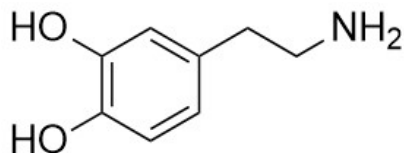


Course Syllabus

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CHEM 232 Organic Chemistry, Fall 2023




Course Information

Instructor: Prof. Byron W. Purse (he/him/his)

bpurse@sdsu.edu (answers normally within 24 h or following weekends)

Office Location: CSL 213 & Zoom livestream; Zoom will be recorded

Office Hours Times (1 hr each): M, W at 11:00 AM, some Fridays at 11:00 AM

Office Hours Location: CSL 213 & Zoom livestream at <https://sdsu.zoom.us/j/85803147836> 

[_ \(https://sdsu.zoom.us/j/85803147836\)](https://sdsu.zoom.us/j/85803147836) (must be signed in to Zoom with an @sdsu.edu account)


Lab Coordinator: Prof. Mike Bergdahl

bbergdahl@sdsu.edu (<mailto:bbergdahl@sdsu.edu>)

In-Person Class Meetings: MWF

Class Times: 10:00–10:50 AM

Class Location: GMCS 333, attendance is recommended, but lectures will also be livestreamed on Zoom

Zoom livestream: <https://sdsu.zoom.us/j/83976947845>  [_ \(https://sdsu.zoom.us/j/83976947845\)](https://sdsu.zoom.us/j/83976947845) (must be signed in to Zoom with an @sdsu.edu account)

Midterm Exams

Midterm exams will begin on **September 22, October 20** and **November 17**.

The midterm exams will be administered in Canvas and will be a mixture of styles, including multiple choice, matching, short answer, and uploading images of hand-drawn chemical structures and reaction mechanisms.

You will have 120 minutes to take each exam. Exams will be available from Fridays at 3:00 PM to Sundays at 3:00 PM. To ensure exam security you must be logged into your personal Zoom room with camera on and recording to cloud. A link to the recording must be uploaded to Canvas under the exam assignment titled "post your zoom for exam# here." **Failure to do this will result in a 0 on that exam.**

Midterm exams are 'open note,' but due to the time constraints, it's normally necessary to be well prepared by careful studying and the creation of organized notes. All together the exams and final are worth **500 points**. **If it helps your grade, your lowest exam score can be replaced with your final exam score** (scaled to a total of 100 points).

*****There will be no make-up exams.***** If you miss an exam, for *any reason*, it will count as the dropped exam.

Final Exam

The final exam will be a closed-book, written exam held in person on Saturday, December 16 from 9:30 to 11:30 AM. The final exam is **cumulative** and worth 200 points. **The final exam is mandatory and cannot be dropped.**

Prerequisites

One year of general chemistry (CHEM 200 and 201 with their labs at SDSU) with a grade of C or better. If you have already taken and passed the 232 lab, bring proof to the first lecture. If you have taken General Chemistry elsewhere and want me to evaluate whether you have satisfied the prerequisites, bring written proof of what you have taken and written documentation of what the class entailed.

Course Information

Updated information is available on the course Canvas site through SDSU.

Course Catalog Description

Prerequisites: CHEM 201 with a grade of C (2.0) or better and credit or concurrent registration in CHEM 232L.

Properties and synthesis of organic compounds including reaction mechanisms.

Scope and Purpose

This course covers the fundamentals of organic chemistry. The course begins by examining how periodic trends predict bonding properties and how this sharing of electrons gives rise to stable molecules. Further detailed study looks at how bonding geometry and the flexibility of chemical bonds gives rise to shape and conformation of molecules and how these properties in turn lead to the characteristics of materials. The latter part of the course will focus on how to use molecular structure to predict the chemical reactivity of organic molecules, with examples drawn from industrial process chemistry and the biological chemistry of life.

Students should meet these **expected learning outcomes** as a minimum requirement in order to pass the course:

1. Understand physical properties of organic compounds and fundamental chemical reactions in organic chemistry.
2. Determine bonding, hybridization, Lewis structures, and stereochemistry of simple organic molecules.
3. Show chemical mechanisms for basic organic reactions using the curved arrow formalism (“arrow pushing”).
4. Determine and differentiate various types of simple organic reactions, for example SN1, SN2, E1 and E2 pathways, radical chain reactions, and additions to double bonds.
5. Understand the relationships between different functional groups and organic chemical reactions.
6. Identify examples of organic chemistry in common “daily life” situations or biochemical processes.
7. Be able to apply and use the outcomes above in more advanced courses such as upper division organic chemistry (Chem 432), biochemistry, and more advanced organic chemistry courses.

