San José State University
Department of Chemistry
Chem 8: Organic Chemistry, Fall 2018

Course and Contact Information

Instructor: Laura Kapitzky, Ph.D.
Office Location: Duncan Hall 417
Telephone: (408) 924-4952
Email: laura.kapitzky@sjsu.edu
Office Hours: Mondays 12:30pm – 1:30pm in DH 417
Tuesdays 10:30am – 11:30am in DH 417
Class Days/Time: Tuesdays and Thursdays 9:00am - 10:15am
Classroom: Morris Dailey Auditorium 101
Prerequisites: CHEM 001B (with a grade of "C" or better; "C-" not accepted). Notes: CHEM 008 is not a satisfactory prerequisite for CHEM 112B. No credit toward Chemistry major or minor.

Course Format

Faculty Web Page and MYSJSU Messaging
Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on the course Canvas site. I may also use the email address listed on your mySJSU account or Canvas messaging to send information on Chem 8. You are responsible for checking for messages on this email and the Chem 8 Canvas site on a regular basis to learn of any updates.

Course Description
Introduction to the chemistry of carbon compounds for allied health majors and others requiring only 3 units of organic chemistry lecture.

Chemistry 8 is designed to introduce you to organic chemistry in a one-semester course format. The intent of this course is to familiarize you with the basic concepts and properties of molecules based on carbon. As you will see, organic chemistry impacts many areas of your daily life.

Course Learning Outcomes (CLO)

Upon successful completion of this course, students will be able to:

- 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 structure for organic species, including formal charges.
• Draw skeletal structures for organic compounds.
• Apply acid-base concepts to organic systems; predict ordering of acid or base strength.
• Name alkanes, alkenes, polyenes, alkynes, alkyl halides, aromatic compounds, carbonyl compounds, amines and their various derivatives using systematic (IUPAC) nomenclature.
• Learn common names for some key chemicals.
• Draw reaction mechanisms for some key reactions.
• Recognize stereochemistry and be able to apply the Cahn-Ingold-Prelog system to designation of stereochemistry (E/Z or R/S).
• Learn many of the reactions of alkanes, alkenes, polyenes, alkynes, aromatic, carbonyl, and amine compounds, and closely related species. Be able to predict reactions involving these functional groups.
• Be able to solve problems employing spectroscopic methods including mass spectrometry, infrared and NMR spectroscopy
• Understand the basic chemical and structural features of biomolecules, including lipids, carbohydrates, amino acids and proteins, and nucleic acids.

Required Texts/Readings

Textbook

Required Textbook

Optional Study Guide

Course Requirements and Assignments

To pass this class, students are required to demonstrate progression towards understanding of, and ultimately adequate knowledge of, the topics introduced during lecture and activity. Knowledge will be demonstrated on three graded in-class midterms and three graded quizzes scheduled throughout the semester. Exam and quiz dates can be found on the schedule at the end of this greensheet.

It is your responsibility to keep track of exam and quiz dates, activity due dates, and your own progress in the class. It is your responsibility to assess your understanding as we move through the material, and reach out for help if you feel it is necessary. You can contact me via email or Canvas messaging. Do not wait until the last minute to ask for help!

Further university-wide information regarding attendance, grading, religious holidays, and more can be found at the Office of Graduate and Undergraduate Programs’ Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/.
Final Examination or Evaluation

A written final exam of a similar format to the midterm exams will be administered during the scheduled final exam period.

Grading Information

Exams

There will be 3 midterm exams (each approx. 60min) given throughout the semester, each with a maximum score of 100 points. You are required to take any 2 midterm exams. If you take all 3 midterm exams, the two highest scores will be used in the calculation of your grade. If you do not take one of the midterm exams, for any reason, this will be the score which will not be used in the grade calculation. The midterm exams 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 8, and will be worth 150 points. The final exam is required for everyone.

Quizzes

Quizzes will be given at the start of the lecture and will cover the material since the last quiz or exam. Each quiz will be worth 20 points total and will be completed in the first 15 minutes of class. Questions will be graded with no partial credit; it is either right or wrong. Arrive on time since all quizzes will be collected at the same time, no extra time is provided if you start late. Three quizzes will be given but only two will count towards your grade. The lowest quiz score (or missed quiz) will be not be used in the calculation of your final grade.

Homework

Homework problem sets for each chapter are listed at the end of this greensheet. Homework will be due one week after we finish the chapter in lecture and will be submitted on Canvas. Homework will be graded for completion, and no partial credit will be given. Late homework is not accepted, and the lowest homework score will be dropped from your grade.

In-class Work – Extra Credit

Scattered throughout the semester there will be a few in-class problems assigned. These problems will be worth a variable number of extra credit points and will be graded for completion. Extra credit points will be added to your final point total for the class. There are no make-ups for missed in-class problems.

