

**General Chemistry II LABORATORY
(CHE1053L)
Spring 2023 Syllabus**

COURSE DESCRIPTION

CHE1053L is the laboratory course that accompanies CHE1053, the second-semester general chemistry course at Point Loma Nazarene University. These two courses are separately graded corequisites designed to be taken during the same semester.

CHE1053 (3 units): Study of the basic principles of modern chemistry. Emphasis on chemical kinetics and equilibrium, acid base theory, thermodynamics, solubility, metals, and general descriptive chemistry. Prerequisite: CHE1052. Corequisite: CHE1053L.

CHE1053L (1 unit): An inquiry-based laboratory accompanying CHE1053 featuring one 3.5-hour laboratory each week. Letter graded. Corequisite: CHE1053.

ALL LABS HELD IN SATOR HALL 209			
LAB MEETING DAYS, INSTRUCTORS, and TIMES:			
Monday	Tuesday	Wednesday	Thursday
	Section 2 (Siegmundt) Tue 8:00 – 11:30 am		Section 7 (Siegmundt) Thu 8:00 – 11:30 am
Section 1 (Siegmundt) Mon 2:45 – 6:15 pm	Section 3 (Fleckenstein) Tue 1:30 – 5:00 pm	Section 5 (Martin) Wed 2:45 – 6:15 pm	Section 8 (Stoneburner) Thu 1:30 – 5:00 pm
	Section 4 (Fleckenstein) Tue 6:00 – 9:30 pm	Section 6 (Schumacher) Wed 6:30 – 10:00 pm	
REQUIRED MATERIALS:			
<ol style="list-style-type: none"> Lab Manual (provided documents on Canvas which students must print week by week). Safety Glasses and Lab Coat are available for credit card purchase in class on first day of lab. Total Cost: \$10 (\$5/each) <ol style="list-style-type: none"> ANSI Z87.1 Safety Glasses, \$5. AAMI Level 2 SMS Lab Coat, \$5. <p>You may bring your own coat or goggles if equally protective or better. Goggles (such as the Honeywell Uvex Flex Seal, model S3405X) are strongly recommended over glasses. Please note that prescription eyewear is not sufficient eye protection for chemistry lab.</p> Scientific Calculator: Make sure your calculator has sufficient functionality (e.g., natural log functions and readily accessible scientific notation entries). The TI-30X IIS is a good example of an appropriate scientific calculator. You are not forbidden from using a graphing calculator in lab, but note that graphing or programmable calculators are not permitted in the lecture course. Course Website: http://canvas.pointloma.edu, course: CHE1053L-1 SP23 (The Canvas sections are all put together for logistical simplicity, so the course will be "1053L-1" regardless of your specific section number. Please refer to Workday for your section number.) 			
LAB COORDINATOR:			
Dr. Sam Stoneburner, sstonebu@pointloma.edu , Office: Rohr Science 322 (enter through 330)			

LEARNING OUTCOMES

An understanding of chemistry is a necessary part of an education in the basic and applied sciences, engineering, and medical professions. It also provides insight and increased comprehension regarding current events, public policy, consumer safety, and personal nutrition. Specifically, upon completion of CHE1053 and CHE1053L, students will be able to:

- Demonstrate a foundational knowledge of the general principles of chemistry including the behavior of solutions, the characteristics of equilibrium (including acid/base equilibrium), the significance of free energy, the properties of electrochemistry, and structures of transition metal and their compounds.
- Solve problems related to describing basic chemical kinetics, characterizing reaction equilibrium, predicting the direction of spontaneous change, calculating electrochemical cell potentials, and writing chemical equations for selected chemical reactions.
- Perform basic chemical laboratory techniques related to the topics listed above.

SAFETY

Safety is THE top priority in the lab. You will be required to sign a safety agreement form before you can take part in the lab. The agreement form delineates safety rules set forth by the department. These rules include (but are not limited to) the following:

- Food and drinks are prohibited from entering the laboratory. You may leave them in a designated area outside of the laboratory while in class.
- You must come wearing lab-appropriate clothing, including long pants, closed-toed shoes, and shirts that cover the shoulders, back, and stomach.

If you fail to comply with these or *any* of the rules in the safety agreement, you may be excluded from the lab and will not have the opportunity to make up missed assignments.

