

# Chemistry 1A: General Chemistry

## Spring Quarter 2023

Lecture	M-W	6:00 – 7:15 PM	Room S32
Lab 61	M-W	11:30 – 2:20 PM	Room SC2202
Lab 62	M-W	7:30-10:20PM	Room SC2202

**Instructor:** Dr. Sonia Pollitt

**E-mail:** [pollittsonia@fhda.edu](mailto:pollittsonia@fhda.edu)

**Office Hours:** M/W: 2:30 - 3:30 PM or by appointment

**Office:** Chem Faculty Office Area

**Class website:** Canvas Site

### Course Description

Chemistry 1A is the first quarter of a 3-quarter general chemistry class in which we explore how the approximately 115 different types of atoms combinatorialize to make up all the materials in the known universe. The course begins with a review of the basic structure of the atom followed by a survey of the common compounds that we encounter in our exploration of chemistry. Next, we will examine the rules followed by these common compounds when they participate in chemical reactions and understand how these rules are a powerful consequence the principles of conservation of mass and energy. Then we will use quantum mechanics to take a deeper look at the electronic structure of atom and molecules and learn how electronic structure determines shape, physical properties, and reactivity of all materials. Along the way, we will use logic, critical thinking, and mathematics to deepen understanding of chemistry through problem solving. Chemistry is a complex topic that builds on prior knowledge, so getting a solid foundation in Chemistry 1A is crucial for success in Chemistry 1B and 1C.

### Student learning outcomes

- Understand the electronic structure of atoms and how this drives reactivity
- Distinguish ionic, covalent, and metallic bonds
- Construct balanced reaction equations and illustrate principles of stoichiometry
- Apply the first law of thermodynamics to chemical reactions
- Identify and explain trends in the periodic table
- Draw Lewis dot structures and use them to make predictions about molecular shape.

### Prerequisites

A “C” or better in Chem 25 or 30A, or satisfactory score on Chemistry Placement Test. Math 114 or Math 130 or equivalent

## Class Registration and Attendance

### Class Size Limits

This class is a lecture and laboratory-based course, so the registration limit is strictly set at 30 students per section based on the number of people able to safely conduct experiments in the lab space provided.

- Last day to add classes: April 22, 2023

### Dropping the Course

Students that choose to drop this course are responsible for requesting a withdrawal through the admissions and records department before the deadline. Students who drop the class are to be also required to officially check-out of the lab locker. Failure to check out by the scheduled check-out date will result in fees and a block placed on future registrations.

- Last day to drop classes without a W on your record: April 23, 2023
- Last day to withdraw with a W on your record: June 2, 2023

### Missing Class

Due to the high demand for this class, if you miss a lab or lecture on the first day of class, you will be dropped from the course unless previous arrangements have been made with the instructor. Regular participation in class is ESSENTIAL for success. Please know that instructors may drop any student who does not participate in the first lab classes. Please also be aware that there are no make-ups for missed in-class work, quizzes, exams, labs or the final. Success in this class requires that you attend regularly.

## Course Calendar (Approximate and Subject to Change)

The calendar below represents the approximate schedule for the course but is subject to change. The exact dates will be updated on Canvas as the quarter progresses.

CHEM 1A SPRING 2023								
Week of ...	Lecture #	Date	Chapter	Monday Lab	Lecture #	Date	Chapter	Wednesday Lab
Wk-1: 4/9/23	1	4/10	CH_1	Check-in (first day)	2	4/12	CH_2	Lab 1: Measurements
Wk-2: 4/16/23	3	4/17	CH_3	Lab 2: nomenclature	4	4/19	CH_3	Lab 3: Hydrates
Wk-3: 4/23/23	5	4/24	CH_4	Lab 3: Hydrates (con't)	6	4/26	Exam (1-3)	Lab 4: Precipitation
Wk-4: 4/30/23	7	5/1	CH_4	Lab 4: Precipitation (con't)	8	5/3	CH_7	Lab 5: Reactions
Wk-5: 5/7/23	9	5/8	CH_7	Lab 5: Reactions (con't)	10	5/10	CH_8	Lab 6: Conductivity (Vernier)
Wk-6: 5/14/23	11	5/15	CH_8	Lab 6: Conductivity (con't)	12	5/17	Exam (4,7)	Lab 7: Titration
Wk-7: 5/21/23	13	5/22	CH_6	Lab 7: Titration (con't)	14	5/24	CH_6	Lab 8: Calorimetry
Wk-8: 5/28/23		5/29		MEMORIAL DAY - No Class	15	5/31	CH_9	Lab 8: Calorimetry (con't)
Wk-9: 6/4/23	16	6/5	CH_9	Lab 9: Redox Titration	17	6/7	Exam (6,8,9)	Lab 9: Redox Titration (con't)
Wk-10: 6/11/23	18	6/12	CH_10	Lab 10: H- line spectra	19	6/14	CH_10	Lab 11: Structures
Wk-11: 6/18/23		6/19	CH_11	JUNETEENTH - No Class	20	6/21	CH_11	Lab Check out
Wk-12: 6/25/23	21	6/26		FINALS				

### Important dates:

The time for the final is set by the school's final schedule for **Monday 6/26 6:15-8:15PM**. Please do not sign up for this class if you can't make the final time.

