to the volume of material. Keeping up with the material and working the problems is very important to succeed in Chem 112A. However, it is also true that spending many hours studying does not necessarily equate to doing well on the exam - what is important that you understand the underlying principles and know how to apply them, not just memorize information or know how to answer specific problems from the textbook or sample exams.
Office Hours and Email Questions:
The University requires me to post 2 hours of office a week, but I regularly schedule at least 3 hours/week. My office hours are times dedicated to assist you and students in all of my courses. They are usually quiet except immediately before exams, so if you have questions, see me early and not wait until the pre-exam rush, when many students show up - I can answer only a limited number of questions from a large crowd.

Because of the very large size of this course, the faculty-to-student ratio is 1:250, which is extremely high for an organic chemistry course. To maximize the number of student questions, all office hours will be "group" sessions. During office hours, enter my office even if other students are already present. If a student has a private matter, I will handle this individually.

I am also open to email questions at any time, so you do not have to wait until the next office hour. Unless I'm traveling, I try to answer emails 7 days a week, and usually reply within a day (understand that I usually answer these emails on my personal time - I do my best to reply in a timely manner but may not be available every evening or weekend). My email is roy.okuda@sjsu.edu (put "112A" in the subject line so I know it's not spam)

Some important points regarding email questions:

- If your question is related to a point in the textbook, include the page number or problem number. I don't carry the book with me at all times, so I may need some background to answer your question
- this service is intended for a reasonable number of questions (e.g 3-4). If you need many questions answered, I will ask you to come to office hours.
- with 250 students, I will need a great deal of time to prepare for each exam. Thus, the cutoff for email questions will be 24 hours before each exam.

- Email is only for questions about course material and problems. I will not reply to emails regarding:
  - grades or personal matters (see me in person)
  - questions on the specific topics to be covered in an exam (this is done in lecture, which you must attend)

OTHER RESOURCES:

-COSAC (College of Science Student Advisory Center) has student tutors who are available for walk-in or scheduled assistance with questions - http://www.science.sjsu.edu/cosac/ NOTE: they get very busy just before our exams!
- Academic Workshops are primarily problem-solving sessions
- Peer Connections Resource Center

