Organic Chemistry Lab I

CHEM - 2315 402

Course Description

Graded laboratory. It is recommended that students take CHEM 2310 in the same semester as this course.

Prereq: CHEM 1220 w/C grade or better

Semester: All

Course Prerequisites

- **Prereq**: CHEM 1220 w/C grade or better
- **Recommended Coreq:** CHEM 2310
- **Estimated Course Fee:** $45 as of Fall 2025

Course Materials

- (Outside of the lab) you need a computer with an internet browser capable of accessing applicable web-based course applications and word processing and graphing programs (e.g. Canvas, Microsoft Word PowerPoint, Excel, etc.).
- Required Notebook & Supplies
  Your lab notebook must meet these criteria:
  - Size: 9.25 × 11.75 in. (23.5 × 30 cm)
  - Binding: **Stitched or glue-bound** (no spirals or perforations)
  - Paper: Grid-lined

- Other Supplies: Ruler, stapler or tape, and good-quality ballpoint pens
- Ink: Black (or dark blue) only (no pencil, no colors)

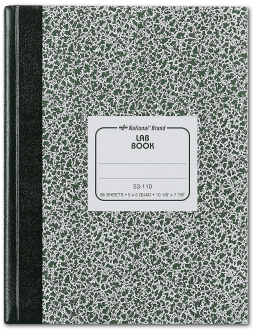
Laboratory Notebook SLCC Bookstore: ~$21.99 Specifically listed for your respective lab section.

- Amazon (Lower cost, same specs) tinyurl.com/BUYlabnotebook

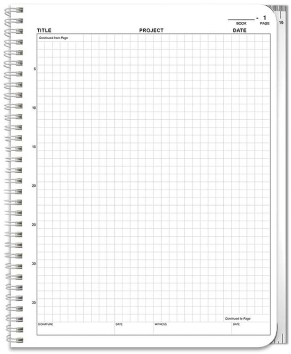
Pricing may fluctuate.

tinyurl.com/LowerCostNotebook (Free shipping for orders of 4 or more.) I've purchased a few for those who might be struggling financially. I am happy to help!

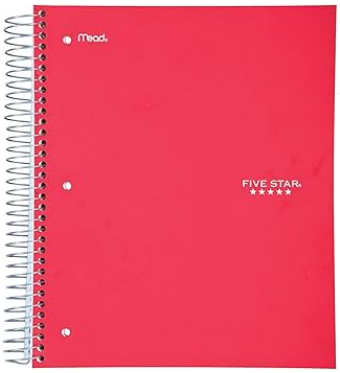
NOT Allowed for my sections: Composition Notebook



NOT Allowed for my sections: Carbon-Copy Spiral Bound Laboratory Notebook

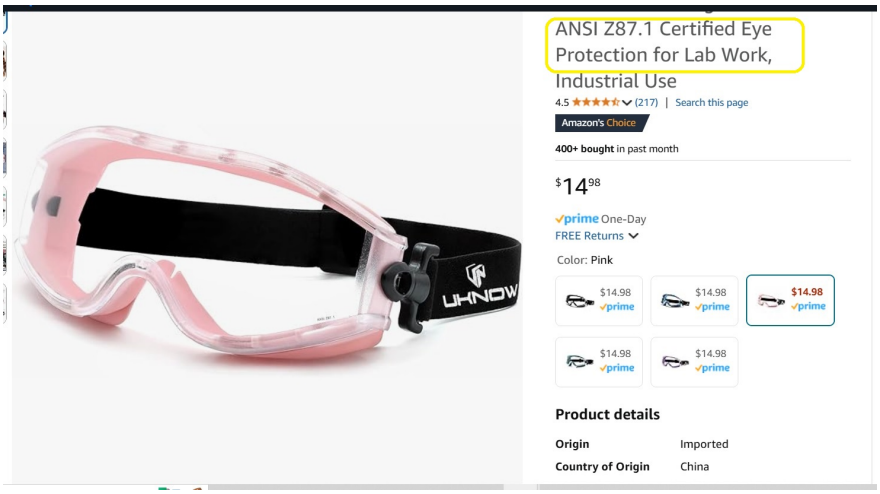


NOT ALLOWED for any section: Spiral bound common notebook.



