

CHEM 12A - ORGANIC CHEMISTRY I

Lecturer: Mas Imura, PhD

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I check my santarosa.edu email between the hours of 8am and 9pm frequently, and I will do my best to reply to you with in 48 hours of an email, if not sooner.

Office (Student) Hours Info:

Time: M/W 10:30AM ~ 11:30AM, and by appointment.

ZOOM info (for review sessions, etc.):

<https://santarosa-edu.zoom.us/j/85441999397>

OVERVIEW:

Welcome to CHEM 12A –Organic Chemistry! I am looking forward to learning and working with you this semester!

As the science that describes matter and its changes, chemistry is central in our understanding of many fields, from health to the environment to the design and evaluation of materials. The fact that all of biology and manufacturing deal with matter guarantees that chemical science will remain central to much of the human endeavor. Knowledge of organic chemistry is an essential foundation for your chosen discipline (chemistry, medicinal science, material science, engineering, pharmaceutical science, medicine, etc.)

CHEM 12A~12B is a demanding year-long organic chemistry course. Lecture topics in CHEM 12A, the first semester organic chemistry, include:

1. Bonding and structure of organic compounds
2. Alkanes, cycloalkanes and alkyl halides
3. Stereochemistry
4. Alkenes and alkynes
5. Nucleophilic substitution and elimination reactions
6. Alcohols, Ethers, Epoxides and Related Sulfur Compounds
7. Spectroscopy

I am passionate about organic chemistry! I hope that you find this course stimulating, challenging (in a good way), and rewarding.

STUDENT LEARNING OUTCOMES (as stated in the official Course Outline of Record of SRJC.)

(https://portal.santarosa.edu/SRWeb/SR_CourseOutlines.aspx?Semester=20227&CVID=49688)

Upon successful completion of this course the student will be able to:

1. Identify and explain the basic concepts, terminology, and theories of organic chemistry and biochemistry.
2. Relate the molecular level structures of organic and biological compounds to their physical and chemical properties.
3. Propose appropriate synthetic routes for organic compounds, use reaction mechanisms to explain those routes, and modern analytical methods to analyze and identify the products.
4. Perform laboratory experiments safely and interpret observations in order to validate theoretical ideas.
5. Maintain laboratory notebook and complete written reports detailing conclusions based on the notebook record.

GENERAL COURSE POLICY

I. Prerequisites: Course Completion of CHEM 3B OR Course Completion of CHEM 4B

II. Lecture and Laboratory Hours:

Lecture: Mon and Wed 9:00 am~10:30 am in Room 1901 (Bech Hall)

Lab: MW 12:00 pm ~ 3:00pm in Room 1948 (Bech Hall)

III. Course Materials:

REQUIRED:

- Textbook: *Organic Chemistry*, 9th ed. by Brown, W. H.; Iverson, B. L.; Anslyn, E.; Foote, C. S. Cengage Publishing, 2023 ISBN 9780357451861
- Lab Manual: *Understanding the Principles of Organic Chemistry: A Laboratory Course* by Pedersen, S.; Myers, A. Cengage Learning, 2011 ISBN: 9781111428167
- For lab: Protective eye wear and apron **must be used** in the laboratory **at all times** as required by California State law.
- Lab notebook.
- **HIGHLY RECOMMENDED:**
 - Molecular model kit. Any set would do.
Suggestion (available on Amazon)
 - Organic Model kits from the HGS-Maruzen Model company (<http://www.hgs-model.com/model/index.html>).

IV. Office (Student) Hours:

I welcome you to contact me outside of class with questions and concerns (or just to say hi!). Please consider visiting me during my office hours, which I want to start thinking of it as 'student hours.' STUDENT hours are an important part of your learning experience. Please stop by to attend office student hours in person, or if you would rather talk to me via Zoom, please let me know. Also, if you have a scheduling conflict that prevents you from meeting with me during the scheduled time, please contact me to schedule an appointment.

V. My expectations for all of us

We all benefit from a diverse learning environment, and I hope that students from all diverse backgrounds and perspectives are well served in my class. I expect that we all respect and demonstrate understanding and kindness toward other people's views, ideas, experiences, and behaviors. Please let me know ways to improve; your suggestions are encouraged and appreciated.

