

SUL ROSS STATE UNIVERSITY
ORGANIC CHEMISTRY II: CHEM 3408:L01
LABORATORY SYLLABUS

Spring 2021

LAB: Organic Chemistry II:L01

TA: TBD

Room: WSB 305

Email:

Time: Wednesday 2:00-4:50 pm

Office: WSB 308

Office Hours: TBD

REQUIRED RESOURCES AND TEXTS:

You must wear a suitable mask/face covering while on campus (including lectures & laboratories). You will be asked to leave the classroom if you come to class without a suitable mask/face covering.

<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/diy-cloth-face-coverings.html>

Assigned seating: please pick a seat in the classroom and you will be required to sit in the same seat for every class you attend in person.

Disinfection of Classroom Surfaces: Each person should disinfect their space at the beginning and end of every class meeting. The university has provided disinfectant wipes in the classroom. When you enter the classroom, please take a wipe and use it to clean your space before settling in. Please wipe down your space before you leave the classroom.

Food & Drinks: There will be no eating or drinking in the classroom. If you need to take a sip of your drink during class time, you may leave the room to do so.

If you have tested positive for COVID-19 (or have been exposed to someone who has tested positive for COVID-19), please self-report: <https://srinfo.sulross.edu/covid-19/self-report/>. In order to self-report you will need to be signed in with your SRSU credentials (yellow “log in” button on the bottom left hand side of the above website).

Required Laboratory Manual: “Techniques and Experiments for Organic Chemistry” (6th Edition) by A. Ault, 1998, University Science Books.

Due to the uncertainty associated with the COVID-19 pandemic some of the Organic Chemistry II labs will be doubled up (front loaded) so that this laboratory class should be finished during the week of 5th April 2021.

Safety glasses are required for Organic Chemistry laboratories, which can be purchased from the SRSU Bookstore. Note: If you have prescription eye glasses they actually count as safety glasses in chemistry laboratories, so if you wear prescription glasses you do not have to buy a pair of safety glasses to do labs. You will NOT be allowed to participate in Organic Chemistry laboratories without safety glasses!

Laboratory coats are recommended for Organic Chemistry laboratories, which can be purchased from the SRSU Bookstore.

OBJECTIVES

Student Learning Objectives (SLO):

A student graduating with the ***chemistry major*** is expected to demonstrate that (s)he is able to do the following:

1. Organic Chemistry—Students will be able to draw organic molecular structures and explain organic reactions, stereochemistry, structural analysis and reactions in biological systems.
2. Inorganic Chemistry—The student will be able to demonstrate understanding of coordination chemistry, valence theory, elementary actions and advanced molecular theory.
3. Analytical Chemistry—The student will be able to demonstrate an understanding of theory of analytical chemistry and conduct analytical analysis, including data analysis and calibration, equilibrium chemistry, gravimetric analysis, titrimetric analysis, spectroscopic analysis, and electrochemical analysis.
4. Physical Chemistry—The student will be able to demonstrate an understanding of the application and theory of physical chemistry, including topics such as atomic structure, electrochemistry, surface chemistry, solid-state chemistry, and thermodynamics.
5. Research—The student will collect and analyze published chemical literature and undertake a chemistry research project.

BSc in Chemistry Marketable Skills

1. Students will become good at punctuality and time management.
2. Students will analyze &/or synthesize molecules and perform spectroscopic characterization and interpret their results scientifically.

3. Students will become proficient at writing scientific papers and to identify appropriate references for their paper.
4. Students will become proficient at orally presenting scientific topics including the use of visual aids.

Core Objectives (CO):

- Critical Thinking Skills – Students will gain/improve their critical thinking ability by solving real life chemistry problems through inquiry, analysis, and evaluation of available information. Students will be tested on their critical thinking ability in exams and through lab experiments
- Communication Skills – Students will have the opportunity to improve communication skills through oral discussion and writing reports (i.e. observation, explanation, and conclusion etc.) on the experiments done in the lab sessions.
- Empirical and Quantitative Skills – students will use the mathematical skills needed to manipulate and analyze numerical data obtained through experimentation in order to form conclusions
- Teamwork – students will use team-spirit and consider different points of view to work effectively while conducting experiments as a team working toward a shared purpose or goal

Calculator: A scientific calculator is required for this course.

Cell phones **ARE NOT** permitted and should be turned off during laboratory time.

Expectations:

- Read over the experiment before lab
- Follow all safety procedures:

Shorts and open-toed shoes are NOT allowed in lab. If you come to class without appropriate clothing, you will be asked to leave. NO EXCEPTIONS!