STRATEGIES for SUCCESS in CHE1053L

- Come prepared to lab. Lab does not start when you walk through the door; it starts the previous week as you make yourself ready to do the experiment properly and safely.
 - Read the lab manual and envision what you'll be doing in the lab.
 - Write an outline of the procedure and anticipate what data will be collected.
 - Look at the report pages to see what questions or calculations will be needed.
 - Complete any pre-lab questions. Think of them as practice for the report.
 - The PLNU Credit Hour Policy states that 2 hours of preparation per 3 hours of lab time is "normal", meaning almost 2.5 hours per week (besides lab itself) would be reasonable for the CHE1053L lab course.
- Get help when you don't understand something. The instructors and lab assistants are here to help you!
- Pay attention in lab. Know what you're doing, what chemicals you're using, and what positive or negative results you should be observing during the lab procedure.
- Take the lab seriously from the very beginning. Review labs directly after class, and prior to the following week.

GRADING

You are responsible for all the material covered in lab, even if you did not attend. Some experiments will be done individually, but most are best worked in pairs. Your lab instructor and/or lab manual will specify when you work in pairs. In either case, individual lab reports will be submitted at the end of each period unless noted otherwise.

Each lab will have a pre-lab assignment that is required to be turned in at the beginning of lab. These assignments are designed to check each individual student's understanding of the current and previous week's experiments. Pre-lab assignments will not be accepted after the first 10 minutes of class. Showing up after the first 10 minutes of lab or after the safety portion of the prelab lecture (whichever comes first) will cause you to receive a zero for that lab, as will leaving early without having completed ALL of your work (including cleanup).

Late assignments (pre-lab assignments and lab reports) will NOT be accepted.

The following graded items will contribute to your overall grade in CHE1053L:

Lab Reports: 75%

Pre-Lab Assignments: 25%

There is no final exam for CHE1053L.

Lab safety, participation, and post-lab cleanup will be monitored and may affect a student's grade (at the lab coordinator's discretion) if they are at a substandard level, particularly if there are repeated and/or egregious violations. Factors include your preparedness for each experiment as you arrive in lab; your participation in each part of the experiment, whether working individually or with a partner; your attention to lab safety and neatness during lab; and cleanup of your lab space and public lab spaces, as needed. Leaving out equipment or chemicals when you leave the lab for the day are especially effective ways to lower your grade, as is disposing of leftover chemicals or waste in the wrong way.

Letter grades will be assigned according to the following scheme:

A-range	B-range	C-range	D-range	F-range
A: Any grade of 93.0% or above.	B+: 87.0-89.9 % B: 83.0-86.9 %	C+: 77.0-79.9 % C: 73.0-76.9 %	D+: 67.0-69.9 % D: 63.0-66.9 %	F: Any grade below 60.0%
A-: 90.0-92.9 %	B-: 80.0-82.9 %	C-: 70.0-72.9 %	D-: 60.0-62.9 %	

“Extra credit”, “curving”, or “rounding up” of the final grade will generally not be offered and should not be expected or requested. Dropping of lowest scores should not be expected or requested. Grades are ultimately the responsibility of the lab coordinator, and all questions relating to grades should be [directed to them](#).

ATTENDANCE

Regular and punctual attendance at all classes is essential for learning, and lab classes are participation-based. Laboratory sections will meet on a weekly basis unless specified otherwise. (See schedule at the end of the syllabus. Note that the Exp. 1 meeting of Monday sections is moved to the Friday of the previous week and that Exp. 11 is split around Easter Break.) Being late for lab will cause significant issues for students as they will miss any pre-lab lectures which cover safety and procedures in detail. Being more than 10 minutes late for lab (or arriving after the safety portion of the pre-lab lecture) will be counted as an unexcused absence. Coming to lab without having completed the mandatory pre-lab activity will also be counted as an unexcused absence. Leaving lab before completing your work, including cleanup and disposal, will be counted as an unexcused absence.

The [PLNU attendance policy](#) includes several specific points that are relevant for our lab. If the student is absent from more than 10 percent of class meetings (two lab periods), the lab coordinator will notify the student and the Vice Provost for Academic Administration that the student is in attendance jeopardy. If the absences exceed 20 percent (three lab periods) by the last day to drop (March 24), the student may be de-enrolled without notice. If a student has a third absence **after** that deadline, they may receive a W or WF, depending on their work and participation up to that point. **There are no allowed or excused absences except** as approved in writing by the Provost for specific students participating in certain university-sanctioned activities (e.g., a student athlete who cannot attend due to a scheduled game). These are the **only** absences that do not count towards the 20 percent absence threshold.

