

CHEM 8L – Organic Chemistry I Lab

Instructor: Anna Johnston, Ph.D.

Email: ajohnst3@ucsc.edu

Office Hours: TBD

Lab Lectures: TuTh 2-3pm, N. Sci Annex 101

Teaching Team & Lab Sections – office hours on Canvas

- | | | | |
|------------------------|--|---------------------------|--------------------------|
| • Yasaman Bolandi (TA) | Email: sbolandi@ucsc.edu | Lab Room: TBD | office hours: TBD |
| • Vivian Cherette (TA) | Email: vcherret@ucsc.edu | Lab Room: TBD | office hours: TBD |
| • Celia Patterson (TA) | Email: cbpatter@ucsc.edu | Lab Room: TBD | office hours: TBD |
| • Skyler Thayer | Email: sthayer@ucsc.edu | Stockroom Support! | |

Have you ever wondered why *roses are red* and *violets are blue*? Why are plastics such a danger to our planet? What happens to your food as it digests? **Organic chemistry has the answers!** Trillions upon trillions of super small molecules make up the colors that we see, the containers we eat and drink from, and the food we eat. Most of these life-sustaining molecules are organic (have a carbon backbone). Continue your ochem journey and learn the behind-the-scenes magic that make life possible!

Course Description: CHEM 8L (2 units, formerly 108L) is an introduction to common methods in synthetic organic chemistry, as it applies to pharmaceutical and research industries. You'll learn basic techniques for isolation and purification of organic chemicals, as well as qualitative and quantitative analysis. These fundamental skills will be applied to organic reactions. You'll learn to perform lab work in a safe and efficient manner. Technical writing is taught through lab reports and abstracts. **Prerequisites:** CHEM 1C and 1N and previous or concurrent enrollment in 8A.

This syllabus contains important information on lab requirements, policies, grading, and scheduling. As different courses can present different needs, the content of this syllabus is subject to change.

Materials – organized by Module in Canvas: canvas.ucsc.edu; [Schedule on pg 3](#)

- Provided on Canvas
 - **Lecture note templates** – print, download, or copy by hand before Tuesday and Thursday Lectures
 - **Lab PDFs** – background reading, procedure, and lab report details for each experiment
 - **GradeScope**: online tool to upload lab reports and get detailed feedback; linked through Canvas
 - **Slugs@Home Lab Previews**: <https://sites.google.com/ucsc.edu/slugshome/home>
- Provided in Lab (you do not need to purchase!)
 - goggles, lab coat, and gloves
- Your Responsibility to Get
 - **Designated lab notebook** – any *bound* notebook is great, no spiral-bound
 - **Optional textbook**: Mohrig, J. R.; *et. al.* "Techniques in Organic Chemistry, 4th Edition" Freeman, 2015
 - Using an older edition? Refer to lecture titles in the schedule for background reading

Policies

- Summer 8L is offered at an accelerated pace. Use the schedule and Canvas to stay on track.
- Lectures are **synchronous** - attendance advised and appreciated, not required
 - Lectures are recorded & posted on Canvas – may take up to 4 hours, join in person to stay involved!
- Required in-person **labs** start **Thursday, June 29th at 9 am** for safety scavenger hunt & lab basics activity,
 - **Check SAFETY RULES** for what's OK and NOT OK to wear – no shorts, sandals, tank tops, or leggings
- Lab Attendance
 - Please arrive early; email your TA if you'll be 10+ minutes late, otherwise it will count as a missed lab
 - Participation credit is given for uploading your digitized notebook pages after lab
 - Everyone gets **one excused lab day** – **all reports & notebook pages are required to pass the course**
 - Contact your TA for guidance with completing the missed lab via Slugs@home
 - Sorry but we are NOT offering extended remote accommodations beyond the one or Makeup labs
- *Email Anna & your TA if you miss a lab or assignment ASAP!* The sooner we know, the easier it is to help.
- Please find info on disability accommodation on the last page of the syllabus.

Lab Conduct... Safety first!

The complete SAFETY RULES are posted on Canvas and will be reviewed on the first day of lab ☺ Highlights...