- OSHA-approved safety goggles are mandatory and available for purchase at the bookstore.

tinyurl.com/buyLabGoggles



Sweatpants or Scrubs

For those whose regular day attire might not fully cover their legs.

Lab Coat

Required for those with exposed shoulders or midriff; otherwise this is optional, but it can help protect your body and your clothing.

Course Learning Outcomes

Students will demonstrate competence in basic laboratory skills including good laboratory hygiene, laboratory safety and hazardous waste disposal.

- Demonstrate safe handling and manipulation of chemicals and laboratory glassware.
- Demonstrate competence in reading and applying laboratory instructions.
- Be able to apply common organic chemistry techniques such as extraction, drying, purification, and characterization to the synthesis of chemicals.
- Record observations of qualitative laboratory results appropriately, including physical and chemical properties.
- Be able to make chemical measurements using electronic balances, volumetric glassware, and thermometers.
- Collect and analyze spectroscopic information from Infrared Spectrophotometers and Nuclear Magnetic Resonance Spectrometers.
- Report quantitative laboratory results appropriately, including raw data and data analysis.
- Identify unknown samples based on physical and chemical properties observed in the laboratory.

- Write a formal laboratory report including introduction, results, discussion, and conclusion.
- Identify and correct mistakes made during a laboratory session by analyzing results obtained.
- Interact regularly with each other in the lab while working on experiments together.

Safety

- Following safety rules is crucial and protects you against the serious consequences of accidents. **These consequences may include loss of sight, severe skin burns, poisoning, or even death.**
- The safety rules will be discussed in detail by the instructor during the first week of the course. They are also listed in the Chemistry Lab Safety Agreement that every student must read, sign, and return to the instructor.
- Improper attire (shorts, sandals, revealing clothing) is grounds for immediate dismissal from the laboratory and you may be denied the benefit of a makeup lab.
- **Willful or negligent violation of the safety rules may results in receiving a failing grade** for the lab or course at your instructor's discretion.
- Electronic devices should only be used in the chemistry lab at the student's risk. NOTE: Chemistry labs are inherently contaminated with various types of chemical reagents that can easily be transferred to electronic devices by their use during lab.

Equipment

- At the beginning of the semester, **each pair of students in the course will be assigned to use one lab station**, consisting of three drawers of equipment. Glassware and utensils are stored in the top drawer, metal equipment is stored in the bottom two drawers.
- The drawers and equipment are shared among several lab sections. It is crucial that students **take good care of the equipment** by cleaning glassware properly with glass soap, brush and water, asking the laboratory instructor to replace broken equipment, and locking the drawers after each class session.

- **Do not leave any personal items in the drawers** (lab coats, goggles, etc.). Any additional equipment provided on the cart each week must be returned to the cart after the experiment and not placed in the drawer. Additional glassware must be washed, and thermometers must be cleaned and turned off.
- Students are required to **report to the lab instructor problems** such as broken or dirty glassware, too few or too many items, metal clamps thrown together with glass, drawers not locked at the beginning of the lab session, etc. Two (2) points will be deducted from the score of the pair of students who used the equipment in the previous class session.

Assignment Schedule

Due Date	Assignment Name	Assignment Type	Points
	Attendance	Assignment	100
	Roll Call Attendance	Assignment	100
	Week 2: Separation of Solids	Discussion	0
	Week 3: Purification of Solids and Liquids	Discussion	0
8/26/25	Highlighted as "Required Reading" from the "LabNotebooks101" Page	Quiz	3
8/26/25	Glassware & Equipment Quiz	Quiz	10
8/26/25	Safety Quiz	Quiz	10
8/26/25	Welcome and Introduction (2 pt)	Discussion	2
8/28/25	Mr. E's TinyURLs	Discussion	2