Lab absences for any reason, including "excused" absences, will result in a "0" grade on the lab report and the associated pre-lab activity **unless** the lab is made up. Lab **absences are not eligible to be made up except** in the following specific circumstances:

- If the absence is due to a Provost-approved, university-sanctioned activity.
- If the absence has an applicable accommodation that has been communicated to the lab coordinator by the Educational Access Center (EAC). (See also the "Academic Accommodations Policy" below for some additional context.)
- If the absence is due to illness or injury.
- For all of the above circumstances, appropriate [notice of the absence must be given to the lab coordinator](#) at least one week in advance of the absence if at all possible.
 - If one week's notice is not possible, notice should be given to the lab coordinator as far in advance as the situation allows.
 - If the student does not communicate with the lab coordinator in an appropriately timely manner, the absence will **not be eligible for a make-up** regardless of the reason for the absence.

For ALL other absences, there is no opportunity to make up the lab.

Make-up policies: For absences eligible for make-ups, the first choice is for the student to attend a different lab section. (In such cases, the prelab is due in-lab in whichever section the student attends.) However, attending another section is possible **only with at least one week's advance notice given to the lab coordinator**. Additionally, the alternative lab section **must** have space for an extra student, and it **must** be on the day that section is scheduled to do the same lab activity as the one for which the student will be absent. Offering make-up lab sessions outside of the scheduled times or offering lab activities outside of their specific scheduled week would impose an undue hardship on the operation of the program, and allowing more than the maximum number of students in a lab at one time creates an unacceptable safety hazard.

In cases where advance notice of at least one week is not possible, but the absence is otherwise eligible to be made up, the student may ask the lab coordinator to provide an alternative assignment. The *student* must request the alternative assignment when notifying the lab coordinator of the reason for their absence. If the student does not request an alternative assignment at that time, the lab will no longer be eligible for make-up and they will receive a “zero” on all activities associated with that lab.

If the lab coordinator agrees to provide the alternative assignment, the student must complete the assignment by a deadline the lab coordinator will set. This deadline will typically be before the student's next lab period, but it may be sooner or later depending on the student's individual circumstances and the time of the semester. The prelab assignment should be completed as usual, but in most cases may be submitted together with the alternative assignment.

No more than one lab throughout the semester may be made up by alternative assignment, regardless of the reason(s) for the absences. A significant part of the purpose of the general chemistry laboratory courses is to develop practical lab skills, and to replace multiple weeks with out-of-lab alternatives would fundamentally alter the academic standards of the course. (The American Chemical Society, our primary professional organization, actively discourages any use of virtual labs in the context of face-to-face courses.)

Students who need multiple short-notice absences throughout the semester will be able to make up the first one by alternative assignment (if eligible), but they will receive "zero" scores for any further such absences. Students anticipating frequent absences due to ongoing health concerns should [discuss their specific situation with the lab coordinator at the beginning of the semester.](#)

No changes, shifts, or swaps in lab schedule will be permitted except in the circumstances described above. Operating general chemistry labs on schedule requires significant logistical investment from a great many people; deviating from that schedule imposes an undue burden on our hardworking staff.

OTHER POLICIES

Technology: The use of portable electronic devices (phones, laptops, iPods, etc.) not related to the course is not permitted during the lab discussion and procedures.

PLNU's course-information website, Canvas (<http://canvas.pointloma.edu>), is used as a repository for course material such as grades and miscellaneous items. **Announcements will be sent out via Canvas. It is your responsibility to check Canvas regularly and to confirm that your correct email address is in the system.** Also, be prepared to interact with your instructor or the Lab Coordinator via your pointloma.edu email address. This means regularly checking your school email.

PLNU academic accommodations policy: PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities. Students with disabilities may request course-related accommodations by contacting the Educational Access Center (EAC), located in the Bond Academic Center (EAC@pointloma.edu or 619-849-2486). Once a student's eligibility for an accommodation has been determined, the EAC will issue an academic accommodation plan ("AP") to all faculty who teach courses in which the student is enrolled each semester.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their AP in that particular course and/or if they do not wish to utilize some or all of the elements of their AP in that course. In this case, that means [speaking with the lab coordinator](#). Students should have this discussion with the lab coordinator even if they were using the same accommodations in the previous semester. Students should be aware that not all accommodations can be applied to the chemistry lab in the same way as in many lecture courses.

Students who need accommodations for a disability should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. It is the student's responsibility to make the first contact with the EAC.