Attendance:

Coming to lab is mandatory. Be on time and SIGN IN at the beginning of the lab period. Plan to spend the entire period in lab. The TA may deduct points for students who arrive late or leave early.

If you miss 3 labs or more, you will receive an automatic F. This means you will fail the entire Organic II course including the lecture component, not just the laboratory section

Assignments:

Pre-Lab Write Up: Due at the beginning of the lab that the experiment is performed

Lab Report: Due the lab period after the lab is done

Lab Grading:

- Each experiment is worth 30 points
- These points will come from:
 - The pre-lab (5)
 - Attendance (5)
 - The lab report (20)

Assignments must be completed and turned in on time. Assignments must be typed using Microsoft Word or a similar program. Reports will

be due the following week unless told otherwise. 10% of the grade will be deducted for assignments not turned in at the beginning of lab. An additional 10% will be deducted for each day that the assignment is late

Outline for Written Pre-lab Reports

- **Aim:** Here you will state the goal of the experiment (in your own words).
- **Reagents:** You will make a list of all of the chemicals used in the experiment along with relevant data (grams, volume, molarity etc. that is indicated in your experiment).
- **Apparatus:** You will list all of the equipment that you will use.
- **Method:** This is where you will outline the steps in the experiment. The steps will be put in your own words.

Outline for Written Lab Reports (Use Microsoft Word or related program)

- **Aim:** Here you will state the goal of the experiment (in your own words).
- **Reagents:** You will make a list of all of the chemicals used in the experiment along with relevant data (grams, volume, molarity etc.). This is how much **YOU** used, not how much the manual asks for.
- **Apparatus:** You will list all of the equipment that you used.
- **Method:** This is where you will outline the steps in the experiment. Be sure to note any difference between what you did

and what the manual said to do.

- **Data & Results:** Note the observations that you made during the experiment. What are your findings? (percent yield, melting point, *etc.*)
- **Discussion:** Discuss your results and answer the questions that were asked in the **Data and Results** section of the experiment. Talk about the significance of your results. Were your results expected or unexpected? Why or why not?
- **Conclusion(s):** Summarize the key points and findings of the experiment. Was the experiment successful or unsuccessful?

You can download ChemDraw onto your own personal computer (PC or Mac) to make your laboratory reports more professional regarding the drawing of organic structures:

<http://sitelicense.cambridgesoft.com/sitelicense.cfm?sid=3000>

Make sure you follow the requirements for the password and use your SRSU email address to register.

Alternatively you can access ChemDraw in the GIS lab (computer room next to the chem TA room) by searching for “ChemDraw” whenever there is no class (open lab when no classes are being taught).

ADA Statement: *Sul Ross State University is committed to equal access in compliance with the Americans With Disabilities Act of 1973. Students with qualifying disabilities who seek accommodations must initiate a request for a meeting for accessibility services. Students seeking accessibility services must contact Rebecca Greathouse Wren, M.Ed., LPC-S, Counseling & Accessibility Services, Telephone: 432-837-8203, or E-mail: rebecca.wren@sulross.edu*

For more information see:

<https://www.sulross.edu/page/1384/accessibility-services>

If anyone is pregnant or gets pregnant during the semester, please inform your TA and Dr. Leaver as chemicals used in the chemistry laboratory could have harmful effects on an unborn child and extra safety precautions and due diligence need to be taken into consideration during laboratory periods.

Scholastic Dishonesty: *Students who violate the University rules on scholastic dishonesty are subject to penalties, including the possibility of an **F** in the course and/or dismissal from the University. All laboratory reports need to be individually completed and not copied from another student's work.*

Chemistry 3408 Lab Schedule

Date	Experiment
January 13	No Laboratory Experiment
January 20	No Laboratory Experiment
January 27	Safety Video, Lab Tour, Equipment Checkout & Acetanilide (Exp. 42, p. 459)
February 3	Grignard Reaction (Exp. 38, p. 446)
February 10	Preparation of Tylenol (Exp. 73, p. 529) & 2,4-Dinitrobromobenzene (Exp. 46, p. 469)
February 17	Methyl m-nitrobenzene (Exp. 44, p. 464)
February 24	Trans-Stilbene (Exp. 70, p. 519) & MOED I (Exp. 106, p. 629)
March 3	MOED II (Exp. 107, p. 630)
March 10	No laboratory Experiment (Spring Break)
March 17	Methyl Salicylate (Exp. 77, p. 538)
March 24	Coconut Aldehyde I (Exp. 78, p. 541)
March 31	Coconut Aldehyde II (Exp. 79, p. 543)
April 7	Lab Cleanup and Final