Due Date	Assignment Name	Assignment Type	Points
9/2/25	Syllabus Quiz (ungraded)	Quiz	0
9/9/25	Extraction: Pre-Lab Quiz	Quiz	10
9/11/25	Extraction: Lab Report	Assignment	15
9/11/25	Extraction: Post-Lab Quiz	Quiz	5
9/16/25	Recrystallization: Pre-Lab Quiz	Quiz	10
9/18/25	Recrystallization: Lab Report	Assignment	15
9/18/25	Recrystallization: Post-Lab Quiz	Quiz	5
9/23/25	Distillation: Pre-Lab Quiz	Quiz	10
9/25/25	Distillation: Lab Report	Assignment	15
9/25/25	Distillation: Post-Lab Quiz	Quiz	5
9/30/25	Caffeine: Pre-Lab Quiz	Quiz	10
10/2/25	Caffeine: Lab Report	Assignment	15
10/2/25	Caffeine: Post-Lab Quiz	Quiz	5
10/7/25	Chromatography: Pre-Lab Quiz	Quiz	10

Due Date	Assignment Name	Assignment Type	Points
10/9/25	Chromatography: Lab Report	Assignment	15
10/9/25	Chromatography: Post-Lab Quiz	Quiz	5
10/21/25	Instrumentation Lab: Pre-Lab Quiz	Quiz	10
10/23/25	Instrumentation Packet: Post-Lab Quiz	Quiz	4
10/23/25	Instrumentation: Packet Submission (PLO-CHEM-4)	Assignment	40
10/28/25	Essential Oils: Pre-Lab Quiz (PLO-CHEM-1)	Quiz	10
10/30/25	Essential Oils: Lab Report	Assignment	15
10/30/25	Essential Oils: Post-Lab Quiz	Quiz	5
11/4/25	Substitution: Calculations Pre-Lab Quiz (PLO-CHEM-3)	Quiz	6
11/4/25	Substitution: Safety Pre-Lab Quiz	Quiz	4
11/6/25	Substitution: Lab Report	Assignment	15
11/6/25	Substitution: Post-Lab Quiz	Quiz	5
11/11/25	Dehydration: Pre-Lab Quiz	Quiz	10

Due Date	Assignment Name	Assignment Type	Points
11/13/25	Dehydration: Lab Report (PLO-CHEM-2)	Assignment	15
11/13/25	Dehydration: Post-Lab Quiz	Quiz	5
11/18/25	Hydrogenation: Pre-Lab Quiz	Quiz	10
11/20/25	Hydrogenation: Lab Report	Assignment	15
11/20/25	Hydrogenation: Post-Lab Quiz	Quiz	5
12/2/25	Diels-Alder: Pre-Lab Quiz	Quiz	10
12/4/25	Diels-Alder: Lab Report	Assignment	15
12/4/25	Diels-Alder: Post-Lab Quiz	Quiz	5

Engagement Plan

- I will respond to my text or business email within 3 h during business days. You may also contact me via the Canvas Inbox or school email. Fall 2025 I only teach on Mondays and Tuesdays all day but, during the rest of the week and during business hours I will not be logged into Canvas or School email and may not see notifications for sometime.
- I will grade and offer feedback on major assignments within 1 week most of the time.
- I will provide a short pre-lab lecture to review what you have already covered in the pre-lab quiz and identify challenging or difficult parts of the lab.

- I will be present and engaged during class, and available for questions regarding the lab and lecture material.

- Students are expected to engage with the introductory material and take the pre-lab quiz before coming to the lab session.
- Students are expected to attend session on-time, and may not be able to work with a partner if they arrive late.
- Students who cannot make their registered lab session may attend a different face-to-face session within the same week.
- Students are expected to respond to email within 2 business days.
- **Students must attend all labs and interact with introductory modules for the first three weeks or email their instructor otherwise to inform them of their plans - failure to do so may result in being dropped from the course.**

Attendance

- **Attendance in the lab is mandatory** and should be a priority in your scheduling.
- You must notify the instructor or lab coordinator in advance if you will not be able to attend the lab.
- Following proper notification, you may be **allowed to perform a missed experiment with another lab section that week**, subject to space availability and lab sequencing. Note: The make up lab instructor must initial your lab report before you leave the lab or you will not be granted any credit.
- If you miss a lab due to circumstances beyond your control and are unable to attend a physical make up lab, **you are allowed one make up virtual lab**. You must notify your instructor within four days of your absence and complete the virtual lab within seven days.
- You will not receive credit for any make up labs or virtual labs without prior instructor approval.

