



Chem 251: Organic Chemistry Problem Solving (2.0 Units) Spring 2024

The purpose of CHEM 251 is to strengthen the problem-solving skills needed to succeed in Chem 322B. This class provides a discussion section format to accompany Chem 322B. This course will provide you with valuable problem-solving strategies.

Chem 251 will expand on the fundamental principles taught in the first semester course. The focus will explore critical concepts. The core content will take a mechanistic approach to predicting products and solving synthesis problems.

Class Meetings: This class is offered in-person in VHE 210 Mondays 3:30pm-4:50pm

Instructor: Prof. Rebecca Broyer

Office Hours: by appointment

Contact Info: rebecca.broyer@usc.edu

Learning Objectives

The learning objectives for this course are aligned with those of 322b. It is the overall intention of this course for students to learn how to apply concepts they learn to new situations and problems by forming effective problem-solving strategies. At the end of this experience, successful students will achieve a definitive command of essential concepts of molecular structure and bonding. These include:

- The intrinsic electrophilicity of the carbonyl group, carbonyl addition reactions, and the structure of carbonyl derivatives.
- Enolization, aldol and Claisen reactions of enolates, and the rudiments of polyketide synthesis.
- The electronic structure and reactivity of aromatic compounds.
- The richly complex nature of amines and imines.
- The structure and behavior of simple carbohydrates.
- The molecular nature of proteins.

Concurrent Enrollment:

322BL

Required Materials

All materials will be provided on the course Blackboard.

Optional Materials

Any Molecular Modeling Kit.

"Organic Chemistry As a Second Language: First Semester Topics" 5th Edition by David Klein

Description and Assessment of Assignments

Structure

Each week a worksheet will be provided. The worksheet will include some review material from the lectures in Chem 322A the previous week. There will be problems that are designed to improve problem-solving skills and emphasize the key

concepts. The problems will be worked in small groups. Groups of 3 or 4 will be the most effective. The worksheets will be submitted to Gradescope for participation and answers will be provided at the end of the class period.

Homework

There will be 7 homework assignments that will be distributed on Blackboard and due Mondays (with some exceptions) at 3:15pm. The homework assignment will be graded in two parts: 5 points for a randomly-chosen problem completed correctly; 5 points for completion of the entire assignment. It is recommended that you complete every assigned problem on every assignment. Homework will be submitted via Gradescope.

Grading Scale

Assignment	Points
Worksheets 13 X 20	260
Homework 7 X 10	70
Total	330

You will earn the grade CR (credit) in the class if you:

1. Attend and participate in 10/13 classes
2. Submit 5/7 Homework assignments
3. Accumulate at least 230 points throughout the semester and you will earn the grade CR (credit) in the class.

Assignment Submission Policy

Quizzes, surveys and assignments must be submitted by the stated deadlines. Homework assignments are due by 3:15pm on Mondays weeks that HW is due. All homework must be submitted to Gradescope. There are no make ups for in-class work. **Late assignments will not be accepted.**

Grading Timeline

Graded work will be available for review on Gradescope within one week. You can view your grades and posted keys anytime on Blackboard.

Additional Policies

Computing Capabilities An internet-enabled device is required (cell phone, laptop, tablet). You will also need to upload homework and assignments, as a PDF. A scanner or app to convert pictures to PDFs.

Absences

Attendance is required. There are no make-ups for missed in-class work but students must only attend 10/13 sessions to earn credit.

Gradescope

Graded materials will be scanned and available for viewing/printing from Gradescope. <http://www.gradescope.com>. You will be sent an invitation from the instructor of the course. Details can be found on Blackboard

Drop Dates: **Friday, Jan 26, 2024:** Last day to drop without a mark of W and receive refund.

Friday, Feb 23, 2024: Last day to drop without a mark of W.

Friday, Apr 5, 2024: Last day to drop with a mark of W.

The mark of Incomplete (IN) may only be given to a student who is doing passing work through April 5, 2024 and is unable to complete the assigned work and/or take the final exam due to serious illness or a documented emergency occurring after April 5, 2024. If you drop the lecture, you must also drop the lab.

Academic Integrity

All work submitted in this course must be your original work. You may not use outside sources for answers to assignments (for example, pre-lab questions, lab reports, quiz questions, homework assignments, etc.). While you may collaborate with others on laboratory work and homework assignments, work must be in your own words and reflect your good-faith efforts. It is never acceptable to use outside “tutors” or others to furnish answers for you (for example, you may not consult Chegg.com, reddit, CourseHero, etc.). Please familiarize yourself with the discussion of plagiarism and other forms of academic dishonesty in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

AI Policy:

Since creating, analytical, and critical thinking skills are part of the learning outcomes of this course, all assignments should be prepared by the student working individually or in groups. Students may not have another person or entity complete any substantive portion of the assignment. Developing strong competencies in these areas will prepare you for a competitive workplace. Therefore, using AI-generated tools is prohibited in this course, will be identified as plagiarism, and will be reported to the Office of Academic Integrity.

Course evaluation

Students will submit confidential course evaluations, available online during week 13. More information will be provided in lecture.

The instructor reserves all rights to change any of the contents within the syllabus with advanced notice if any changes become necessary during the semester.

Course Schedule: A Weekly Breakdown (Tentative – changes will be announced in lecture or on Blackboard

	Topics	Readings	Assignments
Week 1 1. 1/8	Course Intro; Chapter 15	See blackboard	See Blackboard Meet and Greet + WS 1
Week 2 No class	Chapter 15 MLK HOLIDAY	See blackboard	

Week 3 2. 1/22	Chapter 16	See blackboard	WS 2 HW 1
Week 4 3. 1/29	Chapter 16	See blackboard	See Blackboard WS 3 HW 2
Week 5 4. 2/5	Chapter 17	See blackboard	WS 4
Week 6 5. 2/12	Chapter 17	See blackboard	See Blackboard WS 5 HW 3
Week 7 No class	Chapter 17/Chapter 18 PRESIDENTS HOLIDAY	See blackboard	See Blackboard
Week 8 6. 2/26	Chapter 18 Special Topics	See blackboard	See Blackboard WS 6
Week 9 7. 3/4	Chapter 18	See blackboard	See Blackboard WS 7 HW 4
Spring Recess March 11-15			
Week 10 8. 3/18	Chapter 19	See blackboard	See Blackboard WS 8 HW 5
Week 11 9. 3/25	Chapter 19	See blackboard	See Blackboard WS 9
Week 12 10. 4/1	Chapter 20	See blackboard	See Blackboard WS 10 HW 6
Week 13 11. 4/8	Chapter 20/Chapter 21	See blackboard	See Blackboard WS 11
Week 14 12. 4/15	Chapter 21/Chapter 22	See blackboard	See Blackboard WS 12 HW 7
Week 15 13. 4/22	Chapter 22 Review	See blackboard	WS 13

Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention and Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call
studenthealth.usc.edu/sexual-assault

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED)- (213) 740-5086 | Title IX – (213) 821-8298
equity.usc.edu, titleix.usc.edu

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following *protected characteristics*: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations. The university also prohibits sexual assault, non-consensual sexual contact, sexual misconduct, intimate partner violence, stalking, malicious dissuasion, retaliation, and violation of interim measures.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
usc-advocate.symplicity.com/care_report

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity | Title IX for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services - (213) 740-0776
osasfrontdesk@usc.edu

USC welcomes students with disabilities into all of the University’s educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the [OSAS process](#)(registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at www.osas.usc.edu.

USC Campus Support and Intervention - (213) 821-4710

campussupport.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.