Course Outline and Assigned Reading from Solomons 13e.

Chapter 1: The Basics; read pp. 1–47

Chapter 2: Families of Carbon Compounds; read pp. 54–99

Chapter 3: Acids and Bases; read pp. 106–142

Chapter 4: Nomenclature and Conformations of Alkanes and Cycloalkanes; read pp. 148–192 and Special Topics A&B

Chapter 5: Stereochemistry; read pp. 198–239

Chapter 6: Ionic Reactions; read pp. 246–282

Chapter 7: Alkenes and Alkynes I; read pp. 289–335

Chapter 8: Alkenes and Alkynes II; read pp. 345–391

Chapter 9: Nuclear Magnetic Resonance and Mass Spectrometry; read pp. 401–442

Chapter 10: Radical Reactions; read pp. 455–489

Chapter 11: Alcohols and Ethers; read pp. 497–536

Adding/Dropping Procedures

September 1 is the last day to add/drop classes or change grading basis. To add a class during the schedule adjustment period, students can request an add code from the instructor. Please email the instructor regarding add codes for other circumstances.

Course Materials

Custom course materials (lecture slides, etc.) will be posted on Canvas. Do not share them in violation of copyright. See below, in orange text.

Unauthorized recording or dissemination of virtual course instruction or materials by students, especially with the intent to disrupt normal university operations or facilitate academic dishonesty, is a violation of the Student Conduct Code. This includes posting of exam problems, the instructor's lecture slides and other original materials, or questions to online platforms. Violators may be subject to discipline.

Textbook

Organic Chemistry, 13e., by Solomons, Fryhle, and Snyder, Wiley Publ. 2022; ISBN: 978-1119768197. Provided by Equitable Access. You can always read the textbook using the Wiley Reader app on Apple and Android! 😊

Electronic Homework

WileyPLUS is included with the eTextbook listed above and will be used for homework in this course.

Equitable Access Course: Some or all of the required materials for this class are provided in digital format within Canvas. The materials are available by the first day of classes and are free through the add/drop date. The SDSU add/drop deadline is at 7:59 p.m. PDT but you have until 11:59 p.m. PDT to opt out of Immediate Access. Unless you opt out of Immediate Access by 11:59 p.m. PDT on the add/drop date, your SDSU student account will then be charged the special reduced price for use of the materials for the remainder of the semester. For additional information about Equitable Access pricing, digital subscription duration, print add-ons, **opting out** and other frequently asked questions, [click here](#).
[🔗 \(https://www.shopaztecs.com/t-equitableaccess.aspx\)](https://www.shopaztecs.com/t-equitableaccess.aspx)

Clickers

We will use the iClicker app for in-class problem solving, with the opportunity to earn bonus points. *iClicker Student* is an app for iOS, Android, and web browsers at <https://www.iclicker.com/students/apps-and-remotes/web> [🔗](https://www.iclicker.com/students/apps-and-remotes/web). **Enroll using your @sdsu.edu student email address.** For mobile phones, it can be installed from the Apple App Store or Google Play. *iClicker Student* is available by in-app purchase (\$14.99 for 6 months; works for all of your classes that use it).

Optional Learning Materials

Study Guide and Solutions Manual to Accompany Organic Chemistry, 13e., by Solomons, Fryhle, and Snyder, Wiley Publ. 2022; ISBN-13: 978-1-119-76825-8. Not required, but useful for studying.

Most any other organic chemistry textbook will cover nearly the same material. Have a look at one if you'd like to see these concepts presented in a different way or try to more practice problems.

Course Structure and Conduct

The course will consist of a series of in-person lectures with discussion and problem solving (will be livestreamed on Zoom), assigned readings, electronic homework, online, asynchronous midterm exams managed through Canvas, and a written final exam to be taken in person. Canvas will be used for all course management and communication.

Course Assessment and Grading

Web cam use during virtual, Zoom-recorded exams will be required.

There will be three **midterm exams** during the semester, each worth 100 points. The schedule is above.

The **final exam** will be cumulative and is worth 200 points and is **in person**.

There will be **no make-up exams**. If you have to miss an exam, then your final exam grade will replace that one missed exam score.

There will be a **chapter homework** assigned for each chapter using WileyPLUS. Altogether, they're worth 60 points.