Attendance and Engagement (10% of your grade)

Attendance and active engagement in both the lab space and the online course are worth 10% of your grade. Attendance points cannot be made up. If you arrive late, you will only receive 80% of the attendance grade for that day. Please note: the lab door will be locked at 1:07 PM ("the train has left the station").

If you miss a lab, you may be able to make it up in another section, but you must notify me first so I can coordinate with the alternate section instructor.

You may miss up to two labs total throughout the semester and still receive a passing grade. (Limited exceptions. Please communicate with me immediately regarding any extenuating circumstances).

Arrive early. I strongly recommend arriving about an hour ahead of time and spending that hour in the STEM Learning Center (just down the hall from our lab). Doing so will ensure you are on time, and it's also the best place to study and prepare for class (I often notice my top performing students working away in the STEM Center when I pass through).

Between lab and lecture, plan on devoting 12–15 h/week to studying if you are aiming for an A. The STEM Learning Center is an excellent resource to help you reach that goal

Brief Description of Assignments/Exams

.90% of your grade for each lab includes the pre-lab work, the post-lab work, and the data/calculation and lab notebook submissions.

Pre-lab work is due before the lab period starts, and the completed notebook and post-lab questions are due Thursday with a grace period ending Saturday by midnight. (If you make submissions past the due date you will see a zero until the submission is graded). You can see the dates on the Canvas calendar. Late work may be subject to points penalties. Please reach out to me if you will not be able to be prepared for the lab class on time.

As this course is teaching and assessing your skills with hands-on procedures, **you must be present and engaged to receive points for lab coursework.** If you are unable to attend a regularly scheduled lab due to illness, unavoidable business trip or a major life trauma you must notify me ASAP. Class periods which fall on holidays or during the finals period may necessitate a virtual lab option for those days - but they must still be completed for

credit. One virtual lab is allowed per semester. Lab work for days that you were not in attendance in your regular lab period will not be accepted unless you have proof of attending a different section - a signature and date from the lab instructor of a different section is required. Some sections are at capacity and it is always best to get approval first to be sure.

All other two 2315 labs (that are not at capacity) are available for students to attend if they must miss a lab. However, you must attend the same lab in the same week. The Chemistry 2315 lab schedule for the semester can be found posted on the lab door. Your best option when you know you will miss a lab is to use it to arrange for a make-up of the same lab you are missing. Here is a copy of the 2315 lab schedule sorted by campus and day:

Course	Section	Instructor	Campus	Days	Begin	End	Building	Room
2315	401	Moore, Sarah	Taylorsville Redwood	W	1730	2120	SI	280
2315	402	Eldredge, David	Taylorsville Redwood	T	1300	1650	SI	280
2315	403	Delmain, Natalie	Taylorsville Redwood	M	1300	1650	SI	280

If you find that despite your best efforts, your situation results in too many missing labs due to (for example) illness, job change, deployment, you may consider taking an incomplete in your lab and then attending just the specifically missing labs in the following semester to complete the credit. Email me for more details if this is an option you think you may need to take.

Please, if you are contagious or seriously ill, please do not come to lab! A note from a healthcare worker would also be welcome.

