



Chemistry 112, General Chemistry Laboratory B

Spring 2020 Syllabus

The following syllabus applies to *all* of the lab sections: Chem 112-001 to 112-014.
Lab Location: Flanner Hall 305

Students can only attend the section in which they are enrolled in LOCUS. Be mindful of day/time and location.

Pre/Co-requisite: Chem 111, Chem 102

Prerequisite: Math Placement Test or Math 117

Laboratory Coordinator: Dr. Katrina Binaku

Office Hours: Tuesdays 11-12pm, Wednesdays 1:15-2:15pm, and by a scheduled appointment

Office Hours Location: STEM Resource Center

Office Location: 104 Flanner Hall

Office Phone: 773-508-8715

Email: kbinaku@luc.edu

Put Chem 112, your section #, and your TA's name in the subject line of all emails

Laboratory Coordinator: Dr. Andrew Basner

Office Hours: Thursdays 1-3pm, and by a scheduled appointment

Office Hours Location: STEM Resource Center

Office Location: 428 Flanner Hall

Office Phone: 773-508-3135

Email: abasner@luc.edu

Put Chem 112, your section #, and your TA's name in the subject line of all emails

Laboratory Coordinator: Dr. Corey Lin

Office Hours: Mondays & Fridays 11:30am-1:00pm, and by a scheduled appointment

Office Hours Location: STEM Resource Center

Office Location: 104 Flanner Hall

Office Phone: 773-508-2598

Email: ylin21@luc.edu

Put Chem 112, your section #, and your TA's name in the subject line of all emails

Teaching Assistants (TAs) will be working with all of the Laboratory Coordinators during this course. Specific TAs and TA information will be listed in the Syllabus tab in Sakai. Primary Lab Coordinator information for your section and a copy of this syllabus is also located in the Syllabus tab of Sakai. Check Loyola email often for Announcements and log-in to Sakai frequently.

The Laboratory Coordinators reserve the right to revise this syllabus in order to correct any unintentional mistakes found at any point of the semester. Students will be notified if any changes have been made.

Welcome to Chem 112. We are looking forward to working with you this semester. Read the entire syllabus to understand the expectations of this course.

- All aspects of lab work must be done in the Composition notebook only. (No loose-leaf paper or other notebooks). TA will evaluate/grade the lab notebook over the course of the semester. If there are any discrepancies in recorded grades, proof of having earned a specific grade on a particular lab is the presence of that graded work in the lab notebook.
- Each student is alphabetically assigned a drawer with glassware and equipment. At the beginning of the semester & semester's end, the drawer contents will be checked for completeness. The drawer is shared with other students over the course of a week. Therefore, it is essential that you clean the equipment used after an experiment is done. Drawers may be checked sporadically. If glassware is broken, the student is responsible for requesting a replacement item; there is no penalty for broken glassware.
- A lab practical (qual unknown) covering basic skills and comprehension will be given. In part, a lab practical requires a student to demonstrate knowledge/skills by performing tasks in the lab. In this way, a student's ability to use equipment properly and demonstrate correct technique is evaluated based on experiment results of the practical. This practical may also cover basic understanding of the fundamental models of chemistry illustrated in the lab experiments. **You may use your own lab materials: lab notebook, lab manual, syllabus, and pre-lab lectures from Chem 112 on the practical.**
- Homework and lab reports can never be submitted via email. No exceptions.
- Sakai work cannot be made up. There are no exceptions to this rule.
- Any grading discrepancies in Sakai must be brought to the attention of the Primary Lab Coordinator and/or TA no later than 1-week after the graded work is returned. Any lab notebook grading discrepancies must be brought to the attention in lab to the Primary Lab Coordinator the day the graded work is handed back to you. Once a graded lab notebook leaves the lab, the grade is final.
- Safety and Clean-up points are earned on the basis of safe/professional conduct in the lab. A safe lab environment is essential. Any unsafe actions will definitely result in grade degradation. The following is a partial list of ways you can lose safety/clean-up points:
 - Coming late to class, after the pre-lab lecture has started will result in deduction of safety points.
 - Not dressing appropriately for lab. Proper footwear/clothing are required.
 - Not bringing goggles to lab/not wearing your goggles consistently in lab can result in expulsion from the lab. Safety glasses do not meet our safety requirements.
 - Not bringing a lab coat to lab. Not wearing the lab coat properly [buttoned] during lab.
 - Not keeping your equipment drawer or lab space in good condition (i.e. dirty glassware/bench).
 - Leaving your equipment drawer unlocked after lab.
 - Chewing gum, attempting to eat or drink in the laboratory room.
 - Not adhering to Disposal Instructions indicated in each lab handout/pre-lab lecture.
 - The Labquest2 equipment is breakable and requires special care. You/your partner will be assigned a box to use, and if the equipment is found to have been handled negligently, points will be deducted for both of you from both your safety points and your lab score.

