

**Chem 232, Organic Chemistry I
Fall 2020 – On-line**

Instructor: Dr. B. Mikael Bergdahl (bbergdahl@sdsu.edu)
Office: **On-line**
Phone: **On line & Email**

Lecture meetings: ***First week only:*** Introduction to Chem 232; MWF: 10:00-10:50 am (**PST**).
Second week and beyond: Lecture Recordings from Zoom – posted on Canvas

Office Hours: TTh: 9:00 - 11:00am (**PST**), Virtual Zoom meetings (links provided)

Texts: (a) Solomons & Fryhle & Snyder, *Organic Chemistry*, 12th Ed., Wiley Publ. 2016
ISBN: 978-1-118-87576-6.
(b) Solomons, Fryhle, Snyder, *Student Guide and Solutions Manual Organic Chemistry* 12th Ed.
ISBN: 978-1-119-07732-9.

Lab: *Chem 232 Lab Supplemental Material*. Fall 2020, posted on Canvas (Contact your TA!)

Tool: A set of molecular models, such as Prentice-Hall Molecular models, is optional but strongly recommended (allowed on exams)

E-HW: None.

Web: <http://chemistry.sdsu.edu/courses/CHEM232/> (UN: "chem232" PW: "markovnikov")

Expected Student Learning Outcomes (Chemistry 232 objectives):

- a) To be able to describe physical properties of organic substances and fundamental chemical reactions in organic chemistry.
- b) To be able to determine bonds and hybridizations, Lewis structures, dynamics and stereochemistry of simple organic molecules.
- c) To be able to depict chemical mechanisms for rudimentary organic reactions using the curved arrow formalism.
- d) To be able to determine and differentiate various types of simple organic reactions: S_N1, S_N2, E1 and E2 pathways.
- e) To be able to describe the relationship between different functional groups and organic chemical reactions.
- f) To be able to explain the connection and similarity between organic chemistry and the application on common "daily life" biochemical processes.
- g) To be able to apply and use the outcomes above and apply those in upper division organic chemistry (Chem 432), biochemistry, and more advanced organic chemistry and synthesis.

Prerequisite: A grade of "C" or better from Chem 201 or corresponding chemistry course.

Adding Procedures: Students can enroll or add from the waitlist only if space is available.

Dropping Procedure: None

Course Structure and Conduct: Lecture and course information meetings will only be held during the first week of the semester (10-10:50 am). These meetings will be recorded via zoom and subsequently posted on the Canvas Chem 232 website. The rest of lectures during the semester are pre-recorded, roughly 30 hours of important concepts of introductory organic chemistry, and these will be posted on Canvas as soon as the course website is up and running. These presentations focus on theoretical basis and understanding of important concepts of organic chemistry. You will never be penalized for not studying these recorded lectures directly, but please be aware that there is a *correlation between how a student is studying and lower course grades in organic chemistry.*

Student disabilities: If you are a student with a disability and believe you will need additional accommodations for this class, please let me know asap via email. Please note that accommodations are not retroactive, and that I cannot provide accommodations based upon disability until I have received an accommodation letter from Student Disability Services. Your cooperation is appreciated.

Course Assessment and Grading: Three midterm exams will be given on **Saturdays (Sep. 19, Oct. 17, and Nov. 14)** from 10 am – Noon (**PST**). *Make sure you can take the exams on these dates and times before enrolling this class!!*

The final exam will be given on **Saturday, Dec 12th** from 09:30-11:30 am (**PST**). *Make sure you can take the final exam on this date and time before enrolling this class.* No make up exams will be given. Absences will result in a “zero” and will account for an “F” grade for such exam. Your TA along with the instructor will grade your midterms and final exam. **Your course grade will be assigned at the end of the semester session and will be based on a curve using a +/- assignment.** (No letter grades will be assigned for each individual exam. There are no pre-determined guidelines for the grade distribution. Many students earn a C, but in fact, it is not too difficult to earn a higher grade in organic chemistry. The cut-off for specific grades varies, but in general an “A” accounts for >85%, a “B” >70% and a “C” around 50%. Exam scores and course activities will be posted on the Canvas course page.

Course website: <http://www.chemistry.sdsu.edu/courses/CHEM232/>

(UN: “chem232” PW: “markovnikov”) Here you find a collection of tools, old exams and learning glass videos created specifically for Chem 232 at SDSU.

Electronic Homework: None!

In class Group Activities for Learning: None due to on-line

Grading: Your course grade will be based on 500 points maximum.

Summary: Midterm 1	100	points
Midterm 2	100	
Midterm 3	100	
<u>Final Exam</u>	<u>200</u>	
Total	500	points

Supplemental Instruction: Supplemental Instruction (SI) Sessions will be offered at various times during the semester. SI is free and open to all students enrolled in this course. Participation is completely voluntary and near-peer-led, and the instructor will not know who participates.

SI Sessions are facilitated by an SI Leader who has recently successfully completed the course, and has been trained to lead active-learning-based group sessions where students can improve their understanding of course material, review and discuss important concepts, develop study strategies, and prepare for exams. Students who participate in SI Sessions typically earn higher final course and exam grades than students who do not participate, sometimes by a half to a full letter grade.