PLNU academic behavior policy: Both faculty and students at Point Loma Nazarene University have the right to expect a safe and ordered environment for learning. Any student behavior that is disruptive or threatening is a serious affront to Point Loma Nazarene University as a learning community. Students who fail to adhere to appropriate academic behavioral standards may be subject to discipline. *In the context of chemistry lab courses, failure to comply with **any one** of the safety rules and policies may qualify as disruptive behavior.* See [Academic Policies](#) for additional definitions of different kinds of disruptive behavior and for further policy information.

PLNU academic honesty policy: Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. Faculty should follow and students may appeal using the procedure in the university Catalog. See [Academic Policies](#) for definitions of kinds of academic dishonesty and for further policy information.

In the context of a lab course, academic honesty does not mean that you have to cite your lab partner on every line on a data table. If you were assigned to work together, and you put your partner's name on the lab report, it is already assumed that you both worked together to gather the data. However, if you were to use data from a different group, you would need to give them credit. Academic honesty *does* mean that you are not thoughtlessly copying your partner's answers for your own lab report. It also means that you should not copy from a lab report that someone turned in for some previous semester, *even if that someone was you.*

Sexual misconduct and discrimination: Point Loma Nazarene University faculty are committed to helping create a safe learning environment for all students. If you (or someone you know) have experienced any form of sexual discrimination or misconduct, including sexual assault, dating or domestic violence, or stalking, know that help and support are available through the Title IX Office at pointloma.edu/Title-IX. Please be aware that under Title IX of the Education Amendments of 1972, **it is required to disclose information about such misconduct** to the Title IX Office.

If you wish to speak to a confidential employee **who does not have this reporting responsibility**, you can contact Counseling Services at counselingservices@pointloma.edu or find a list of campus pastors at pointloma.edu/title-ix

PLNU copyright policy: Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

Spiritual care: PLNU strives to be a place where students grow as whole persons. To this end, we provide resources for our students to encounter God and grow in their Christian faith. If you have questions, a desire to meet with the chaplain, or if you have prayer requests, you can contact the [Office of Student Life and Formation](#).

State authorization: State authorization is a formal determination by a state that Point Loma Nazarene University is approved to conduct activities regulated by that state. In certain states outside California, Point Loma Nazarene University is not authorized to enroll online (distance education) students. If a student moves to another state after admission to the program and/or enrollment in an online course, continuation within the program and/or course will depend on whether Point Loma Nazarene University is authorized to offer distance education courses in that state. It is the student's responsibility to notify the institution of any change in his or her physical location. Refer to the map on [State Authorization](#) to view which states allow online (distance education) outside of California.

PLNU Mission: To Teach ~ To Shape ~ To Send.

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service becomes an expression of faith. Being of Wesleyan heritage, we aspire to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.



xkcd.com/683/

SCHEDULE for CHEMISTRY 1053L

The schedule may change during the semester. Watch Canvas for updates.

DATES	LABORATORY
Jan. 9-13	Monday lab students will meet on Friday, Jan. 13th, during their regularly scheduled lab times due to the following Monday being MLK day.
Jan. 16-20*	Check-in Exp. 1 – Freezing Point Depression *No lab meetings on MLK Day. Monday lab students will meet on the preceding Friday (Jan. 13th) during their regularly scheduled lab times.
Jan. 23-27	Exp. 2 – Kinetics: Reaction Rates
Jan. 30 – Feb. 3	Exp. 3 – Kinetics: Arrhenius
Feb. 6-10	Exp. 4 – Solution Equilibrium
Feb. 13-17	Exp. 5 – Le Châtelier’s Principle
Feb. 20-24	Exp. 6 – Alkaline Water
Feb. 27 – Mar. 3	Exp. 7 – K_a of a Weak Acid
Mar. 6-10	Spring Break - No Lab
Mar. 13-17	Exp. 8 – K_{sp} of Calcium Iodate
Mar. 20-24	Exp. 9 – Qualitative Analysis (part 1)
Mar. 27-31	Exp. 10 – Indirect Calorimetry
Apr. 3,4 and Apr. 12,13*	Exp. 11 – Electrochemistry (M and T sections before Easter Break, W and R sections after Easter Break. No lab Apr. 5 – Apr. 11.)
Apr. 17-21	Exp. 12 – Ligand Field Theory
Apr. 24-28	Exp. 13 – Qualitative Analysis (part 2) Check-out