- No food or drink in the lab; Wear proper attire and arrive to lab on time
- **Goggles, gloves, and lab coats** are to be properly worn when anyone is using chemicals in the lab or instrument room – points deducted for not wearing personal protective equipment (PPE)
- Pay attention to **waste procedures and chemical hazards** – table given in each experiment
- Take care of chemical spills immediately; consult the instructor
- Notify your TA of all chemical exposures; **rinse minor exposure areas with water for 15 min**
- Label all glassware before adding chemicals to it, including water
- **Clean the balance and reagent areas immediately** after obtaining chemicals every time
- Keep your work station clean; follow instructions on washing glassware - remove gloves
- **Check your results and workstation with your TA at the end of each lab**
- Foster a sense of community – ask your TA for a community cleanup task before you leave
- **ABSOLUTELY NO GLASS IN THE TRASHCANS**

Assignments: *Get help with your assignments, ideally during lab or at least several days before the due date!*

- All **notebook pages** and **lab reports** must be turned in for all experiments to complete & pass the course.
- The lowest **pre-lab quiz** score is automatically dropped on Canvas.
- **Due dates** are on Canvas – do your best to plan ahead during this accelerated summer schedule!
- *We'll help if we can!* Email your TA before the due date for a day **extension** on an assignment.
 - Note: Canvas automatically enters a '0' on late assignments until they're graded. Don't stress
- Email your TA (cc Anna) ASAP if you have **any issues** with attendance, submitting assignments, etc.
 - We're open to new policies and **accommodations** but we need to know what's going on!
- Incorporate **feedback** from graded reports into future assignments.
 - Instructions for reviewing feedback on assignments – Intro Module – GradeScope Guides for Students.
 - Your TA is happy to *discuss* any grading questions or concerns in a kind & compassionate manner.
 - Submit brief **regrade requests** directly in GradeScope – instructions on Canvas.

Introductory assignments to familiarize yourself with tools & resources – see Canvas

Required Week 1 - 10% of course grade	Optional – encouraged for community!
<ul style="list-style-type: none">• GradeScope Test Assignment• Academic Integrity / Honor Code• Lab Basics & Safety Scavenger Hunt	<ul style="list-style-type: none">• Survey & Collaborative Spotify Playlist• Cool Chemistry Apps

*Experiments and **three (3) associated assignments** are organized in Canvas Modules*

1. **Pre-Lab Quiz** (25% of grade) 2. **Notebook Pages** (25% of grade) 3. **Lab report** (40% of grade)

Strict Grade Distribution

A+ 98.00 – 100%	A 93.00 – 97.99%	A- 90.00 – 92.99%
B+ 88.00 – 89.99%	B 83.00 – 87.99%	B- 80.00 – 82.99%
C+ 78.00 – 79.99%	C 70.00 – 77.99%	
D 55.0 – 69.99%	F < 55.0%	

UCSC CHEM 8L Summer 2023 Schedule

TuTh 2 – 3pm = **lab lecture** in Nat. Sci. Annex 101, *plz join in person!*

- Lectures recorded ... posted on Canvas / YuJa *same day*

TuTh 9am – 1pm = **in-person labs** in THIM 261, 271, & 275

Wk	Date	LAB	LECTURE Topic – bring class note templates to TuTh lectures	Due – Canvas
1	Mon 6/26	-	-	Read Through Week 1 Module
	Tu 6/27	remote: 9am TA Meet & Greet via Zoom – link on Canvas	<i>Course Intro & Exp 1- Recrystallization</i>	-
	Th 6/29	IRL: Safety Scavenger Hunt & Lab Basics – balances, pipets, and solutions, oh my! (Worksheets provided in lab)	<i>Exp 1- % Recovery, Melting Points</i>	Scavenger Hunt & Lab Basics Worksheets
	Sun 7/2	-	-	Academic Integrity and GradeScope Test
2	Tu 7/4	No Class- HAPPY FOURTH!	<i>Holiday</i>	-
	W 7/5	-	-	<i>Exp 1 Quiz</i>
	Th 7/6	Experiment 1- Recrystallization of Acetanilide	<i>Exp 2- Citrus Distillation</i>	<i>Exp 1 Notebook</i>
	F 7/7- Canvas	-	Watch pre-recorded lecture (make up for holiday)- <i>Exp 2: Gas Chromatography (GC)</i>	-
	Sun 7/10	-	-	<i>Exp 1 Report</i>
3	M 7/10	-	-	<i>Exp 2.1 Quiz</i>
	Tu 7/11	Exp 2.1 - Citrus Oil Distillation ** Bring finely Chopped Orange Peels **	<i>Exp 3- Extraction</i>	<i>Exp 2.1 Notebook</i>
	W 7/12	-	-	<i>Exp 2.2 Quiz</i>
	Th 7/13	Exp 2.2 - GC Analysis of Citrus Oils	<i>Exp 3- Thin-Layer Chromatography (TLC)</i>	<i>Exp 2.2 Notebook</i>
	Sun 7/16	-	-	<i>Exp 2 Report</i>
4	M 7/17	-	-	<i>Exp 3 Quiz</i>
	Tu 7/18	Exp 3 – Spinach Extraction & TLC Analysis **Spinach provided in lab**	<i>Exp 4- Infrared (IR) Spectroscopy</i>	<i>Exp 3 Notebook</i>
	W 7/19	-	-	<i>Exp 4 Quiz</i>
	Th 7/20	Exp 4 – Infrared (IR) Spectroscopy	Exp 5- Dehydration Reactions	<i>Exp 4 Notebook</i>
	F 7/21	-	-	<i>Exp 3 Report</i>
	Sun 7/23	-	-	<i>Exp 4 Report</i>
5	M 7/24	-	-	<i>Exp 5 Quiz</i>
	Tu 7/25	Exp 5 - Dehydration of Methylcyclohexanols- last lab!	Exp 5: Virtual Q&A session via Zoom	<i>Exp 5 Notebook</i>
	Fri 7/28	-	-	<i>Exp 5 Report</i>

How to stay on Track

Before Lab (More details below!)

