

# Chemistry 053 Syllabus

## University of Pennsylvania

### General Chemistry Lab I

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**Please reference the linked FAQs document below to answer all of your questions about our remote learning class:**

### **FAQs: Remote Learning**

**Description:** This is a 0.5 cu first semester general chemistry laboratory course. This course includes one hour of lecture and 3 hours of lab each week. Students will be introduced to modern laboratory techniques and participate in experimental activities that promote the development of basic and advanced science process skills. This course focuses on understanding and analyzing substances and reactions and investigating chemical interactions. We will cover aspects of qualitative and quantitative analysis, determination of chemical and physical properties, and chemical synthesis.

#### **Objectives:**

- Develop familiarity with common laboratory instruments, glassware, etc.
- Use computer-interfaced laboratory equipment for data collection.
- Develop proficiency in the analysis of data using *LoggerPro* and other software.
- Apply some of the principles and phenomena encountered in CHEM 101.
- Use laboratory notebooks to record all data and observations during your lab session.
- Produce clear, concise, and accurate laboratory assignments.
- Work with others to develop, modify, and/or carry out experimental procedures.
- Make connections between chemistry and real-world problems or applications.
- Develop and practice safe laboratory habits.

**Course structure:** This course consists of a dozen or so laboratory sessions. These will incorporate approximately 8 different experiments and exercises and a practical exam. There will also be one written exam. The experiment list and dates are found in the [schedule](#) for the semester.

*Each experiment will require you, the student, to:*

- read the experiment and other required background material,
- submit in-lecture assignments (if applicable),
- attend lab and perform the experiment,
- evaluate the data and observations made during lab,
- complete and submit in-lab assignments, and
- complete a post-lab assignment (if applicable).

## General Policies:

- I want you to succeed in this course, and I am here to help! I urge you to come visit my office as often as possible. The laboratory TAs, laboratory staff, and I work together to make your experience in chemistry lab interesting, educational, safe, and fun.
- Your TA should be your first resource when a question arises, and as such, questions in lab or email should first be addressed to them. The Head TAs and I are also available to offer help, and will often be walking around during the lab sessions. Please don't hesitate to ask questions in lab or through email (please include your TAs name in any emails.)
- *Visiting my office is the BEST way to contact me.* Because of large enrollments, the number of daily emails can get quite overwhelming. Send questions to your TA first. When sending an email to me, please include your name and section number in the subject line, and please allow at least 48 hours for a response.
- Please be on time to lecture and lab. Late arrival, especially to your lab session, will be noted and actions will be taken if it is a continuing problem. **NO ONE will be permitted to begin lab more than 15 minutes after the start of the lab time.**
- **All assignments are due at the date and time shown on Canvas.** Electronic submission is required; submission should be made through Canvas or LabArchives and Turnitin. Late assignments are penalized 10% per weekday and/or weekend.

## A note on plagiarism:

**As a reminder, all work submitted should be your own. This means that you are typing your own answers, observations, measurements, etc. into your own document that only you then submit to lab archives or canvas.**

We encourage you to work together, but everyone should download and type in their own in-lab, in-lecture and other assignments. Under no circumstances should you be sharing documents or files that more than one person submits.

According to the office of student conduct, "**Plagiarism:** using the ideas, data, or language of another without specific or proper acknowledgment. *Example:* copying another person's paper, article, or computer work and submitting it for an assignment, cloning someone else's ideas without attribution, failing to use quotation marks where appropriate, etc."

If you are submitting something that someone else typed without acknowledgement, that is plagiarism. The consequences of submitting plagiarized work will vary based on the offense. At a minimum, it will include a loss of points with the potential for referral to the office of student conduct.

Please don't hesitate to contact me with any questions you may have.

**Questions/Problems/Etc:** Please don't wait until a problem seems insurmountable to talk to someone about it! We are here to help you. You can talk to us during lab, you can send an email, or you can make an appointment to meet outside of lab. If you have more serious problems, Penn has many resources to help you.

**Safety:** Everyone is responsible for safe practices in the laboratory. Most of the main points are below, but you should never hesitate to ask a question of your TA, lab staff, or Dr. Maeyer. Every student must digitally sign the safety agreement during drawer check-in (you will need a PennKey and the name of your TA):

<https://www.chem.upenn.edu/content/general-chemistry-laboratory-student-safety-agreement>

## **1. Lab Attire**

- No open-toed shoes are permitted in any labs. Shoes must cover the entire foot.
- Clothing that completely covers the legs and ankles must be worn at all times, including long pants and socks. No shorts, *capris*, *leggings*, or *tights* are permitted in any labs.
- *Shirts with sleeves* are required. Tops such as tank tops or clothing with exposed shoulders or backs are not permitted.
- Arriving to lab in inappropriate attire will result in a loss of points. You will not be permitted to begin the experiment until the appropriate clothing is worn.