An action, even if not herein, deemed unsafe by TA or Lab Coordinator will result in safety point deductions.

Failure to adhere to lab safety rules can result in expulsion from the lab session and/or course with no opportunity for make-up of the work. Safety must be taken very seriously.

STRUCTURE OF THE COURSE

Laboratory work in second semester general chemistry lab is divided into two parts: Qualitative Analysis (Qual I, Qual III, Qual IV, and Qual General Unknown) and Quantitative Analysis (Labs #5-8). Written work must be completed in pen (1-point deduction per week if in pencil) for the entirety of the semester. The Qual General Unknown (practical) is open-note, open book exam, and is completed as an individual. The Qual General Unknown lab report is to be completed as an individual; same rules apply for the Lab #7 HBB lab report.

Part I) For Qualitative Analysis (Qual I, III, IV), students will use a Composition lab notebook & write a formal lab report for the Qual General Unknown. Notebooks are graded (2-point deduction each week when a proper notebook is not brought to class). Worksheets covering important net ionic equations (NIES) are also a part of

Absences during Qualitative Analysis (Qual I, III, IV, and General Unknown) portion of the course:

If you miss one of the qualitative analysis labs, it is your responsibility to watch the Panopto to understand the wet chemistry missed and data collection missed. Also talk to other students. The Qual General Unknown is the midterm exam and is based on Qual I, III, and IV so it is in the student's best interest not to be absent. No makeup work is offered. Absence results in a zero (0). **Normal deadlines will apply for completing homework and pre-lab quizzes.** If you miss more than one of the qualitative analysis labs, you will be reported to the Dean's Office and will be responsible for learning the knowledge on your own time to prepare for the Qual General Unknown and attempt to pass the practical exam.

Absences during Quantitative Labs #5-8 portion of the course:

If you miss one of the quantitative experiments, contact your Primary Lab Coordinator immediately. Per policy, you get a zero (0) for the experimental work as these experiments cannot be made up. But, request sample data for the lab missed as it is similar data to what you would have seen in lab; it will help you understand the concepts of the experiment and understand any post-lab homework. Sample data is not worth any points whatsoever). **Normal deadlines will apply for completing homework, etc.**

If you are absent on a day that the lab notebook is due, it is your [the student] responsibility to coordinate with the Lab Coordinator to turn in the notebook within 48-hours of the start time of the lab date missed.

COURSE REPEAT RULE

Effective as of the Fall 2017 semester, students are allowed only THREE attempts to pass Chemistry courses with a C- or better grade. The three attempts include withdrawals (W). After the second attempt, the student must secure approval for a third attempt. Students must come to the Chemistry Department, fill out a permission to register form or print it from the Department of Chemistry & Biochemistry website:

<https://luc.edu/chemistry/forms/> and personally meet and obtain a signature from either the Undergraduate Program Director, Assistant Chairperson, or Chairperson in Chemistry. A copy of this form is then taken to your Academic Advisor in Sullivan to secure final permission for the attempt.

