Syllabus
O-Chem Lab I, CHEM 222, summer 2021

WELCOME
This class welcomes participation from any student who has satisfied the appropriate prerequisites, described below. Students journey to this course along many different pathways with a range of abilities, skills, knowledge, experiences, and expectations. We invite students to ask questions. Asking questions helps to clear the path of stumbling blocks for you and for others. Your input contributes to a healthy teaching and learning environment. Diverse intellectual engagement helps your teachers to thoughtfully construct educational materials, instructions, delivery style, and thereby grow professionally. Contact me, christine.dimeglio@yale.edu, to discuss strategies for your best performance. With respect to materials required for in-person participation, don’t let finances or slow postal delivery stand in your way. If you need a lab coat, reach out.

INSTRUCTOR
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COURSE DESCRIPTION
In Organic Chemistry Lab 1, CHEM 222L, summer 2021, students engage with concepts, trainings, and skills required for safe and effective chemical laboratory work. We accomplish this by focusing efforts on eight teaching and learning areas: safety, scientific reporting, chemical information literacy, spectroscopic analysis, non-spectroscopic analysis, standard bench techniques for separation and purification, and synthesis of organic compounds, drawing connections between laboratory procedures and reaction mechanisms. Evaluation of student work is an ongoing process, with the aim of continual improvement and ultimate proficiency in all skill areas. Evaluative tools include prelab and post-lab assignments, lab notetaking, reports, and quizzes.

PREREQUISITES
The Department of Chemistry strictly enforces prerequisites for chemistry laboratory courses. Students must have received a grade for General Chemistry CHEM 134L and 136L, or their equivalents, such as a college course elsewhere or the Chemistry Department placement exam. Organic Chemistry Lecture I (CHEM 220 or CHEM 174 or their equivalents) is a pre-requisite or co-requisite. When in doubt, contact the instructor or the DUS of chemistry
COURSE FORMAT

Organic Chemistry Lab 1, CHEM 222L summer 2021, is offered as a robust, remote content course with a live-lab participation option for eligible students. Live lab participants begin remotely with their remote-participant peers and begin live-time experimentation after a suitable quarantine period. All enrolled students are evaluated using the same assessments. There is no distinction between remote and live participants. Attendance is required at both live and remote sessions. Students are required to be available for the entire laboratory period for both live and remote sessions.

Optional Live-Participation: If there are a sufficient number of eligible students desiring a live-participation option, the organic chemistry lab will operate in such a manner to ensure that students, teaching assistants, instructors, and support staff are safe in the time of Covid-19. This includes daily decontamination, appropriate PPE, social distancing in the lab. If live labs are offered, they will take place in Room 233 Sterling Chemistry Lab (SCL 225 Prospect Street, 3rd floor).

CANVAS

Canvas is the learning management platform used to facilitate communication of all course content. The important features of our course Canvas site that enable us to work together effectively include:

- **Syllabus**: The syllabus serves as a roadmap for the course, describing required materials and outlining the schedule/due dates for content, assignments, and quizzing. It also describes policies about enrollment, grading, penalties, attendance, academic integrity and citing sources.
- **Announcements**: Important course information is posted here for the group and delivered to your yale email account.
- **Modules**: Modules, organized by lab week, organizes all curricular course content including links to prerecorded materials, assignments and assessments.
- **Assignments**: This Canvas tool allows students to submit course work for grading.
- **Grades**: Students are able to access feedback on their submitted assignments using this tool.

Expect our Canvas site to be a living document, evolving as our course takes shape.

REQUIRED MATERIALS

**All Students:**
2. Technology that allows access to Canvas, Zoom, Word, Excel. The ability to convert student work to pdf files and the ability to use Google Chrome or Mozzilla for taking Canvas quizzes.
3. Personal face coverings, to be worn in all public spaces.

**Additional supplies for Live-Participation Lab Students**
1. **Long Lab Coat**: It must go to the knee! **THIS IS NOT AN OPTION.** Buy it at the Yale Bookstore or from an online vendor. **Do not buy short lab coats.** Unisex, 40 inch, knee length, long sleeve, 65% poly/35% cotton, lab coat – example brands are White Swan and Dickies. Size chart: [http://www.allseasonsuniforms.com/fssize.htm (Links to an external site.)](http://www.allseasonsuniforms.com/fssize.htm) Links to an external site.
2. Protection for your electronic devices while in the lab. You will use your personal electronic device for all notetaking while in lab. (SUPPLIED BY LAB)
3. **LOCK for backpack/coat lockers.** Backpacks and coats are not permitted in lab. The lockers are located in the hallways outside of the lab rooms. Protect your belongings from thieves! However, you must remove your lock and your belongings at the end of lab.
4. Thick Sharpie Markers® for writing on glassware. The lab will not provide any paper, pens or markers. All work will be submitted electronically.

5. Phone camera for taking photos of spectra and set ups. We will not have printing or any other exchange of paper this term.