## **2. Personal Protective Equipment (PPE)**

- *Safety glasses* and an *apron* are provided for each student.
- Safety glasses are to be worn AT ALL TIMES while in the lab room, whether or not experiments are currently being performed. This includes during pre-lab presentations and when typing up or organizing data after experimental work. If you are in the lab room, you are to have safety glasses on.
- An apron or other approved lab coat must be worn while performing experimental work.
- TAs and/or lab handouts will instruct students during the experiment about specialized PPE, including the use of gloves.
- Violations of PPE requirements are taken seriously. A verbal reminder will be issued on the first violation. All other violations will result in a loss of points on the experiment and potentially removal from the lab.

## **3. Electronics and Personal Items**

- Only items needed for lab are permitted in the lab room. All other belongings (bags, coats, etc) should be left in the day-use lockers provided in the hallway.
- Students should bring a combination or key lock for the day use lockers. A limited number of locks are available for rent at the dispensing window if a lock is forgotten.
- Cell phones are NOT permitted in the lab. Cell phones are easily contaminated and as such are to be left outside of the lab in lockers provided for day use.
- Students will need to bring a laptop or tablet to access the lab documents. Stands are provided and should be used to raise approved electronics off of the lab bench. No gloves are to be used while typing on electronics, and any suspected chemical contamination should be brought to the attention of the lab manager or instructor immediately.

## **4. Behavior**

- No food or drink is permitted in the lab.
- Disruptive or destructive behavior will not be tolerated.

## **5. Emergencies & Incident Reporting**

- Inform TA or instructor immediately of any injury or exposure. In the case of chemical contact, cut, or puncture, flush the affected area for 15 minutes with soap and water. If splashed in eyes, use emergency eyewash. Hold both eyes open and flush for 15 minutes.
- Students must immediately inform a TA or the Lab Instructor of any emergency.
- Students must follow the emergency response procedures stated in the Emergency Response instructions poster, which is posted in the lab.

## 6. Waste Disposal

- Only water down the drain. All other chemicals and materials should be disposed of properly. When in doubt, ask.
- There are cardboard boxes for all broken glass waste. Only chemical-free clean glass can be placed in these boxes.
- Waste areas for liquid and solid chemical waste are in each lab room. Please refer to the label on the container and instructions in the lab handout for details. Specific waste disposal instructions are included in each experimental procedure.

### Required Course Material:

- **Lab Notebook:** We will be electronic lab notebooks (ELNs) to record data and complete assignments. You will sign up through canvas for an account with Lab Archives.
- **Chemistry Text Book:** Since this course is intended to be taken along with a general chemistry lecture (CHEM 101 or 001), frequent references are made and readings are required from the lecture text *Chemical Principles* by Zumdahl. Other chemistry texts may be used with prior permission from the instructor.
- **Lab Handouts:** There is not a printed manual for this course. All course material and other handouts will be posted in your ELN.

**Absences and Make-up Labs:** Because this is a hands-on laboratory course, attendance is mandatory. Every effort should be made to attend your regularly scheduled lab section. If you need to miss a lab period, **email your TA before you miss the lab.** In the email, make sure to indicate when you plan to make it up. **Make up labs are offered Monday evenings at 6 pm and Thursday at 6 pm.** Please see your TA with questions. REMEMBER, ALL EMAILS REGARDING MISSED LABS & MAKE-UPS SHOULD BE SENT TO YOUR TA and the MAKE-UP TA.

- For additional details and to schedule a make-up lab, [see the make-up lab document here.](#)
- Regardless of the reason, no one will be allowed to attend more than two make-up labs. You should plan to attend your registered section on a regular basis.
- NOTE: You may be excused from a lab session, but you are not excused from the work. Any labs missed will need to be made up to receive credit.

### Group Work:

Being able to work with others is an important process skill, and a laboratory environment is a great place to perform group work, and you will be working in pairs or as a group throughout the semester. It would be helpful in lab lecture to sit with your other group members whenever possible, since some of the time will be dedicated to discussing group data. By nature, working with others has its ups and downs, however, if you are having a particularly difficult time, please see me as soon as possible, either during office hours or by appointment.

**Assessment:** The course is graded out of 1000 points. Details are included below.

**NOTE: UPDATED GRADE INFO FOR REMOTE LEARNING WILL BE POSTED ON CANVAS. I have left information regarding grading from a typical semester in the syllabus, but please recognize that the remote version of the course will have some variations (especially to the written and practical exams). All changes will be posted to canvas announcements.**