Chemistry 2315Course Student Learning Outcomes mapped to SLCC College-Wide Student Learning Outcomes (CWSLOs):

1. Acquire substantive knowledge
2. Communicate effectively

3. Develop quantitative literacies
4. Think critically and creatively
5. Become a community engaged learner
6. Work in a professional and constructive manner
7. Develop computer and information literacy
8. Develop lifelong wellness

Course Learning Outcomes (linked to CWSLOs):

- Students will demonstrate competence in basic laboratory skills including good laboratory hygiene, laboratory safety, and hazardous waste disposal. (CWSLO 1)
- Students will demonstrate safe handling and manipulation of chemicals and laboratory glassware. (CWSLO 1)
- Students will demonstrate competence in basic laboratory techniques, including distillation, crystallization, and basic synthetic procedures. (CWSLO 1)
- Students will be able to write a formal laboratory report using ACS Style Guide conventions for formatting, units, and references. (CWSLO 2)
- Students will demonstrate competence in reading and applying laboratory instructions. (CWSLO 2)
- Students will record observations of qualitative laboratory results appropriately, including physical and chemical properties, using correct SI units and scientific notation in line with ACS recommendations. (CWSLO 2)
- Students will be able to make chemical measurements using electronic balances, volumetric glassware, thermometers, and burets. (CWSLO 3)
- Students will be able to operate and calibrate fundamental chemical instrumentation such as a pH meter, UV/Vis spectrophotometer, and a melting point apparatus. (CWSLO 3)
- Students will be able to operate advanced chemical instrumentation such as FTIR, NMR, and GC/MS, and correctly record and interpret the data. (CWSLO 3)
- Students will demonstrate competence in reading and understanding data tables, graphs, and charts used to describe phenomena studied in the laboratory. (CWSLO 3)

- Students will report quantitative laboratory results appropriately, including raw data and data analysis, formatted in accordance with ACS Style Guide expectations (units, significant figures, and data tables). (CWSLO 3)
- Students will be able to identify unknown samples based on physical and chemical properties observed in the laboratory. (CWSLO 4)
- Students will be able to identify and correct mistakes made during a laboratory session by analyzing results obtained. (CWSLO 4)
- Students must interact regularly with each other in the lab while working on the experiment together. (CWSLO 6)

Keys for Success (how to succeed in the course)

1. Take your first pre-lab quiz attempt with the procedures handy. See what questions you got wrong, review the procedures, and take your second attempt to master the concepts.
2. Start your one, untimed post-lab quiz attempt during lab so that you can utilize your instructor to clarify any confusing questions.
3. Start your lab report conclusion during lab so that you can clarify any points that need to be addressed with your instructor.
4. Spend time in SI 201, the STEM Learning Center, working with the tutors for FREE help with any assignments that you need direction on.
5. Contact your instructor for clarification and help understanding procedures before coming into lab or submitting an assignment.

Course Student Learning Outcomes

- Prerq: CHEM 1220 w/C grade or better. Recommended coreq: CHEM 2310. Graded laboratory taken concurrently with CHEM 2310.

Grading Scale

Your final grade is based on the following percentages:

- ≥ 93.00% A
- ≥ 90 and < 93 A–
- ≥ 87 and < 90 B+
- ≥ 83 and < 87 B
- ≥ 80 and < 83 B–
- ≥ 77 and < 80 C+
- ≥ 73 and < 77 C
- ≥ 70 and < 73 C–
- ≥ 67 and < 70 D+
- ≥ 63 and < 67 D
- ≥ 60 and < 63 D–
- < 60 E

Academic Integrity

Academic integrity is expected in all coursework. Each student is responsible for doing their own work and demonstrating their own understanding. While you may share ideas, discuss concepts, and compare results with classmates, the work you submit must represent your own knowledge.

- **Do not copy directly** from a lab partner or another student's paper.
- Shared resources such as **photos** may be used, but all students are expected to **contribute equally** and process the information themselves.
- **Writing in your own words** is critical. You must understand and be able to explain what you record in your lab report or worksheet.
- **AI such as ChatGPT** is a great tool, I am not at all opposed to it. **Let it teach you.**...*not cheat you!* (BTW, it sometimes is wrong, very wrong!) Over time, more classes and labs, will likely rely on more paper quizzes to confirm your individual understanding.

I take academic dishonesty very seriously. Cases of cheating, plagiarism, or misrepresentation will be reported to the SLCC Academic Integrity Committee and may also be reported to any other college or university where you are currently enrolled.

Maintaining honesty in your work is part of becoming a professional in the sciences.