VI. Attendance:

Attendance is **important and required** of all students. Attendance and attention are vital for your learning and success in this course. Please do not miss or be consistently late to the class. Excessive absences will result in a significant reduction in your course grade and may lead to the student being dropped from the course completely. **THERE WILL BE NO MAKE-UPS ON LABS OR EXAMS FOR ANY REASON OTHER THAN A DOCUMENTED MEDICAL EXCUSE.**

MISSING MORE THAN TWO LABS WILL RESULT IN AN "F" FOR THE ENTIRE COURSE, REGARDLESS OF THE STUDENT'S PERFORMANCE IN THE CLASS.

*****In the event of having a contagious illness such as influenza or COVID-19, please email me about your absence as soon as you are able to so that appropriate accommodations can be explored. *****

VII. Standards of Conduct:

All students shall adhere to the District Standards of Conduct. (<https://student-conduct.santarosa.edu/student-conduct-and-discipline-due-process>). Inappropriate behavior in the classroom may result in a referral to the Vice President of Student Services for disciplinary due process.

(SRJC Acts of Misconduct can be found here: <https://student-conduct.santarosa.edu/acts-misconduct>)

There is a zero-tolerance policy regarding plagiarism in this course. All students are expected to do their own work. This does not preclude collaboration and group study, but it does mean that anything put to paper and turned in is expected to come from that student. Cheating, or anything that can be construed as cheating will result in no credit given, if not worse. Use of line resources or tutorial sites for exams and quizzes is considered cheating. There will be no inter-student communication during exams; any comments or questions are to be directed toward the instructor.

VIII. Health – Physical and mental health

Life at college can be complicated. If you find yourself struggling with your mental or physical health this semester, **please** feel free to reach out to me. You can also get free, confidential mental health services at Student Health Services.

Also, as stated above, in the event of having a contagious illness such as COVID-19, please email me about your absence as soon as you are able to so that we can explore appropriate accommodations.

IX. Reading Assignments:

Lectures are designed to help you understand the material presented in the textbook. To get most out of the lecture, one should **ALWAYS** read the appropriate sections before they are discussed in class.

X. Homework Assignments:

Homework is an important vehicle for study; working out the problems is one of the most effective ways to learn and study chemistry. On occasion, the assigned problem may be the source of an exam question!

All assignments (including lab reports) are to be submitted electronically to Canvas.

XI. Laboratory:

TO RECEIVE A PASSING GRADE IN THE COURSE, PASSING WORK MUST BE DONE IN BOTH THE LAB AND LECTURE PORTIONS.

Laboratory exercises are an integral part of the course. They are designed to provide you with a hands-on way to experience the chemical concepts discussed in the lecture.

Attendance at laboratory sessions is **mandatory**. **PLEASE DO NOT MISS LABS**. No incomplete grades (**I**) will be given for missing labs. **In order to pass the course, no more than TWO (2) missing lab are allowed.**

XII. Exams:

NO MAKE-UP EXAMS WILL BE GIVEN IN THIS COURSE. If an examination is missed, a score of zero will be recorded. Excused absence from an exam will be granted only if proper documentation is provided.

In the lecture portion of the course, there will be **3 exams and a final exam** (cumulative) in the course.

There will be **two lab exams** in this course. The lab exams will assess your knowledge and understanding of the chemistry and techniques of the performed experiments, as well as your awareness of safety procedures.

Additionally, there will be up to 10 quizzes. All quizzes will be take-home. The lowest quiz score will be dropped.

XIII. Accommodations for Students with Disabilities:

If you need disability-related accommodations for the class, please provide the Authorization for Academic Accommodations (AAA letter) from the Disability Resources Department (DRD) to me as soon as possible. Also, please come see me during the office hour as soon as possible to discuss about the accommodations.

XIV. Re-Evaluation of Graded Work:

Graded work may be submitted for re-evaluation within one class period from when it was received. In comparing ones graded materials with that of fellow students, any difference must be confirmed by submission of both students' work for consideration. The document in question must be submitted with written detailed rationale for any changes requested. Based on this rationale, the entire assignment will be thoroughly evaluated. This re-evaluation can result in positive, negative, or no change to the original score.