- Read the **lab PDF** or listen to the **podcast**
- Attend **lecture** while filling in **class note** templates
- Preview the lab on **Slugs@home- videos** to watch before lab! (links in Canvas Modules)
- Prepare for the pre-lab quiz: complete the **pre-lab questions** in the lab PDF, lab lecture helps ☺
- Open the **worksheet** on Canvas – use as template for preparing **notebook pages – see next page for help**
- Take **pre-lab quiz** on Canvas before your enrolled lab section's start time

During Lab

- Arrive ~5 minutes early, show prepared notebook pages to your TA
- **Check-ins, Pre-lab talk, Q&A**
- Perform the **lab** with a partner as you enter data & observations in the worksheet
- **In-lab questions** are discussed as a group, along with any other Q&A.
- Take pictures of completed **notebook pages** and upload as soon as you can after lab

After lab (More details below!)

- Submit the **lab report** on GradeScope, due a few days after experiment is completed

BEFORE: Lab Preparation (Details ☺)

PRE-LAB QUIZ – Experiments PDFs containing pre-lab questions are posted on Canvas. Take the Canvas pre-lab quiz before your enrolled section. The quiz includes pre-lab questions that may be reworded, in a different order, or otherwise be presented differently than the pre-lab questions. This is due to the Canvas quiz format, not to confuse you!

- **Be prepared with your responses to the pre-lab questions before starting the quiz.**
- There is a 20-minute time limit on the quiz and you get two attempts (your grade will be the highest of the two)
 - **Make sure you have enough time to complete the quiz - you can't save and come back later.**
- The lowest pre-lab quiz grade is dropped.
- **Though we generally encourage collaboration, the pre-lab quiz is an individual assignment.**
 - The responses should be a product of your original work to assess *your* understanding of the material.
 - **Sharing your quiz or the correct responses in any format (screenshots, email, CHEGG, social media, text, carrier pigeon, etc.) is in violation of the UCSC academic integrity policy (more details later in syllabus).**

Lab Notebook Preparation – *Required before lab; worksheet provided as suggested template on Canvas*

- **Purpose:** one-sentence summary of the main lab goals plus any relevant reaction or purification schemes.
- **Reagent Table** – add chemical properties; Wikipedia is a reliable source for chemical info!
- **Procedure with Diagrams** – *complete before starting lab; sample on Canvas*
 - Use the procedure to create your hand-drawn experimental instructions
 - Simple sketches & labels for **all equipment, chemical names with amounts, & transfers**
 - Format: Break it up with flow charts, bullet-points, comic strip, and/or whatever works for you!
 - Avoid copying the procedure word-for-word. **Use diagrams found in class notes!**
 - Make it easy for anyone to follow your procedure without referring to this document.

AFTER: Lab Reports (Details 😊)

Reports for **Exp 1-3** are done individually, you may complete Exp 4 & 5 reports with a partner. **Partner reports (Exp 4-5):** Discuss the report during lab and who will type which parts of the report. It is OK to do these reports individually if your schedules don't work. Meet to exchange and proofread each other's work at least a day or two before the due date. The idea is to promote collaboration and hold each other accountable. One student submits the assignment on Canvas / GradeScope and both students get that same grade. Make sure to select your partner after uploading the report to GradeScope!!

ABSTRACT – SEE WRITING GUIDELINES ON CANVAS

- This section applies to the Exp's 2, 3, and 5 reports (no abstract in Exp 1 or 4). Details are provided in the lab PDFs.
- The abstract is a concise overview of the experiment: purpose, methods, main result(s), and conclusions.
- There will be an activity during Exp 2 to help you write the first abstract, including guidelines to help with future abstracts.

IN-LAB QUESTIONS – ON LAST PAGE OF EACH LAB PDF

- Type the responses to in-lab questions in complete sentences.
- Calculations, structures, and mechanisms may be hand-written.
- Tables should be given clear labels (**Table 1**, etc.) and a descriptive title.