All SJSU faculty have the ability to refer students who may need assistance in a specific course to Peer Connections. If you receive a message from Peer Connections or COSAC, I recommend you follow up, as they may be able to assist you!
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading in Text (9th ed. McMurry)*</th>
<th>Recommended problems (but ALL problems are important!)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 20</td>
<td>Introduction; Structure &amp; Bonding</td>
<td>Preface; 1.1 to 1.8</td>
<td>1.1 to 1.12</td>
</tr>
<tr>
<td>Aug 25</td>
<td>Structure &amp; Bonding; Polar Covalent: Acids and Bases</td>
<td>1.9 to 1.12; 2.1 to 2.6</td>
<td>1.13 to 1.57; 2.1 to 2.8</td>
</tr>
<tr>
<td>Aug 27</td>
<td>Polar Covalent: Acids and Bases</td>
<td>2.7 to 2.12</td>
<td>2.9 to 2.44; 2.49 to 2.57</td>
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<tr>
<td>Sept 1</td>
<td>Alkanes &amp; Their Stereochemistry</td>
<td>3.1 to 3.4</td>
<td>3.1 to 3.14</td>
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<tr>
<td>Sept 3</td>
<td>Alkanes &amp; Their Stereochemistry</td>
<td>3.5 to 3.7</td>
<td>3.15 to 3.88</td>
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<td>Sept 8</td>
<td>Cycloalkanes &amp; Their Stereochemistry</td>
<td>4.1 to 4.5</td>
<td>4.1 to 4.11</td>
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<tr>
<td>Sept 10</td>
<td>Cycloalkanes &amp; Their Stereochemistry</td>
<td>4.6 to 4.9</td>
<td>4.12 to 4.52</td>
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<td>Sept 15</td>
<td>Stereochemistry</td>
<td>5.1 to 5.6</td>
<td>5.1 to 5.15</td>
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<tr>
<td>Sept 17</td>
<td>Stereochemistry</td>
<td>5.7 to 5.12</td>
<td>5.16 to 5.77</td>
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<tr>
<td>Sept 22</td>
<td><strong>Hour Exam One</strong></td>
<td></td>
<td>60min exam</td>
</tr>
<tr>
<td>Sept 24</td>
<td>Overview of Organic Reactions</td>
<td>6.1 to 6.6</td>
<td>6.1 to 6.9</td>
</tr>
<tr>
<td>Sept 29</td>
<td>Overview of Organic Reactions</td>
<td>6.7 to 6.11; 7.1 to 7.4</td>
<td>6.10 to 6.42; 7.1 to 7.10</td>
</tr>
<tr>
<td>Oct 1</td>
<td>Alkenes: Structure/Reactivity</td>
<td>7.5 to 7.11</td>
<td>7.11 to 7.63</td>
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<tr>
<td>Oct 6</td>
<td>Alkenes: Reactions/Synthesis</td>
<td>8.1 to 8.6</td>
<td>8.1 to 8.12</td>
</tr>
<tr>
<td>Oct 8</td>
<td>Alkenes: Reactions/Synthesis</td>
<td>8.7 to 8.13</td>
<td>8.13 to 8.65</td>
</tr>
<tr>
<td>Oct 13</td>
<td>Alkynes &amp; Organic Synthesis</td>
<td>9.1 to 9.9</td>
<td>9.1 to 9.42</td>
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<tr>
<td>Oct 15</td>
<td>Organohalides</td>
<td>10.1 to 10.5</td>
<td>10.1 to 10.8</td>
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<tr>
<td>Oct 20</td>
<td>Organohalides</td>
<td>10.6 to 10.8</td>
<td>10.9 to 10.43</td>
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<tr>
<td>Oct 22</td>
<td><strong>Hour Exam Two</strong></td>
<td></td>
<td>60min exam</td>
</tr>
<tr>
<td>Oct 27</td>
<td>Alkyl Halides: Nucleophilic Reactions</td>
<td>11.1 to 11.5</td>
<td>11.1 to 11.13</td>
</tr>
<tr>
<td>Oct 29</td>
<td>Alkyl Halides: Nucleophilic Reactions</td>
<td>11.6 to 11.9</td>
<td>11.14 to 11.19</td>
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<tr>
<td>Nov 3</td>
<td>Alkyl Halides: Nucleophilic Reactions</td>
<td>11.10 to 11.12</td>
<td>11.20 to 11.69</td>
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<tr>
<td>Nov 5</td>
<td>Conjugated Dienes</td>
<td>14.1 to 14.4</td>
<td>14.1 to 14.6</td>
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<tr>
<td>Nov 10</td>
<td>Conjugated Dienes</td>
<td>14.5 to 14.6</td>
<td>14.7 to 14.12; 14.16 to 14.38; 14.45 to 14.50</td>
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<td>Nov 12</td>
<td>Benzene &amp; Aromaticity</td>
<td>15.1 to 15.4</td>
<td>15.1 to 15.14</td>
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<td>Nov 17</td>
<td>Benzene &amp; Aromaticity</td>
<td>15.5 to 15.6</td>
<td>15.15 to 15.44</td>
</tr>
<tr>
<td>Nov 19</td>
<td>Chemistry of Benzene</td>
<td>16.1 to 16.5</td>
<td>16.1 to 16.13</td>
</tr>
<tr>
<td><strong>Nov 24</strong></td>
<td><strong>Hour Exam Three</strong></td>
<td></td>
<td>60min exam</td>
</tr>
<tr>
<td>Nov 26</td>
<td>Thanksgiving</td>
<td>NO CLASS!!</td>
<td></td>
</tr>
<tr>
<td>Dec 1</td>
<td>Chemistry of Benzene</td>
<td>16.6 to 16.8</td>
<td>16.14 to 16.44</td>
</tr>
<tr>
<td>Dec 3</td>
<td>Chemistry of Benzene</td>
<td>16.9 to 16.10</td>
<td>16.45 to 16.74</td>
</tr>
<tr>
<td>Dec 8</td>
<td>TBA, review</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**December 10 (Thurs), 2015  FINAL EXAM 0715 to 0930**
Any changes from the schedule will only be announced in class.
Readings and problems for this course are based on the 9th edition of McMurry, not from earlier editions. If you choose to use an earlier edition, you are responsible for any differences from the 9th edition. *In addition, material not found in McMurry will be included in the lecture.*

*Unless there is a serious calamity, all exam dates are firm.* Mark these dates and times on your calendars NOW!