Grading Policy

Your final grade will be based on:

- 70 points (10%) for homework (14 assignments, 5 points each)
- 40 points (7%) for in-class quizzes (2 quizzes, 20 points each)
- 300 points (50%) for two Hour exams (2 exams, 150 points each)
- 200 points (33%) for the Final (you can't drop the final)

TOTAL 610 points
Missed Exams, Quizzes, and Regrade Requests

Missed Quizzes and Exams
You are required to take any 2 of the 3 midterm exams given. If a midterm exam or quiz is not taken for any reason, that exam or quiz will be the one score that is not used in final grade calculation. A makeup will only be considered if you miss a second midterm exam or quiz due to an unforeseen emergency and provide a documented and verifiable reason. In all cases, you must contact me as soon as reasonably possible. Before any action will be taken, you will be required to provide a verifiable document describing your emergency with an official's name and phone number. Note this only applies if you miss a second exam or quiz.

Missed In-Class Activities and Late Homework
There are no make-ups for missed in-class work. Late homework will not be accepted.

Regrade Requests
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/quiz from me). No regrades will be considered beyond this time. The exam must be left with me, and I will review the entire exam.

Classroom Protocol
I hope that the classroom will serve as an environment that will promote learning and the development of new ideas, as well as be a safe and respectful community. Behavior that interferes with the normal academic function in a classroom is unacceptable. Students exhibiting this behavior will be asked to leave the class. Examples of such behavior include:

- Persistent interruptions or using disrespectful adjectives in response to the comments of others.
- The use of obscene or profane language.
- Yelling at classmates and/or faculty.
- Physical threats, harassing/bullying behavior, or personal insults

Attendance Policy
Beyond the initial day of class, roll will not be taken. However, attendance of the lectures is mandatory. If you miss a lecture, you are still responsible for all the material discussed in lecture (some of which may not be in the text). Note we will cover a significant amount of material during each class meeting. If you miss class meetings, it will be difficult to catch up due to the volume. Also, you are responsible for keeping up with any changes in the course or exam schedule, which otherwise may not be publicized outside of the lecture time. Please arrive promptly at 9:00 am. A tentative lecture and course schedule is found at the end of this greensheet.

Other Class Policies
- IDs may be randomly checked at exams and quizzes so always bring a picture ID.
- Seats will be assigned at my discretion.
- All you need for exams and quizzes are a prepared mind and a pen or pencil. No other materials are allowed at your desk during exams and quizzes.
- Courtesy and respect: treat your fellow classmates and your instructor as you would like to be treated – respectfully and with courtesy.
• **Audio Recording**: audio (only) recording is allowed. 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 only during class lectures, as long as you can do so in a way that is not distracting to other students. Computers or any web-enabled devices are not allowed during exams.

**University Policies**

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs’ Syllabus Information web page at [http://www.sjsu.edu/gup/syllabusinfo/](http://www.sjsu.edu/gup/syllabusinfo/). To highlight a policy:

- **Time commitment**: “Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or course related activities including but not limited to internships, labs, clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.” (3 credit course = ~9 hrs/week)

*In addition to the university policies above, I have additional policies that apply specifically to Chem 10. Please note the following:*

- **Consent for Recording of Class and Public Sharing of Instructor Material**: Audio recording of lectures is allowed. I do not allow video recording of lectures. Much of the material I prepare for Canvas is prepared by me and is considered my personal property. It may not be shared with anyone who is not enrolled in Chem 10.

- **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 at [http://www.sjsu.edu/senate/docs/S07-2.pdf](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 is available at [http://www.sjsu.edu/studentconduct/](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.
Homework Problem Sets

Homework is submitted online through Canvas. There are four homework due dates for the semester, corresponding to the four major exams.

Chapters 1 – 4 are due on 9/18/2018 at 9am (Exam 1)
Chapters 5 – 8 are due on 11/16/2018 at 9am (Exam 2)
Chapters 9 – 13 are due on 11/20/2018 at 9am (Exam 3)
Chapters 14 – 16 are due on 12/13/2018 at 7:15am (Final Exam)

Chapter 1: 1.34, 1.35, 1.38, 1.40, 1.47, 1.48, 1.53, 1.57, 1.60, 1.64
Chapter 2: 2.34, 2.39, 2.45, 2.46, 2.47, 2.54, 2.59, 2.73
Chapter 3: 3.25, 3.26, 3.29, 3.40, 3.42, 3.47, 3.56, 3.59
Chapter 4: 4.33, 4.35, 4.39, 4.42, 4.48, 4.53, 4.56, 4.57
Chapter 5: 5.26, 5.27, 5.32, 5.33, 5.36, 5.40, 5.47, 5.50, 5.58
Chapter 6: 6.29, 6.32, 6.36, 6.37, 6.38, 6.40, 6.42, 6.44, 6.45
Chapter 7: 7.25, 7.26, 7.30, 7.33, 7.34, 7.36, 7.39, 7.41, 7.44
Chapter 8: 8.26, 8.27, 8.33, 8.36, 8.45, 8.55
Chapter 10: 10.33, 10.35, 10.39, 10.40, 10.44, 10.53
Chapter 12: 12.24, 12.25, 12.26, 12.30, 12.36, 12.38, 12.50, 12.54
Chapter 14: 14.27, 14.32, 14.33, 14.36, 14.43
Chapter 15 & 16: 15.23, 15.25, 15.32, 15.38, 15.39, 16.21, 16.23
Schedule is subject to change with fair notice. Notice of major schedule changes will be given in class and through Canvas announcements.