XV. Grading: The tentative weighing factors for the various types of assignments and percentage cutoffs are listed below:

<u>Factors</u>	<u>Weights (%)</u>
Lecture Exams	46 %
Quizzes	4 %
Homework/Attendance/Participation	3 %
Lab Work/Lab Assignments	19 %
Lab Exams	14 %
Final Exam	14 %
Total Points	100 %

Final course letter grades will correspond to the following percentages:

≥ 87% **A** ≥ 76% **B** ≥ 63% **C** ≥ 50% **D** Below 49% **F**

**** The instructor reserves the right to modify this grade scale prior to assigning the final letter grades.****

XVI. Important F23 Dates:

Aug 14 th , 2023	CLASSES BEGIN!!
Aug 20 th , 2023	Last day to register/add without instructor's signature or add
Aug 27 th , 2023	Last day to drop semester length class (eligible for a refund)
Sep 3 rd , 2023	Last day to drop a class without "W" symbol
Sep 4 th , 2023	Labor Day Holiday (No classes, District closed)
Sep 22 nd , 2023	Native American Day (No classes, District closed)
Nov 10 th , 2023	Veterans Day Holiday (No classes, District closed)
Nov 12 th , 2023	Last day to drop a class with "W" symbol
Nov 23 rd ~26 th	Fall Break/Thanksgiving Day (No classes, District closed)
Dec 9 th ~15 th	Final Exam Week

EXAM Dates:

Wed, Sept 13th, 2023	Lecture Exam #1
Wed, Oct 11th, 2023	Lab Exam #1
Wed, Oct 18th, 2023	Lecture Exam #2
Mon, Nov 20th, 2023	Lab Exam #2
Wed, Nov 29th, 2023	Lecture Exam #3

FINAL EXAM: December 13th, 2023 (7:00 am ~ 9:45 am)

**** The Final Exam will be cumulative. ****

TENTATIVE F23 CHEM 12A SCHEDULE

Semester: FALL 2023				
Class: CHEM 12A				
Instructor: Iimura, Tamayo, and Branca				
Week	Day	Date	Lecture Topics	Lab This Week
1	M	8/14/23	No meeting	No meeting
	T	8/15/23		
	W	8/16/23	Intro/Covalent Bonding and Shapes of Molecules (Ch1)	Locker Check-in / Intro to Lab
	Th	8/17/23		
	F	8/18/23		
	Sa	8/19/23		
	Su	8/20/23	Last day to register/add w/o instructor's signature or add code	
2	M	8/21/23	Covalent Bonding and Shapes of Molecules (Ch 1)	Expt #1
	T	8/22/23		
	W	8/23/23	Covalent Bonding and Shapes of Molecules (Ch 1) / acids and bases	Expt #2 (handout)
	Th	8/24/23		
	F	8/25/23		
	Sa	8/26/23		
	Su	8/27/23	Last day to drop semester length class and be eligible for a refund	
3	M	8/28/23	Acids and Bases (Ch 4)	Expt #2 (handout)
	T	8/29/23		
	W	8/30/23	Acids and Bases (Ch 4) / Alkanes and Cycloalkanes (Ch 2)	Expt #3 (mixed mp) / Expt #4 (Identifying Unknown)
	Th	8/31/23		
	F	9/1/23		
	Sa	9/2/23		
	Su	9/3/23	Last day to add w/instructor's add code; Last day to drop without a "W"	
4	M	9/4/23	Labor Day Holiday	
	T	9/5/23	First Census Day	
	T	9/5/23		
	W	9/6/23	Alkanes and Cyloalkanes (Ch 2)	Expt #3 (mixed mp) / Expt #4 (Identifying Unknown)
	Th	9/7/23		
	F	9/8/23		
5	M	9/11/23	Alkanes and Cyloalkanes (Ch 2)	Expt #5 (recrystallization & mp)
	T	9/12/23		
	W	9/13/23	Stereoisomerism and Chirality (Ch 3)	Exam #1
	Th	9/14/23		
	F	9/15/23		
	Sa	9/16/23		
6	M	9/18/23	Stereoisomerism and Chirality (Ch 3)	IR spectroscopy (lecture) / Expt #5 (cont'd)
	T	9/19/23		
	W	9/20/23	Alkene: Bonding, Nomenclature, and Bonding (Ch 5)	Expt #6 (Part I)
	Th	9/21/23		
	F	9/22/23	Native American Day Holiday	
	Sa	9/23/23		
	Su	9/24/23	Last day to opt for P/NP	
7	M	9/25/23	Alkene: Bonding, Nomenclature, and Bonding (Ch 5) / Reactions of	Expt #6 (Part I)
	T	9/26/23		
	W	9/27/23	Reactions of Alkenes (Ch6)	Expt #7 TLC
	Th	9/28/23		
	F	9/29/23		
	Sa	9/30/23		
8	M	10/2/23	Reactions of Alkenes (Ch 6)	Expt #8 (resolution of alpha-phenylethylamine) (handout)
	T	10/3/23		
	W	10/4/23	Reactions of Alkenes (Ch 6)	Expt #8 (resolution of alpha-phenylethylamine) (handout)
	Th	10/5/23		
	F	10/6/23		
	Sa	10/7/23		
9	M	10/9/23	Alkynes (Ch 7)	Expt #11 (Isolation of Trimyristin)
	T	10/10/23		
	W	10/11/23	Alkynes (Ch 7)	Lab Exam #1
	Th	10/12/23		
	F	10/13/23		
	Sa	10/14/23		
10	M	10/16/23	Midterm progress indicators posted in student portal	
	M	10/16/23	Alkynes (Ch 7)	Expt #11 (Isolation of Trimyristin)
	T	10/17/23		
	W	10/18/23	Alkynes (Ch 7)	Exam 2
	Th	10/19/23		
	F	10/20/23		
	Sa	10/21/23		

