

San José State University
Department of Chemistry
CHEM 112A: Organic Chemistry I, Spring 2015

Instructor: Dr. David Brook
Office location: SCI 166
Telephone: (408) 924-4994
Email: david.brook@science.sjsu.edu
Office hours: MW 930-1030 or by appointment
Class days/time: MW 0800-0915
Classroom: SCI 142
Prerequisites: Chem 1B with grade of C or better.

Faculty Web Page

Copies of the course syllabus and other materials may be found on my faculty web page <http://www.sjsu.edu/people/david.brook> or on the on the Canvas learning management system course website. You are responsible for regularly checking with the messaging system through MySJSU (or other communication system as indicated by the instructor) to learn of any updates.

Course Description and Goals

An introduction to organic chemistry, covering introductory nomenclature, structure and stereochemistry, bonding models, (including the valence bond model, resonance, the molecular orbital model and aromaticity), acidity in organic chemistry, elementary reaction mechanisms and the chemistry of several classes of compounds including alkanes, alkenes, alkynes, aromatics and alkyl halides

Organization: While the sequence of topics in the text provides a good foundation, the lectures may utilize material from later (and earlier) chapters. Schedule handouts will be distributed in class giving tentative dates for reading assignments. You are encouraged to work all of the problems in the text; some problems on the exams will be taken from the text. Because the course is built up in a cumulative manner, material from the first chapters will be important to understanding later chapters. It is therefore important not to fall behind. You should seek help with material you may be having trouble with as you go along rather than deferring it to right before an exam.

Program Learning Objectives

CHEM 112A (in conjunction with CHEM 112B) covers Program Learning Objective #2: Demonstrate understanding of core concepts and to effectively solve problems in organic chemistry.

Course Learning Outcomes

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

1. Understand the various ways organic chemical structures are depicted.
2. Draw organic chemical structures from names (and *vice-versa*)
3. Name structures including stereoisomers and geometric isomers
4. Show knowledge of the two models of bonding used in organic chemistry
5. Understand the basic concepts of thermodynamics and kinetics as applied to organic chemistry
6. Understand the concepts of acidity and basicity, pK_a, Lewis acids, Lewis bases, electrophiles and nucleophiles as applied to organic chemistry
7. Use 'curly arrows' to depict reaction mechanisms
8. Show knowledge of the basic mechanisms of substitution and elimination (S_N1, S_N2, E1, E2, E1c_b) and understand the factors that lead to a particular mechanism occurring.
9. Show knowledge of basic reactions of alkanes, alkenes, alkynes, alkyl halides and aromatic compounds.
10. Predict the products of reactions of alkanes, alkenes, alkynes, alkyl halides and aromatic compounds
11. Propose reagents needed to synthesize particular alkanes, alkenes, alkynes, alkyl halides and aromatic compounds.

Texts and Other Items

- McMurry, Organic Chemistry
- Register on www.saplinglearning.com
- A set of molecular models.
- Student photo-ID card at all exams (see below).

Course Requirements and Assignments

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>.

Online Homework

Online homework will be completed using Sapling Learning (www.sapling.com). You must enroll on the Sapling website (cost \$40) and search for CHEM 112A. Note that you must enroll within the first month of class. In addition to contributing to your grade, the online homework problems give you important practice and feedback in solving problems in organic chemistry. There is a set of problems for each chapter we will cover. You may complete the problems at your own pace, but I strongly recommend you complete the relevant assignments before each midterm. You may take repeated attempts to answer each question correctly, but each time you lose 5% of the possible credit.

Exam Schedule

Mid-Term 1	W Feb 25th
Mid-Term 2	W Apr 1st
Mid-Term 3	W April 29th
Final Exam	Mon May 18, 0715

Grading

Grades are based on the best two of three exams (100 points each) online homework (see below) (100 points) and a final exam (200 points). Letter grades will be assigned at the end of the semester based on the total score for the class. Grades are assigned based on the following scale: >90% A+, 85-90% A, 80-85% A-, 75-80% B+ etc. etc. If you believe there has been a grading error, please bring it to my attention within two calendar weeks after the exam has been returned; no regrades will be done after this period.

Extra Credit problems may be assigned as the instructor sees fit. These will be graded on an all or nothing basis.

University Policies

General Expectations, Rights and Responsibilities of the Student

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

Dropping and Adding

You are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. found at http://sa.sjsu.edu/student_conduct. You should be aware of the new deadlines and penalties for adding and dropping classes.

Consent for Recording of Class and Public Sharing of Instructor Material

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 at <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/>.

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/aec> to establish a record of their disability.

Emergencies and Evacuations

If you hear a continuously sounding alarm, or are told to evacuate by Emergency Coordinators (colored badge identification), walk quickly to the nearest stairway (end of each hall). Take your personal belongings, as you may not be allowed to immediately return. Follow instructions of Emergency Coordinators. Be quiet so you can hear. Once outside, move away from the building. Do not return to the building unless the Police or Emergency Coordinators announce that you may.

CHEM 112A Tentative Schedule of Lectures

Monday	Wednesday	Topic	Assignments, Notes
Jan 26	Jan 28	Structure and bonding	Ch 1
Feb 2	Feb 4	Structure, notation and nomenclature	Ch 1, Ch 3 3.1-3.4
Feb 9	Feb 11	Polar bonds, resonance	Ch 2.1-2.6
Feb 16	Feb 18	Alkanes, Alkenes, cycloalkanes	Ch 3, 4, 7.1-7.6
Feb 23	Feb 25	Stereochemistry	Ch 5 Exam 1 (Wednesday)
Mar 2	Mar 4	Organic Reactions	Ch 6
Mar 9	Mar 11	Acids and Bases	Ch 2.7-2.10
Mar 16	Mar 18	Substitution and Elimination	Ch 11
Mar 23	Mar 25	SPRING BREAK	SPRING BREAK
Mar 30	Apr 1	Substitution and Elimination	Ch 11 Exam 2 (Wednesday)
Apr 6	Apr 8	Alkenes	Ch 7.7-7.11, 8
Apr 13	Apr 15	Alkynes	Ch 9
Apr 20	Apr 22	Organohalides	Ch 10
Apr 27	Apr 29	Conjugation	Ch 14, Exam 3 (Wednesday)
May 4	May 6	Benzene and aromaticity	Ch 15, 16
May 11	May 13	Review	
May 18		Final Exam @ 7:15 am	