SI Program: bit.ly/SIatSDSU

Meet the SI Leaders: its.sdsu.edu/chem-232-organic-chemistry/

Session Calendar: bit.ly/chem232sicalendar

To get the most out of SI, attend early and often during the semester.

****Attention** Examination Protocol via Zoom:**

1. Log in using the zoom link your TA or instructor will send you ~ 15 minutes before the exam. You must use your real name and enter a "+" into the chat window to register your attendance.
2. You must appear on camera and your work area must be visible for the whole exam. Dress accordingly, and please put away anything that looks like books or notes etc. You must have a clear work space – you just need something to write with. No calculators, smart watches, nor smart phones are allowed during the exam. **Since we are interested in your work area, and your visible hands, tablets are NOT allowed during the test. No exceptions!!** Molecular model kits are allowed, but must be disassembled at the start of the exam.
3. **You will be recorded on Zoom** for the duration of the exam, and you will be visible to other students in gallery view – just as in a real F2F examination room. Do not place your exam paper close to the camera so anyone else can see it.
4. Before you begin the exam, anytime after you join the meeting, show your **RedID** card (DMV card ok) to the camera and hold it there for 10-15 seconds. Your ID card will be recorded so we can read it.
5. Ask questions by private message to your TA. Private messages between test takers have been disabled.
6. The exams are 120 minutes in duration, starting exactly at 10 am (**PST**), and will posted at that time on Canvas for you to download. You will have 5-10 minutes extra at the end of the exam to scan it as a **pdf-file**, and then upload the file on Canvas. **You must also send your exam via email to your instructor or TA. Your TA or instructor will let you know when you can exit the zoom exam meeting. If you leave before the exam is uploaded, your exam will be void – No exceptions!** Please include your **RedID** card on every image of your test pages. You can print and write on the exam itself, or use blank or lined paper. As long as we can clearly read your answers, it is all good. In order for us to grade quickly, we can only accept **pdf-files**.
7. Best wishes on your exams. Follow **the honor code**, do your absolute best, and make us proud of how our large class worked together to maintain the virtual ochem experience as authentic as possible during a quite tough situation.

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 (http://go.sdsu.edu/student_affairs/srr/conduct.aspx)

Any cheating or plagiarism will result in failing this class and a disciplinary review by Student Affairs.

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 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

If you have questions on what is plagiarism, please consult the policy (http://go.sdsu.edu/student_affairs/srr/conduct.aspx)

To the student and how to succeed in Organic Chemistry (and science in general):

1. *Develop good study habits:*
 - a. Attend all lectures and labs.
 - b. Take good lecture notes.
 - c. Use your lecture notes as a guide to your reading in the textbook. Write your questions down if there is something you don't understand. Ask your instructor if you don't understand a concept.
 - d. Make flash cards of definitions, concepts, reactions, structures, and nomenclature that are in the textbook that are emphasized by your instructor in lecture. Writing something is equivalent to reading it ten times.
 - e. Do all the homework problems with the aid of the study guide or answer book. The suggested problems (homework) have about the same difficulty as the problems you will be given on the exams.
 - f. One of the alternative ways for understanding of organic chemistry is to find a study partner or to form a study group and work on problems independently, and then review the answers in the group.
 - g. Keep up to date and **don't fall behind**.
 - h. Seek course advice from science professors and students.
 - i. If necessary, see your instructor or department for a tutor.
 - j. Try to see the "big picture"; try to see how the topic of the week fits in with the whole course. If you have a difficulty achieving this, ask your instructor.
 - k. Practice applying what you have learned in class to the world around you.
 - l. Try to foster your own scientific curiosity – wonder why things are and how they happen.
 - m. Put emphasis on understanding concepts rather than memorizing material.
 - n. If you read the text more than 10 minutes without practicing a problem, something is wrong.....this is not how you should study organic chemistry.
2. *Have a positive attitude.*
3. *Realize that science requires more self discipline than many other majors, but actually offers more rewards.*
4. *Be organized.*
5. *Persevere and be determined to succeed.*

Good Luck in Chem 232!!

Ithaca (a philosophical view of the journey of Organic Chemistry)
by Constantine P. Cavafy
(1863 - 1933)

When you set out on your journey to Ithaca,
pray that the road is long,
full of adventure, full of knowledge.
The Lestrygonians and the Cyclops,
the angry Poseidon -- do not fear them:
You will never find such as these on your path,
if your thoughts remain lofty, if a fine
emotion touches your spirit and your body.
The Lestrygonians and the Cyclops,
the fierce Poseidon you will never encounter,
if you do not carry them within your soul,
if your soul does not set them up before you.

Pray that the road is long.
That the summer mornings are many, when,
with such pleasure, with such joy
you will enter ports seen for the first time;
stop at Phoenician markets,
and purchase fine merchandise,
mother-of-pearl and coral, amber, and ebony,
and sensual perfumes of all kinds,
as many sensual perfumes as you can;
visit many Egyptian cities,
to learn and learn from scholars.