Institutional Policies

As members of our academic community, we would like to invite you to review the Institutional Syllabus which covers important policies and procedures. This document contains important links for students on the code of student rights and responsibilities, academic integrity, and grading policies, Title IX and other important acknowledgements. By familiarizing yourself with this information, you can help us create a safe and respectful environment for everyone.

For more information, navigate to the Institutional Policies tab on the Institutional Syllabus page.

Learning Support and Tutoring Services

We are pleased to offer a range of tutoring and learning support services to help you achieve your academic goals. Whether you need assistance with a specific subject or want to improve your study skills, you have many options for tutoring or other support.

To learn more about the services we offer and how to access them, visit the Institutional Syllabus page under the Tutoring and Learning Support tab. We encourage you to take advantage of these resources to help you succeed in your studies. If you have any questions or would like to schedule a tutoring session, please don't hesitate to reach out to us. We are here to support you in any way we can.

Advising and Counseling Support Services

At our institution, we are committed to supporting your academic and personal growth. That's why we offer a range of advising and counseling services to help you navigate the challenges of college life. To learn more about the resources available to you and how to access them, visit the Institutional Syllabus page under the Advising and Counseling

Support Services tab. Our advising team and the support centers across campus are here to support you in achieving your goals and overcoming any obstacles you may face.

Student Academic Calendar

As students you should be aware of all important dates in the semester, such as the day that courses begin and end, as well as the drop date and the last day to withdraw. To learn more about those dates, navigate to the Student Academic Calendar below:

SLCC Student Academic Calendar

Additional Policies

Syllabus

This syllabus represents an agreement between you the student and the instructor. It is designed to ensure course integrity and fairness as well as provide students with a clear understanding of course expectations. The instructor and students are expected to use the syllabus and schedule as a guide for the semester. The syllabus is subject to change with appropriate notice.

Administrative Drops for Non-Attendance

Since this course only meets once per week, attendance at the first class meeting is mandatory. If you do NOT attend the first class meeting without notifying the instructor, you may be dropped from the course immediately after the first class session to enable students on the wait list to register for the course.

Universal Access

SLCC values inclusive learning environments and strives to make all aspects of the College accessible to our students. If you have a disability and believe you need accommodations to improve access to learning materials or the learning environment, please contact the Disability Resource Center: (phone) 801-957-4659; (email) drc@slcc.edu; (website) www.slcc.edu/drc.

Incomplete Grade and Withdraw from Class

A grade of "I" (Incomplete) is the instructor's option and is not given except only in the most extenuating of circumstances for which there is verifiable written documentation. To receive an incomplete, nearly all coursework must have been completed (e.g. ~75%) with a passing grade. It is the responsibility of the student to drop/withdraw from this class, not the instructor.

Academic Dishonesty

Academic dishonesty is absolutely NOT tolerated and includes all forms of cheating and plagiarism as outlined in the CODE OF STUDENT RIGHTS AND RESPONSIBILITIES. Cheating will be dealt with as harshly as allowed by the college on the first instance, which includes receiving a failing grade for the class.

Electronic Devices

Cell Phones are to be turned off during class. Computers can be used for note-taking and course-related purposes ONLY but should not be used during class for working on other tasks (e.g. answer emails, Facebook, other classes etc.). You may be asked to leave if your electronic device disrupts the class in any way.

Emergency Evacuation Procedures

We will leave the building immediately in case of an emergency. School guidelines are as follows: In the event of an emergency at SLCC, you can call 911 if you are in immediate danger.

You can also call the College Health Center at 801-957-4347 (Redwood) or 801-957-3323 (SCC) during their hours of operation. You can call the College Office of Risk Management at 801-957-4533, 801-957-4041, or 801-815-7555.

If you need to evacuate a building, you should:

- Turn off equipment and lights
- Close the door behind you
- Do not take personal belongings
- Leave the building immediately
- Report to your designated assembly area

- Wait for instructions from emergency responders
  You can visit SLCC.edu and @SLCCSafety on Twitter for real-time updates and directions.

You can also call the SLCC Emergency Information line at 801-957-INFO (4636).

How to Navigate to Canvas