### Tentative Course Schedule

<table>
<thead>
<tr>
<th>day</th>
<th>date</th>
<th>Topic</th>
<th>Reading</th>
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<tbody>
<tr>
<td>Tuesday</td>
<td>8/21/2018</td>
<td>Course intro, study tips for O-chem</td>
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<tr>
<td>Thursday</td>
<td>8/23/2018</td>
<td>Structure and Bonding, Formal Charge</td>
<td>1.1 - 1.5</td>
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<td>Tuesday</td>
<td>8/28/2018</td>
<td>Structure and Bonding; Acids and Bases</td>
<td>1.6 - 1.12</td>
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<td>Thursday</td>
<td>8/30/2018</td>
<td>Alkanes</td>
<td>2.1 - 2.3</td>
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<td>Tuesday</td>
<td>9/4/2018</td>
<td>Quiz 1, Alkanes 2</td>
<td>2.4 - 2.11</td>
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<td>Thursday</td>
<td>9/6/2018</td>
<td>Alkenes and Alkynes</td>
<td>3.1 - 3.9</td>
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<tr>
<td>Tuesday</td>
<td>9/11/2018</td>
<td>Reactions of Alkenes and Alkynes</td>
<td>4.1 - 4.6</td>
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<tr>
<td>Thursday</td>
<td>9/13/2018</td>
<td>Reactions of Alkenes and Alkynes</td>
<td>4.7 - 4.11</td>
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<tr>
<td>Tuesday</td>
<td>9/18/2018</td>
<td>EXAM 1 (Chpt 1 - 4)</td>
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<td>Thursday</td>
<td>9/20/2018</td>
<td>Aromatic Compounds</td>
<td>5.1 - 5.6</td>
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<td>Tuesday</td>
<td>9/25/2018</td>
<td>Aromatic Compounds</td>
<td>5.7 - 5.10</td>
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<td>Thursday</td>
<td>9/27/2018</td>
<td>Stereochemistry; Fischer Projections</td>
<td>6.1 - 6.6</td>
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<td>Tuesday</td>
<td>10/2/2018</td>
<td>Quiz 2, Stereochemistry</td>
<td>6.7 - 6.10</td>
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<td>Thursday</td>
<td>10/4/2018</td>
<td>Organohalides: Substitution Reactions</td>
<td>7.1 - 7.6</td>
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<td>Tuesday</td>
<td>10/9/2018</td>
<td>Organohalides: Elimination Reactions</td>
<td>7.7 - 7.10</td>
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<td>Thursday</td>
<td>10/11/2018</td>
<td>Alcohols, Phenols, Ethers</td>
<td>8.1 - 8.8</td>
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<tr>
<td>Tuesday</td>
<td>10/16/2018</td>
<td>EXAM 2 (Chpt 5 - 8)</td>
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<td>Thursday</td>
<td>10/18/2018</td>
<td>Aldehydes and Ketones 1</td>
<td>9.1 - 9.6</td>
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<tr>
<td>Tuesday</td>
<td>10/23/2018</td>
<td>Aldehydes and Ketones 2</td>
<td>9.7 - 9.10</td>
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<tr>
<td>Thursday</td>
<td>10/25/2018</td>
<td>Carboxylic Acids and Derivatives 1</td>
<td>10.1 - 10.5</td>
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<td>Tuesday</td>
<td>10/30/2018</td>
<td>Carboxylic Acids and Derivatives 2</td>
<td>10.6 - end</td>
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<tr>
<td>Thursday</td>
<td>11/1/2018</td>
<td>Quiz 3, α-Carbonyl Reactions</td>
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<td>Tuesday</td>
<td>11/6/2018</td>
<td>α-Carbonyl Reactions</td>
<td>11.7 - 11.11</td>
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<td>Thursday</td>
<td>11/8/2018</td>
<td>Amines</td>
<td>12.1 - 12.7</td>
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<td>Tuesday</td>
<td>11/13/2018</td>
<td>Spectroscopy 1</td>
<td>13.1 - 13.5</td>
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<td>11/15/2018</td>
<td>Spectroscopy 2</td>
<td>13.6 - end</td>
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<tr>
<td>Tuesday</td>
<td>11/20/2018</td>
<td>EXAM 3 (Chpt 9 - 13)</td>
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<td>Thursday</td>
<td>11/22/2018</td>
<td>Thanksgiving Break</td>
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<td>Tuesday</td>
<td>11/27/2018</td>
<td>Carbohydrates</td>
<td>14.1 - 14.11</td>
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<td>Tuesday</td>
<td>12/4/2018</td>
<td>Amino Acids, Peptides, Proteins</td>
<td>15.6 - 15.10</td>
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<td>Thursday</td>
<td>12/6/2018</td>
<td>Lipids and Nucleic Acids</td>
<td>16.1 - 16.11</td>
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<tr>
<td><strong>Thursday</strong></td>
<td>12/13/2018</td>
<td>Final exam: 7:15am - 9:00am</td>
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