Instructor: Dr. David Brook
Office location: SCI 166
Telephone: (408) 924-4994
Email: david.brook@sjsu.edu
Office hours: TuTh 1030-1130 and by appointment
Class days/time: TuTh 0900-1015
Classroom: YUH 124
Prerequisites: CHEM 112A with a grade of C or better

Online Information
Copies of the course syllabus and other materials may be found on the Canvas learning management system course website. Homework will be posted on a separate website for which you must enroll at www.saplinglearning.com. 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. Please put ‘CHEM112B’ in the subject line of any email related to this class.

Course Description and Goals
A continuation of Chem 112A. Several more classes of organic compounds will be studied in some detail. There will be an emphasis on thorough mechanistic understanding of reactions, this is not just a "memorization" course. Review of concepts from the first semester is strongly encouraged. We will ultimately apply our understanding of classes of organic compounds to develop an appreciation for more complex biological systems.

Organization: The sequence of topics in the text will be followed approximately, though time will be taken to review earlier material and place newer material in context. A tentative schedule is given below, but will be subject to change as regards to the topics and assigned reading. 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.
**Course Learning Outcomes**

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

1. Show mastery of the topics covered in CHEM 112A (Ch 1-11, 14, 16 of McMurry)
2. Show mastery of the material covered inc CHEM 112B (Ch17-28 of McMurry)
3. Identify the main classes of organic compounds by functional group, provide IUPAC names for simple organic molecules and draw skeletal structures for given IUPAC names
4. Recall the main reactions of, and main synthetic routes for alkenes, alkyl halides, aromatic compounds, alcohols, ethers, thiols, thioethers, amines, aldehydes, ketones, carboxylic acids, esters, amides, acid chlorides, acid anhydrides and nitriles.
5. Suggest appropriate mechanisms for the above reactions using the curved arrow formalism, and be able to describe how the mechanism may change according to the structure of the molecule and/or the reaction conditions
6. Predict reaction products based on a knowledge of reaction mechanism
7. Suggest possible pathways for short (3-4 steps) multistep syntheses of organic compounds, accounting for functional group/reaction condition incompatibility and understanding and using the concept of protecting groups as necessary

**Program Learning Objectives**

This class contributes toward program learning objective 2, listed on the department website:

http://www.sjsu.edu/chemistry/Academic_Programs/undergraduate_program_learning_objectives.html

**Required Items**

**Textbook**
- McMurry, *Organic Chemistry*

**Online Homework**
- Register on www.saplinglearning.com

**Useful but not essential:**
- Weeks, *Pushing Electrons*
- Scudder, *Electron Flow in Organic Chemistry*
- Klein, *Organic Chemistry as a Second Language*

**Other equipment requirements**
- 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.

Grades
Grades will be based on online homework (100 points), the best two of three mid-term exams (100 points each), and a final exam (200 points) (500 points total). Dates are given in the class schedule below.

Online Homework
Online homework will be completed using Sapling Learning (www.saplinglearning.com). You must enroll on the Sapling website (cost $40) and search for CHEM 112B. 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. **ONLINE HOMEWORK IS AN IMPORTANT PART OF YOUR GRADE. IT MUST BE COMPLETED BY MIDNIGHT ON THE DAY OF THE FINAL.** Even if the website accepts answers after this time they will not contribute toward your final grade.

Midterms
Midterms will be part multiple choice, part short answers. Though they will focus on the most recently studied material, because of the way the based largely on material since the previous midterm.

Final Exam
The final exam will consist of an American Chemical Society standardized test in organic chemistry

Letter Grades
Letter grades will not be assigned to individual exams or homework. Final letter grades will be based on the point total of all graded work. To earn a grade of A students need to score 85% or greater over the whole semesters work. Lower grades (including +/-) will be assigned in 5% intervals below this, i.e. 80%-84% A−, 75%-79% B+, 70-74% B, 65-69% B− , 60-64% C+, 55-59% C, 50-55% C−, 45-50% D+, 40-45% D.

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/)
# Class Schedule (Tentative)

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