Academic Integrity - https://www.ue.ucsc.edu/academic_integrity **Complete the Academic Integrity / Honor Code form on Canvas**

Students are encouraged to discuss the experiments. Below is an overview of assignments that should be completed individually vs. those that are turned in with a partner. In Exp 4-5, discuss the **Partner Agreement** in lab to determine how you'll work together to complete the report. One student submits the final assignment on Canvas / GradeScope and both students get that same grade. The idea is to incentivize collaboration and hold each other accountable.

- **Individual:** Pre-lab quizzes, lab notebook pages, and Exp 1-3 lab reports
- **Pairs:** Exp 4-5 lab reports, option to work individually

Collaboration is great, but each partnership should submit original work. *Zero points will be assigned to duplicate lab reports, or sections of lab reports that are obviously copied from another group, at the TA's discretion.* Such incidents will be reported to the UCSC Academic Misconduct office. This is an unfortunate consequence and Anna's least favorite part of her job. It's better to get no credit than to have a report filed.

We want our **expectations** of you to be clear to set you up for success! Please feel free to **reach out** to instructors to talk through this process and **ask questions** whenever you feel unsure. I put together the guidelines below after reflecting on **discussions with students**.

HOW TO HAVE GREAT ACADEMIC 'TEGRITY:

- Use the provided writing guidelines for general style and specific abstract format.
- **Everyone is expected to submit assignments that reflect their and/or their partner's understanding of the material** based on the reading, lecture, discussion with instructors and peers, and personal lab experience.
- The experiment PDFs online contain most of the information you need to successfully complete assignments, with elaboration and clarification in lab and lecture. It may be necessary to look up new terms or general concepts, but otherwise *avoid searching for answers to pre- and in-lab questions online.*
- **Prevent the temptation to cheat** by working on assignments **well in advance of the due date**.
 - Ask instructors for help during lab and office hours.
 - Feel free to reach out *via* email if you need an extra day or two extension.
- *Both students in a lab pair should contribute in the lab, including recording observations and data*
 - Each student submits **Notebook Pages** at the end of each lab period.
- Perform calculations and analysis *individually before discussing* with another student.

- Talk through the question with lab mates and instructors.
- Ask for help on **how to solve a problem** rather than asking for an answer.
- **Type all of your own work instead of copy/pasting from other sources.**
- Lab partners are encouraged to **proofread** each other's work after a draft has been completed.

WHAT TO AVOID:

- **Avoid searching for answers to pre- and in-lab questions online. This knowledge is provided in the experiment PDFs, lab lectures, and remote labs. Online sources can be problematic and often wrong!**
- Reading and posting lab reports or any other course materials on sites like CHEGG and Course Hero *violates UCSC academic integrity policy*. The same applies to using paper or electronic copies of **old lab reports**. *If someone offers you their old reports, don't accept them or give them back!* The questions and criteria change each term, making these instances relatively easy to catch.
- **Reading another group's report then rewording it is considered cheating**, as this is not reflecting your own ideas or understanding.
- Do not copy/paste from other unauthorized sources, then alter it to make it look different.
- **I recommend not emailing reports to anyone outside of your group** unless it's to proofread and you know the other group has completed their work too.

Disability Accommodation

UC Santa Cruz is committed to creating an academic environment that supports its diverse student body. If you are a student with a disability who requires accommodations to achieve equal access in this course, **submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) using the form on Canvas** – Home Page or Quizzes, preferably within the first two weeks of the quarter. We can set up a time to meet and discuss how to ensure your full participation in the course. ***This may also include scheduling make-up labs if there are time conflicts due to extended exam times for other courses.*** We encourage all students who may benefit from learning more about DRC services to contact DRC by phone at [831-459-2089](tel:831-459-2089) or by email at drc@ucsc.edu.

Title IX prohibits gender discrimination, including sexual harassment, domestic and dating violence, sexual assault, and stalking. If you have experienced sexual harassment or sexual violence, you can receive confidential support and advocacy at the Campus Advocacy Resources & Education (CARE) Office by calling (831) 502-2273. In addition, Counseling & Psychological Services (CAPS) can provide confidential, counseling support, (831) 459-2628. You can also report gender discrimination directly to the University's Title IX Office, (831) 459-2462. Reports to law enforcement can be made to UCPD, (831) 459-2231 ext. 1. For emergencies call 911.

Faculty and Teaching Assistants are required under the UC Policy on Sexual Violence and Sexual Harassment to inform the Title IX Office should they become aware that you or any other student has experienced sexual violence or sexual harassment.

Land Acknowledgement

"The land on which we gather is the unceded territory of the Awaswas-speaking Uypi Tribe. The Amah Mutsun Tribal Band, comprised of the descendants of indigenous people taken to missions Santa Cruz and San Juan Bautista during Spanish colonization of the Central Coast, is today working hard to restore traditional stewardship practices on these lands and heal from historical trauma."