ROLE OF TEACHING ASSISTANTS

Teaching Assistants (TAs) are an important part of the program, as they provide an additional resource of individual assistance you receive in lab in addition to the Primary Lab Coordinator. In each lab session, your primary interaction could be with a Teaching Assistant. The function of a TA is to help you get good data in a safe fashion, and to provide individual help on each lab when necessary. TAs are given the same grading rubric, mentoring, and management and are meant to help guide you during lab. TAs and Lab Coordinators "CC" each other on all emails sent to/from students; we always know what has been told to a student and when students have emailed a TA or Coordinator. You will get the same assistance from a TA and Coordinator. However, TAs will NOT simply feed answers and they will not do your work for you. The Laboratory Coordinator role is more behind the scenes: plan the curriculum, prepare handouts and PowerPoints, and train the TAs so the lab experience is educational, fair, and effectively run for students enrolled in all sections. Please know that the Laboratory Coordinator will be in lab too but may step outside of the lab from time to time to handle appropriate curriculum work. The Laboratory Coordinator is available to you during and outside of the laboratory hours if there are any questions or concerns that the TAs cannot handle appropriately. The Laboratory Coordinator has final authority in all matters relating to the course [the TA does not]. Each TA will keep office hours, posted in Sakai. Utilize both your Primary Lab Coordinator and your TA if you need help.

If at any point during, you want to talk to a Laboratory Coordinator regarding your TA, please do. A TA should enhance your educational experience, not detract from it. If this is not the case, the Coordinator needs to know.

Point Breakdown:

Activity	Origin	Points
Lab 1a: Qual I Date/Title/Intro	Lab notebook	5
Lab 1b: Qual I Results in Notebook and a NIE Worksheet in lab	Lab notebook & worksheet	10
Lab 1c: Qual I Disc./Conclusion	Lab notebook	5
Lab 1d: Clean-up/Safety during and after the lab experiment	During/in lab	3
Lab 1e: Post lab homework in Sakai	Sakai	15
Lab 2a: Qual III Date/Title/Intro	Lab notebook	5
Lab 2b: Qual III Results in Notebook and a NIE Worksheet in lab	Lab notebook & worksheet	10
Lab 2c: Qual III Disc./Conclusion	Lab notebook	5
Lab 2d: Clean-up/Safety during and after the lab experiment	During/in lab	3
Lab 2e: Post lab homework in Sakai	Sakai	15
Lab 3a: Qual IV Date/Title/Intro	Lab notebook	5
Lab 3b: Qual IV Results in Notebook and a NIE Worksheet in lab	Lab notebook & worksheet	10
Lab 3c: Qual IV Disc./Conclusion	Lab notebook	5
Lab 3d: Clean-up/Safety during and after the lab experiment	During/in lab	3
Lab 3e: Post lab homework in Sakai	Sakai	15
Lab 4a: Qual General Unknown Date/Title/Intro	Lab notebook	5
Lab 4b: Qual General Unknown Results	Lab notebook	10
Lab 4c: Qual General Unknown Disc./Conclusion	Lab notebook	5
Lab 4d: Clean-up/Safety during and after the lab experiment	During/in lab	3
Lab 4e: Qual General Unknown Flowchart Test Worksheet	In lab practical exam	20
Lab 4f: Lab Report for Qual General Unknown	Typed lab report	40
Lab 5a: Kinetics Iodination of Acetone lab worksheet (no notebook)	In lab worksheet	20
Lab 5b: Clean-up/Safety during and after the lab experiment	During/in lab	3
Lab 5c: Post lab homework in Sakai	Sakai	15
Lab 6a: Kinetics Crystal Violet Date/Title/Intro	Lab notebook	5
Lab 6b: Kinetics Crystal Violet Results	Lab notebook	10
Lab 6c: Kinetics Crystal Violet Disc./Conclusion	Lab notebook	5
Lab 6d: Clean-up/Safety during and after the lab experiment	During/in lab	3
Lab 6e: Post lab homework in Sakai	Sakai	15
Lab 7a: Bromothymol Blue (HBB) Date/Title/Intro	Lab notebook	5
Lab 7b: Bromothymol Blue (HBB) Results	Lab notebook	10
Lab 7c: Bromothymol Blue (HBB) Disc/Conclusion	Lab notebook	5
Lab 7d: Clean-up/Safety during and after the lab experiment	During/in lab	3
Lab 7e: Post lab homework in Sakai	Sakai	15
Lab 7f: Lab Report for HBB	Typed lab report	40
Lab 8a: pKa of Nicotinic Acid Date/Title/Intro	Lab notebook	5
Lab 8b: pKa of Nicotinic Acid Results	Lab notebook	10
Lab 8c: pKa of Nicotinic Acid Disc/Conclusion	Lab notebook	5
Lab 8d: Clean-up/Safety during and after the lab experiment	During/in lab	3
Lab 8e: Post lab homework in Sakai	Sakai	15
Lab 9: 5-point EXTRA CREDIT lab experiment (optional)	In lab only! Attendance req.	N/A
Weekly Sign In sheet (being on time, having PPE)	lab	18
z Check out, Last Day	lab	5
Total Overall Points		412
Final Course Points (after 1 dropped lab exp. grade, 23pts)		389

choice of internet usage, including having too many tabs open at once, and your work is not submitted or it is submitted in error, there is no remedy. All Sakai homework is 1 attempt; there is no exception to the rule.