6. Proper Clothing: **pants** that cover legs and ankles (no shorts, skirts or Capri), shoes that cover the ENTIRE foot (no sandals, flip flops or ballet type), no earbuds or head phones. **If you are in lab with improper clothing you will need to leave, and continue with the remote lab.** Lab safety glasses/goggles

7. Nitrile gloves (SUPPLIED BY LAB)

8. Loner lab coats if you spill something on yours while in lab. (SUPPLIED BY LAB)

9. Disposable surgical masks for lab use only. (SUPPLIED BY LAB)

**ASSIGNMENTS**

There are several types of assignments related to this course. Each assignment will be explained in detail in advance of its due date. A tentative schedule of activities and the due dates of related assignments appears at the end of this syllabus.

Assignment types for organic lab 1 include: experimental plans (EP); lab notes (LN), post lab assignments (PL), quizzes (Q), IR Worksheet (IR)

**GRADING**

Letter grades are assigned at the end of term by the instructor. Students who attend all scheduled sessions, submit all work on time, make a good faith effort in all areas of work, typically earn A and B grades. No student who completes everything on time earns lower than B-.

Grades are calculated as [total points earned – penalties]/total points available. Scaling is applied as required. Several types of assignments contribute to letter grades. Broadly, the assignments include the following:

- Proper preparation, full participation, submission of related documentation (~64%)
- Quizzing (~36%)

**Penalties include**

a) Submitting graded assignments after the due date/time. The penalty is 5% per day beginning at the due date/time. Work is always due on your regularly scheduled lab day, even if you are sick. This policy prevents what we call, “illness of convenience”. If you have an exceptional situation, let’s talk.

Live participation students will not be permitted to perform lab if experimental plans are not completed on time. In such a case they will incur a late penalty and will be referred to the remote content.

b) Unexcused absence from lab or scheduled zoom sessions. -20 points per session.

c) Complete/incomplete assignments are not accepted late and will be penalized their full point value if not submitted.

**Questions about graded assignments**

Please ask for an explanation from your grader if you do not understand comments/deductions. Everything we do is for your education, including deductions. We want you to learn through the explanations of why point were deducted.

**Attendance, Reschedules, Tardiness**

- Live participation students unable to attend will be reassigned to a remote-participation session.
- Live participation students more than 15 late to lab will be reassigned to a remote section.
• Due dates apply for all students, even when a student is not present for their regular lab session.

**Academic Integrity**

It is the goal of the Chemistry Department Teaching Staff to assist you in your personal and professional growth. Assignments and assessments are designed with this goal in mind. Breaches in academic integrity undermine our goals. Knowing the rules of academic integrity and applying those rules to your conduct, bench work and written submissions is integral to your advancement as a scientist.

Link to our full policy here: [academic integrity policy](#)

Link to our instructions on proper citations here: [citing sources in organic chemistry lab](#)

**SCHEDULE of Activities**

- The schedule is a living document, updated to reflect changes in activities, due dates, point values, and any other dynamic course content.
- **Links to materials will be available through Canvas/Modules/Week of Session**

**WEEK 1**

Week 1 Lab 1: Video Tour of Facility
- Student Information Sheet
- Community Pledge
- Academic Integrity Policy

Week 1 Lab 2: Video Lab Safety
- QUIZ 1: Labs 1 and 2; Safety (20 points; best of 2 attempts)
- Chemical Table 3 (10 points; complete/incomplete, hereafter C/I)

**WEEK 2**

Week 2 Lab 3 Video Preparing for Experimentation:
Solutions, Hood Training, Balances, Common Set-Ups for Experimentation
- EP 3 (10 points C/I)

Week 2 Lab 4 Video Extraction
Extraction, Vacuum Filtration, Drying, and Storing Products
- EP 4 (10 points C/I)
- LN 4 (10 points C/I)
- QUIZ 2: Labs 3 and 4 (20 points; 2 attempts, average of scores)

**WEEK 3**

Week 3 Lab 5 Video Recrystallization and MP Analysis
- EP 5 (10 points/ graded)
- LN 5 (10 points/ graded)

Week 3 Lab 6 Video TLC and Column Chromatography
- EP 6 (10 points/ graded)
• LN 6 (10 points/ graded)
• QUIZ 3: Labs 5 and 6 (20 points; 1 attempt)
• PLA: Focus on Labs 2-6, due by Monday of WEEK 4 (50 points)

WEEK 4
Week 4 Lab 7  Video IR Spectroscopy and/or IR Computational Study
• EP 7 (10 points/ graded)
• IR worksheet (25 points/graded)

Week 4 Lab 8  Methyl Salicylate to Salicylic Acid
• EP 8 (10 points/ graded)
• LN 8 (10 points/graded)
• Quiz 4: Labs 7 and 8 (30 points, 1 attempt)

WEEK 5
Week 5 Lab 9  SN2 Reaction
• EP 9 (10 points/ graded)
• LN 9 (10 points/graded)
• PLB: Focus on Lab 8 (50 points graded)

Week 5 Lab 10  SN1 Reaction
• EP 10 (10 points/ graded)
• LN 10 (10 points/graded)
• Quiz 5: Labs 9 and 10 (40 points, 1 attempt)