- **Reports, Surveys, & Participation:** Experimental work is a central component of this course. A **written summary** will be due for most experiments and skill building exercises. Details regarding the format (lecture, lab, and post-lab assignments) will be discussed in lecture and posted on Canvas. Links will be open on Canvas for online submission. There are points allotted to each week of lab (graded within the lab assignments) that are reserved for participation, safety, and attendance. You will lose points each week if you are late or have safety violations (clothes, safety glasses, etc). There will be 2 surveys posted to canvas at the end of the semester, a TA evaluation and course evaluation. These are different from the ones for the university. They are mandatory. All assignments in this category total 650 points of your grade.
- **Written Exam:** There will be one **written exam** given at the end of the semester outside of class time. For Spring and Fall, this will be the last Thursday of regular classes at 6 pm. Please see the schedule for the specific date and room assignments. It will mostly consist of short answer and fill-in questions that cover all experiments and materials presented in the class. If you have a schedule conflict with the written exam, please complete [this form](#) at least a week before the exam. You **MUST** have a schedule conflict, our written exam should take priority over meetings, review sessions, etc. so please adjust your schedule accordingly. The exam is 2 hours and will be 200 points of your final grade.
- **Practical Exam:** There will be one **practical exam** in lab during the semester. There are 4-6 mini-experiments posted online, and your exam will consist of a random pair of them. These are representative of things that we cover during the regular experiments. The practical is 75 minutes and will be 150 points of your final grade.

Final grades will be based on the following weighting scheme:

Grade	Total Points	Grade	Total Points
A	930-1000	C+	770-800
A-	900-930	C	730-770
B+	870-900	C-	680-730
B	830-870	D	580-680
B-	800-830	F	<580

Please also note that adjustments will be made to the Reports, Surveys, & Participation total grade in order to normalize for TA grading. The average in this category is generally around a 92%. Once the exams are factored in, the average final grade in this course is generally around a high B/low B+ (not graded on a curve).

The official regrading policy can be found [here](#). Regrades for exams are submitted in person during the exam viewing. Regrades for reports are submitted through the online form up to one week after the graded assignment was returned. Before submitting a regrade for your lecture, lab, or summary assignments, you should first schedule a meeting with your TA. Regrades may only be submitted after this meeting if a problem still exists.

**Mental Health Resources:** The Chemistry Department is here to support you! Here at Penn Chemistry, we care about the holistic well-being of our undergraduates. While focusing on academics, it is important to attend to your physical and mental health as well. Anxiety and depression are all too common in high-stress environments. If you are concerned about yourself or a friend, please reach out to either the Chemistry Undergraduate Office or the Undergraduate Biochemistry Program (see below) who will direct you to the appropriate resources. If you, or

anyone you know, is in need of mental health care, please refer to the following campus resources: (1) Counseling and Psychological Services, [CAPS 215-898-7021](tel:215-898-7021) (off hours and weekends 215-349-5490); (2) Department of Public Safety 215-898-7333, or 511 if imminent danger to themselves or others; (3) Finding Programs for Student Wellness through the [VPUL](http://vpul.upenn.edu); and (4) [Student Health Services](#).

**Inclusion and Diversity:** At Penn Chemistry, we value the backgrounds and identities of all students (including but not limited to country of origin, race, class, religion, ethnicity, gender, sexual orientation and identity, and disability status), and are committed to providing an inclusive climate across the Department. If there are elements of your experiences, culture or identity that you would like to share with me as they relate to your success in this class, I am happy to meet to discuss. Likewise, if you have any concerns in this area or are facing any special issues or challenges, you are encouraged to discuss the matter with me (set up a meeting by email) with an assurance of full confidentiality, or with the Chemistry Undergraduate Office or the Undergraduate Biochemistry Program Office (see below).

**Formal and Informal Accommodations:** The Chemistry Department at Penn is committed to assisting students requiring special accommodations for circumstances that are registered with the Office of Student Disability Services (SDS; <https://www.vpul.upenn.edu/lrc/sds/>). The University of Pennsylvania provides reasonable accommodations to students with disabilities who have self-identified and been approved by the Office of [Student Disabilities Services](#) (SDS). Students need to make arrangements with SDS. If you have not yet contacted SDS and would like to request accommodations or have questions, you can make an appointment by calling SDS at 215-573-9235. The office is located in the [Weingarten Learning Resources Center](#) at Stouffer Commons 3702 Spruce Street, Suite 300. All services are confidential. If you are not formally registered with SDS and experience anxiety, depression, learning disabilities or other issues that affect your ability to fully participate and learn in this class, you are encouraged to check-in with me or with the Chemistry Undergraduate Office or the Undergraduate Biochemistry Program Office (see below) so that we can help you to secure the resources to promote your success.

**For help with any of these issues, please feel free to reach out to the Chemistry Undergraduate Office [Professor Jeffrey Winkler, Undergraduate Chair ([winkler@upenn.edu](mailto:winkler@upenn.edu)) or Ms. Candice Adams, Undergraduate Coordinator ([chemugrad@sas.upenn.edu](mailto:chemugrad@sas.upenn.edu))] or the Biochemistry Undergraduate Office [Professors Ponzy Lu ([ponzy@sas.upenn.edu](mailto:ponzy@sas.upenn.edu)) and Jeffrey Saven ([saven@sas.upenn.edu](mailto:saven@sas.upenn.edu)), Co-Chairs Undergraduate Biochemistry Program the Undergraduate Biochemistry Program Coordinator ([biochemistry@sas.upenn.edu](mailto:biochemistry@sas.upenn.edu))] who will direct you to the appropriate resources.**