ACADEMIC INTEGRITY

The standard of academic integrity and personal honesty delineated in the College of Arts & Sciences Statement on Academic Integrity is expected of every student and will be enforced. Details can be found at http://www.luc.edu/cas/faculty_resources.shtml Cheating can take many forms in lab, but the most common forms are copying data/answers to analysis questions, sharing homework or report files, or completing Sakai work with another person. Data and analysis as well as the homework submitted for grading must be your own. If it is not, no credit is awarded for the entire lab & make-ups are not granted. The same policy applies to the lab notebook and typed lab reports. Findings of academic dishonesty are reported to the Chair of the Chemistry Department and to the Dean's Office and are entered into an individual's record. Copied answers on datasheets, Sakai work, lab reports, or other course work items will result in penalty for all students involved.

DISABILITY ACCOMMODATIONS

If a student has a documented disability and wishes to discuss academic accommodations, see your primary Laboratory Coordinator by the second meeting of lab and/or as soon as accommodations are finalized. The Coordinator of Student Accessibility Center (SAC), formerly referred to as SSWD, is located in the Sullivan Center and must be contacted independently by you for accommodations. It is the student's responsibility to give the Lab Coordinator all necessary paperwork that SAC provides for accommodations to be given.

Necessary accommodations will be made for students with disabilities who procure a SAC letter. However, to receive any accommodations self-disclosure, proper documentation, and registration with the SAC office at Loyola University Chicago is required. Accommodations cannot be made until the Laboratory Coordinator receives proper documentation. Furthermore, accommodations are not retro-active and begin only once appropriate documentation has been received by the Laboratory Coordinator in a timely manner. Recognize that the course time scheduled in LOCUS is fixed. No extra time on wet chemistry [experiments and the practical exam] is given to a student with a SAC letter; it is not possible. The SAC office has been made aware of this.

Only those accommodations that are specifically listed in the formal SAC letter will be provided. If an accommodation letter suggests the Testing Center be utilized to take an exam, it is the student's responsibility to schedule the testing time in the center. The student also must arrange with the Laboratory Coordinator the in lab practical portion of an exam, which cannot be done in the Testing Center. SAC Policies and Procedures can be found here: <https://www.luc.edu/sac/>

SMART EVALS

Feedback on the course is important so that a Lab Coordinator can gain insight into how to improve the course, the teaching style, and so the department can learn how best to shape the curriculum for future semesters. Towards the end of the semester, students will receive an email from the Office of Institutional Effectiveness with a reminder to provide feedback on the Chem 112 course the student is enrolled in. This office will send you constant reminders during the open period of feedback until the evaluation has been completed. The evaluation is completely anonymous. When the results are released, no one will be able to tell which student provided the individual feedback. The feedback is not released until after the semester is over, therefore any feedback given will not impact student grades.

12. Not to engage in horseplay or any clowning around that may endanger you or other students.
13. Not to eat, drink, chew gum, or smoke anything in the laboratory at any time. No headsets, cell phones, or any other audio devices.
14. Cell phones cannot be used as calculators.
15. To pull long hair back, keeping it away from chemicals and open flame.
16. To keep your lab space clean and tidy. This includes locking your lab locker when done.
17. To ask your Instructor or TA when in doubt about procedures.
18. Inform your Instructor of any health condition you have that might affect your performance or safety in the laboratory.

Preventing an accident or injury from occur is the ideal case scenario, which is why proactively being safe in the laboratory is desired. We live in the real-world and therefore have to be reactive in case of a lab incident. The information provided on the following page are some basic reactive procedures to difference scenarios that have occurred in the laboratory. If you have any questions regarding the content of this syllabus, including the safety information provided, you are encouraged to discuss all questions/concerns with the Coordinator.