Always keep Ithaca on your mind.
To arrive there is your ultimate goal.
But do not hurry the voyage at all.
It is better to let it last for many years;
and to anchor at the island when you are old,
rich with all you have gained on the way,
not expecting that Ithaca will offer you riches.

Ithaca has given you the beautiful voyage.
Without her you would have never set out on the road.
She has nothing more to give you.

And if you find her poor, Ithaca has not deceived you.
Wise as you have become, with so much experience,
you must already have understood what these Ithacas mean.

Highly recommended problems (Solomons & Fryhle, *Organic Chemistry*, 12th Ed.).

Chapter 1, The Basics, Bonding and Molecular Structure: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 47, 50

Chapter 2, Families of Carbon Compounds: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 46

Chapter 3, Acids and Bases: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38

Chapter 4, Nomenclature and Conformations of Alkanes and Cycloalkanes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 23, 24, 25, 26, 27, 28, 29, 33, 36, 37, 38, 39, 41, 43, 44, 45, 46

Chapter 5, Stereochemistry: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 44, 45, 46, 47, 48

Chapter 6, Nucleophilic Reactions: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 41, 42, 43, 45, 46, 47

Chapter 7, Alkenes and Alkynes I: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44

Chapter 8, Alkenes and Alkynes II: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 53, 54, 59, 61

Chapter 10, Radical Reactions: 1, 2, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 29, 30, 31, 32, 33

Chapter 11, Alcohols and Ethers: 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 52

Student Planer and Exam schedule; Chem 232, Fall 2020

Monday	Tuesday	Wednesday	Thursday	Friday	
24-Aug <i>Introduction</i> Zoom meeting	25-Aug	26-Aug <i>Chapter 2</i> Zoom Meeting	27-Aug	28-Aug <i>Ch.2 cont.</i> Zoom Meeting	10-10:50
31-Aug <i>Ch.2 cont.</i>	01-Sep	02-Sep <i>Ch.2 cont.</i>	03-Sep	04-Sep <i>Chapter 3</i>	
07-Sep <i>Holiday</i> Labor Day	08-Sep	09-Sep <i>Ch.3 cont.</i>	10-Sep	11-Sep <i>Ch.3 cont.</i>	
14-Sep <i>Ch.3 cont.</i>	15-Sep	16-Sep <i>Chapter 4</i>	17-Sep	18-Sep <i>Ch.4 cont.</i>	19-Sep Midterm 1
21-Sep <i>Ch.4 cont.</i>	22-Sep	23-Sep <i>Ch.4 cont.</i>	24-Sep	25-Sep <i>Chapter 5</i>	
28-Sep <i>Ch.5 cont.</i>	29-Sep	30-Sep <i>Ch.5 cont.</i>	01-Jan	02-Oct <i>Ch.5 cont.</i>	
05-Oct <i>Chapter 6</i>	06-Oct	07-Oct <i>Ch.6 cont.</i>	08-Oct	09-Oct <i>Ch.6 cont.</i>	
12-Oct <i>Ch.6 cont.</i>	13-Oct	14-Oct <i>Ch.6 cont.</i>	15-Oct	16-Oct <i>Chapter 7</i>	17-Oct Midterm 2
19-Oct <i>Ch.7 cont.</i>	20-Oct	21-Oct <i>Ch.7 cont.</i>	22-Oct	23-Oct <i>Ch.7 cont.</i>	
26-Oct <i>Chapter 8</i>	27-Oct	28-Oct <i>Ch.8 cont.</i>	29-Oct	30-Oct <i>Ch.8 cont.</i>	
02-Nov <i>Ch.8 cont.</i>	03-Nov	04-Nov <i>Ch.8 cont.</i>	05-Nov	06-Nov <i>Chapter 10</i>	
09-Nov <i>Ch.10 cont.</i>	10-Nov	11-Nov <i>Holiday</i> Veterans Day	12-Nov	13-Nov <i>Ch.10 cont.</i>	14-Nov Midterm 3
16-Nov <i>Ch.10 cont.</i>	17-Nov	18-Nov <i>Ch.10 cont.</i>	19-Nov	20-Nov <i>Chapter 11</i>	
23-Nov <i>Ch.11 cont.</i>	24-Nov	25-Nov <i>Ch.11 cont.</i>	26-Nov <i>Holiday</i> Thanksgiving	27-Nov <i>Holiday</i> Thanksgiving	
30-Nov <i>Ch.11 cont.</i>	01-Dec	02-Dec <i>Ch.11 cont.</i>	03-Dec	04-Dec <i>Review</i>	
07-Dec <i>Review</i>	08-Dec	09-Dec <i>Review</i>	10-Dec <i>Last Day of</i> <i>Classes</i>	11-Dec <i>Final's Week</i> <i>Begins</i>	12-Dec Final Exam 09:30-11:30am
14-Dec <i>Final's Week</i>	15-Dec <i>Final's Week</i>	16-Dec <i>Final's Week</i>	17-Dec	18-Dec	

Saturday midterm exams, 10:00 am-Noon (PST), Sep. 19, Oct. 17, Nov. 14

Chemistry 232 Final: Saturday Dec 12, 09:30-11:30am (PST) (Scheduled "Group" Final)