CHEM 8M: Organic Chemistry Lab II, Summer 2020
UCSC Department of Chemistry & Biochemistry
Lecture: Monday & Wednesday, 12:30pm-1:30pm

Instructor: Gabriella Amberchan, gamberch@ucsc.edu
(Please address me by my first name. Pronouns: she/her/hers)

Student Hours: Tuesday and Thursdays, 3-4pm, through Zoom (link in **Canvas**) or by appointment

Teaching Assistants & Student Hours: Zoom links posted in Canvas

Course Description
CHEM 8M is the corresponding laboratory class for the second quarter organic chemistry series. This course will have students practice common reaction set up techniques and isolation methods. Continued practice of traditional analytical methods, such as infrared (IR) spectroscopy and thin layer chromatography (TLC) will be used. Additionally, new analysis methods, like nuclear magnetic resonance (NMR), will be studied. Examination and analysis of the data will culminate in weekly written lab reports.

Course Learning Outcomes
- Students will practice how to isolate and analyze the molecules they make in lab using traditional organic chemistry techniques.
- Students will refine their observation skills and implement scientific practices, such as keeping detailed scientific notebooks, proper lab etiquette, and writing scientific reports.
- Students will examine their data and interpret their results into a reasonable conclusion, which is supported by the experimental evidence.
- Students will relate organic chemistry principles to their experiments while also making correlations to real-world applications.
- Students will work in pairs requiring them to practice effective communication, teamwork, and time management skills.

Optional Materials
- David Klein, Organic Chemistry, 3rd Ed, Wiley 2017

Course Protocol
Lectures will be live; attendance is highly encouraged. They will be recorded and placed into a Google Drive folder for you to reference. The labs will be pre-recorded (videos in **Canvas**) and you may watch them at your convenience. You cannot move onto the next experiment without watching the prior one. **Lab reports will be due at 11:59pm (PDT)** on their assigned day. Please see the schedule below.

Lecture Schedule

Week	Date	Lecture Topic	Experiment	Assignment Due	Optional Reading
1	July 27 (Mon)	Lecture 1: Column (Liquid) Chromatography	Exp 1: Column Separation of Excedrin	--	--
	July 29 (Wed)	Lecture 2: Acid-Base Extraction		--	--
	Aug 2 (Sun)	--		Writing Activity & Exp 1	--
2	3 (Mon)	Lecture 3: Excedrin Analysis	Exp 2: Acid-Base Extraction (Excedrin)	--	--
	5 (Wed)	Lecture 4: ^{1}H NMR Chemical Shifts		--	15.3-15.5
	9 (Sun)	--		NMR Problem Set #1 & Exp 2	--
3	10 (Mon)	Lecture 5: Oxidation Rxns & Dyes	Exp 3: Oxidation of Benzhydrol	--	--
	12 (Wed)	Lecture 6: Dyes		--	--
	16 (Sun)	--		Exp 3	--
4	17 (Mon)	Lecture 7: Dyes & ^{1}H NMR Integration & Splitting	Exp 4: Synthesis and Application of Indigo Exp 5: Fruity Fragrances	--	15.6-15.7, 15.10
	19 (Wed)	Lecture 8: Fischer Esterification		--	--
	23 (Sun)	--		Exp 4	--
5	24 (Mon)	Lecture 9: Esters & ^{13}C NMR	--	--	15.11-15.12
	25 (Tues)	--	--	Exp 5 & NMR	--

				Problem Set #2	
	26 (Wed)	Lecture 10: Q&A	Lab Practical Released	Home Experiment	--
	27 (Thur)	--	--	**Lab Practical** 5pm (PDT)	--

Assignments and Grading Policy

Lab Reports (670 pts, 67%). Submit lab reports to Gradescope (www.gradescope.com) by **11:59pm (PDT)** on the due date. **Gradescope course code**. Lab reports need to be typed, exceptions: notebook pages, mathematical equations, and chemical structures. (Detailed explanation of lab reports found in "Understanding Lab Reports" document)

- Assume **no late lab reports** will be accepted unless permission is given by your TA before the due date
- If you do not turn in 2 reports you cannot pass the course.
- Re-grade requests should be submitted through Gradescope and are at the TA's discretion.

Lab Practical (250 pts, 25%). Assesses student's ability to use IR and NMR to elucidate a chemical structure. It will be released on **August 26** and due at **5pm (PDT) on August 27**.

Writing activity (20 pts, 2%). Worksheet aimed at orienting all students to the writing style chemists use.

Home Experiment (30 pts, 3%). Fun acid-base chemistry with a red cabbage! This can be submitted at any point during the course, but the **final deadline is August 26**. More details can be found on Canvas.

NMR Problem Sets (30 pts, 3%). There are 2 problem sets dedicated to practicing NMR structural analysis and structure elucidation. These are due on their due date at **11:59pm (PDT)**.

Grading. This course is not curved. Don't compete with others, do your best on each exam. Letter grades will be decided based on the following percentages:

A	100-90%
B	89-80%
C	79-60%
D	59-45%
F	<45%

Academic Integrity

Students are expected to write their own lab reports. Plagiarism in any form will not be tolerated. Students found in violation of these policies will repercussions, such as a failing

grade and academic sanctions. UC Santa Cruz's full policy on academic misconduct can be found at https://ue.ucsc.edu/academic-misconduct.html.

Title IX

My intention is to make this class comfortable for anyone to ask questions and learn chemistry. Chemistry can be puzzling, and remote learning is a unique pedagogical method that has its own challenges. I hope to be a resource for your learning, and I am available if you need to talk science, study strategies, food ideas, recipes, or whatever you need to excel in this class. This support comes with the understanding that there is mutual trust and a zero tolerance for disrespect towards your peers, TAs, or me.

If you do feel uncomfortable and you don't feel comfortable confiding in me, UC Santa Cruz has avenues set up to disclose the information through the Title IX office. 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.

Registration

Summer is unique. **You will not be dropped for non-attendance or non-payment.** You must drop yourself. Dropping before the deadline results in a full-tuition reversal/refund. Withdraw posts a W for the grade and full tuition is charged (no refund). For all dates and deadlines, including 'change of grade option' (P/NP) and grades due, here is the summer academic calendar: https://summer.ucsc.edu/studentlife/index.html. For questions about dropping, requesting a W grade for a course, or withdrawing from the summer quarter, email summer@ucsc.edu. Drop date – August 3. Deadline to request a "W" – August 14

Learning Accommodations

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, please submit your Academic Access Letter from the Disability Resource Center (DRC) to me *via* email, preferably within the first week of the Summer quarter. At this time, I would also like us to discuss ways we can ensure your full participation in the course. I encourage all students who may benefit from learning more about DRC services to contact DRC by phone at 831-459-2089 or by email at drc@ucsc.edu.