Extra credit will be available using *iClicker Reef* for in-class problem solving exercises. Each correct answer will be worth 0.5 points, so you have to average ~ 1 correct answer per class to earn all the points for the semester. Note that you will have to attend class in person or on Zoom to earn these points!

Activity	Points
Midterm 1	100
Midterm 2	100
Midterm 3	100
Final Exam	200
Homework	60
Extra Credit with iClicker	20
TOTAL	560


Curving: Curves may be applied to individual activities (exams, homework, etc.), but the total grade will not be curved.

Letter Grades will be assigned according to the following table. Scores will not be rounded.


Letter Grade	Minimum Score / 560
A	504
A-	476
B+	448
B	420
B-	392
C+	364

C	336
C-	308
D+	280
D	252
D-	224
F	0

Students with Disabilities

If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact the [Student Disability Services](https://sds.sdsu.edu/)  at (619) 594-6473. To avoid any delay in the receipt of your accommodations, you should contact the Center as soon as possible. Please note that *accommodations are not retroactive*, and that accommodations based upon disability cannot be provided until you are properly registered with the Center.

Academic Honesty

The University adheres to a strict policy regarding cheating and plagiarism. These activities will not be tolerated in this class. Become familiar with the policy at https://newscenter.sdsu.edu/student_affairs/srr/conduct.aspx  (https://newscenter.sdsu.edu/student_affairs/srr/conduct.aspx). Any cheating or plagiarism will result in failing this class and a disciplinary review by Student Affairs. **Cheating, which includes unauthorized team work and the use of unauthorized resources (artificial intelligence such as ChatGPT, Chegg, etc.) or hired/voluntary help during exams, will not be tolerated.** I believe that everyone in this class has the ability and talent to do a great job and I'm committed to help you achieve your best, but there's no substitute for hard and honest work.

Examples of Plagiarism include but are not limited to:

- Using sources verbatim or paraphrasing without giving proper attribution (this can include phrases, sentences, paragraphs and/or pages of work)
- Copying and pasting work from an online or offline source directly and calling it your own
- Using generative AI to answer questions for you
- Using information you find from an online or offline source without giving the author credit
- Replacing words or phrases from another source and inserting your own words or phrases
- Submitting a piece of work you did for one class to another class

Labs

The lab coordinator for this class is Prof. Mike Bergdahl (bbergdahl@sdsu.edu (<mailto:bbergdahl@sdsu.edu>)). Labs will be in person and will begin the week of August 28.

Extra Help

Help is available in a variety of forms.

- Online discussions on this Canvas site
- Office hours
- Discussions with your TA and your TA's office hours
- Tutors (the Chemistry Office will publish a tutor list; check back here)

You are always welcome to join my office hours for help in a fun and positive group setting, but please make a strong effort to solve problems on your own or work with study groups because doing so will enhance your learning experience.

Tips for Success

Do not fall behind. We will start with reviewing the fundamentals and build on them so that you can develop a deep understanding of how the structure of organic molecules determines their properties. Consequently, material later in the course will be much more difficult if you haven't mastered the material that comes first, and *we will never move on to a point where you will no longer need the earlier material.*

In my opinion, the most important skill for success is your ability to self-assess. Don't plan to study for a fixed number of hours. Plan to study for as long as it takes until you are confident that you've mastered the material. Develop a plan to check the completeness of your understanding by problem solving exercises and discussion with your peers. You should be confident of your skills when heading into an exam. Obviously, this is can be very hard to achieve if you don't start preparing until the day before an exam.


You can't be a proficient scientist without a basis of factual knowledge, meaning that some memorization is an essential part of your education. That said, exams will be designed as much as possible to test your comprehension rather than focusing on rote memorization. For that reason, exam questions will use concepts that you've learned, but won't be identical those questions found on old exams and practice problems.

You should expect to study hard to earn a great grade!

Land Acknowledgment

For millennia, the Kumeyaay people have been a part of this land. This land has nourished, healed, protected and embraced them for many generations in a relationship of balance and harmony. As members of the San Diego State University community, we acknowledge this legacy. We promote this balance and harmony. We find inspiration from this land, the land of the Kumeyaay.

Course Summary:

Date	Details	Due
Mon Sep 4, 2023	 Assignment Zero - Working with Chemistry Questions in WileyPLUS (https://sdsu.instructure.com/courses/134012/assignments/1048854)	due by 11:59pm