Week	Day	Date	Lecture Topics	Lab This Week
11	M	10/23/23	Haloalkanes (Ch 8)/ Nucleophilic Substitution and Elimination (ch 9)	1H NMR lecture
	T	10/24/23		
	W	10/25/23	Nucleophilic Substitution and elimination (Ch 9)	1H NMR lecture/Analysis
	Th	10/26/23		
	F	10/27/23		
	Sa	10/28/23		
12	M	10/30/23	Nucleophilic Substitution and elimination (Ch 9)	1H NMR & IR analysis
	T	10/31/23		
	W	11/1/23	Nucleophilic Substitution and elimination (Ch 9)	Addition of HBr to Unsymmetrical Alkenes
	Th	11/2/23		
	F	11/3/23		
	Sa	11/4/23		
13	M	11/6/23	Nucleophilic Substitution and elimination (Ch 9)	Addition of HBr to Unsymmetrical Alkenes
	T	11/7/23		
	W	11/8/23	Nucleophilic Substitution and elimination (Ch 9)	Reaction of Sodium Saccharin
	Th	11/9/23		
	F	11/10/23	Veteran's Day Holiday	
	Sa	11/11/23		
	Su	11/12/23	Last day to drop with a "W"	
	14	M	11/13/23	Nucleophilic Substitution and elimination (Ch 9)
T	11/14/23			
W	11/15/23	Chemistry of Alcohols (Ch 10)	Steam Distillation of ???	
Th	11/16/23			
F	11/17/23			
Sa	11/18/23			
15	M	11/20/23	Chemistry of Alcohols (Ch 10)	Lab Exam #2
	T	11/21/23		
	W	11/22/23		tbd
	Th	11/23/23	Fall Break	
	F	11/24/23	Fall Break + PD 1/2 Flex Day	
	Sa	11/25/23	Fall Break	
16	M	11/27/23	Chemistry of Alcohols (Ch 10)	Steam Distillation of ???
	T	11/28/23		
	W	11/29/23	Intro to Ethers (Ch 11)	Exam #3
	Th	11/30/23		
	F	12/1/23		
	Sa	12/2/23		
17	M	12/4/23	Intro to Ethers (Ch 11)	Expt #12 (Magtrieve Oxidation)
	T	12/5/23		
	W	12/6/23	Intro to Ethers (Ch 11)	Locker Check-Out
	Th	12/7/23		
	F	12/8/23		
18	Sa	12/9/23	**Final is administered the last Saturday Class**	
	M	12/11/23		
	T	12/12/23		
	W	12/13/23		FINAL EXAM 7:00 AM
	Th	12/14/23		
	F	12/15/23		
Fr	12/29/23	Final Grade Rosters Due		
Sa	12/30/23	Fall semester processing finalized		
		12/16/23-1/14/24	Semester Break	

FINAL EXAM (Cumulative): December 13th, 2023 (7:00 am ~ 9:45 am)