Although not a requirement, it can be very helpful if a Laboratory Coordinator knows if a student has a condition that could possibly render an unsafe lab situation (allergies to latex, heart condition, seizure risk, etc.). Do feel free to discuss any concerns you may have regarding health conditions and laboratory work.

FIRST AID BASICS

Minor Cuts: Clean the wound, remove foreign material. Band-Aids are available. (Two Band-Aid rule: If you bleed through one Band-Aid, another should be applied over the first Band-Aid. If you bleed through two Band-Aids in a few minutes, you will be escorted to Health Services). Additionally, if there is any possibility of broken glass in a cut, you will be escorted to the Wellness Center.

Minor Burns from Fire: Immerse affected area in ice water.

Chemicals in Eyes: Immediately flush eyes with water at the eye wash. Continue with flush for at least 10 minutes. Hold the affected eye(s) open to do this properly.

Chemicals on Skin: Rinse affected area with water immediately at the sink or safety shower. If clothing is affected, remove clothes before rinsing! Continue to rinse for at least 10 minutes.

Critical Injuries include: glass in his/her eye(s), serious cuts, severe chemical burns, severe fire burns, seizures. **Immediately call for help using either the lab phone (security number is taped to phone handle) or the emergency phone in the hallway directly outside the laboratory.** Anyone with chemicals or foreign objects in his/her eye(s) will be escorted to the Wellness Center or to the hospital.

FIRE HAZARDS

The primary heat source in this laboratory is the Bunsen burner, which is fueled by natural gas. A lit Bunsen burner is a small, controllable fire, but the heat generated by the burner fire can be quite hazardous in certain circumstances. It can serve as an ignition source for other combustible materials in the lab, such as paper (lab handouts, paper towels, filter paper, etc.), plastics (wash bottle), flammable liquids (acetone, ethanol). A burner fire can also ignite clothing and hair. Proper operation of a burner and the absence of combustible materials in the proximity of the burner will significantly reduce the risk of a fire.

Keep chords and paper products away from laboratory hotplates. Always make sure hot plates are off & unplugged before leaving the lab. Avoid spilling chemicals on hot plates.

Labs are equipped with several fire extinguishers, safety showers, and a fire blanket. Use in a fire emergency.

**Tentative Semester Schedule of Chem 112 Laboratory
Spring 2020**

Month	Mon	Tue	Wed	Thu	Fri
Jan 2020	13 Intro/Safety	14 Intro/Safety	15 Intro/Safety	16 Intro/Safety	17 Intro/Safety
	20 MLK DAY No Lab	21 Qual 1	22 Qual 1	23 Qual 1	24 Qual 1
	27 Qual 1	28 Qual 3	29 Qual 3	30 Qual 3	31 Qual 3
Feb 2020	3 Qual 3	4 Qual 4	5 Qual 4	6 Qual 4	7 Qual 4
	10 Qual 4	11 Qual Unknown	12 Qual Unknown	13 Qual Unknown	14 Qual Unknown
	17 Qual Unknown	18 Lab 5	19 Lab 5	20 Lab 5	21 Lab 5
	24 Lab 5	25 No Lab	26 No Lab	27 No Lab	28 No Lab
Mar 2020	2 Spring Break No Lab	3 Spring Break No Lab	4 Spring Break No Lab	5 Spring Break No Lab	6 Spring Break No Lab
	9 Lab 6	10 Lab 6	11 Lab 6	12 Lab 6	13 Lab 6
	16 Lab 7	17 Lab 7	18 Lab 7	19 Lab 7	20 Lab 7
	23 Lab 8	24 Lab 8	25 Lab 8	26 Lab 8	27 Lab 8
	30 Report Day	31 Report Day	1 Report Day	2 Report Day	3 Report Day
Apr 2020	6 EC Lab	7 EC Lab	8 EC Lab	9 Easter Break No Lab	10 Easter Break No Lab
	13 Easter Break No Lab	14 No Lab	15 No Lab	16 EC Lab	17 EC Lab
	20 Check Out	21 Check Out	22 Check Out	23 Check Out	24 Check Out

There is no final exam in Chem 112. Checkout week is the last week of class attendance.