## Required Materials for Lecture

### Textbook

*Chemistry: The Molecular Nature of Matter and Change, 9e*, by Silberberg. Earlier editions will cost less and will present essentially the same material, but the page numbers will not align. Chem 1B and Chem 1C are likely to continue in this same text. You may purchase the physical book or an online version from the bookstore.

### Aktiv Chemistry Subscription for Homework, Classwork and Quizzes

We will use Aktiv Chemistry throughout the semester for graded homework and the in-class assignments. You will need to sign up for this subscription through Canvas so that your Aktiv Chemistry account will be linked with our Canvas site. You must sign up for an AktivChemistry account before the second lecture (Wednesday) of the first week. After signing up, you will have access during a grace period of 2 weeks to allow time for your subscription payment of \$26 that is payable through the app.

### Access to Canvas and Aktiv

**Please bring your device (computer, smartphone, chrome book, iPad ...)** to every class! All course materials, including homework assignments, copies of the lecture slides, discussions in which you will be required to participate, etc, will be posted in Canvas. In addition, you will need to upload completed assignments to Canvas. *Please turn on Canvas notifications to receive class announcements.*

### A PDF App

Throughout the quarter may need to turn in assignments by creating a PDF and uploading it to Canvas. Recommended apps for creating PDFs include GeniusScan and CamScanner.

### A Scientific Calculator

**Please bring your calculator to every class!** Your scientific calculator **must** do scientific notation and have log and exponential functions. You **may not** use your phone as a calculator for any quizzes, exercises, or exams. If you decide to use a graphing calculator, you will need to reset your calculator's memory before quizzes / exams to clear any user-entered programs. The TI-30-XS and the TI-84 graphing calculator are two of the most common choices, but other scientific calculators are equally good choices.

## Required Materials for Lab

### De Anza Lab Protocols

**Please bring a printout of the appropriate lab protocol with you to lab every time you come!** Available online at: <https://www.deanza.edu/chemistry/Chem1A.html>

### Lab Notebook

You will need a permanently-bound notebook (such as a composition notebook) that is specifically dedicated to your labwork. **Please bring your lab notebook with you to every lab.**

### A Scientific Calculator

The one that you use in lecture will be needed in lab as well.

### Personal Protective Equipment (PPE)

**Please bring your PPE with you to every lab.**

### OSHA-Approved Safety Goggles

You will need full safety goggles that seal on the sides, not just safety glasses. The goggles need to meet the ANSI Z87.1 or Z87+ specification for impact resistance. Choose comfortable goggles because you will need to wear them whenever you are in lab and anyone (either you or any of your classmates) are doing lab work. The goggles sold by the bookstore are approved for

this course.

*Disposal Purple Nitrile Gloves (optional)*

Use if you have sensitive skin!

*Knee Length Lab Coat or Lab Apron (optional)*

Use if you want to protect your clothing. Acids and bases can burn holes in your clothing that don't show up until after washing!

## Course Grades

Your grade will be determined through assignments and assessments in lecture and lab. This course is NOT graded on a curve. Grade cut offs are as follows:

A+ ( $\geq 97\%$ ), A ( $\geq 93\%$ ), A- ( $\geq 90\%$ )

B+ ( $\geq 87\%$ ), B ( $\geq 83\%$ ), B- ( $\geq 80\%$ )

C+ ( $\geq 76\%$ ), C ( $\geq 70\%$ ), C- (not given)

D ( $\geq 60\%$ ) F ( $< 60\%$ )

NOTE: To receive a passing grade in the class, in addition to achieving at least 70% in the class overall you must achieve at least 55% in each assignment group described below.

Here are the approximate percentages that each assignment group contributes to the final grade:

Assignment Groups	Weighting
1. Aktiv homework, polling, and in-class assignments & Canvas Homework	20
2. Lecture Exams (3 exams)	30
3. Lecture Final	15
Lecture Total	65
4. Lab Assignments (Pre-Labs, Lab performance, Lab Reports)	25
5. Lab Final Exam	10
Lab Total	35

### Missed Lectures and In-Class Assignments

Missing any graded assignments, e.g., lab exam, midterm exam, final exam or in-class quizzes or assignments due in class will result in a score of zero unless you present written proof of an excused absence such as a doctor's note or other relevant documentation. No make-up exams or make-up quizzes will be given without proof that absence is excused. Accommodation for work missed due to excused absences will be on an individual basis. Contact me as soon as possible if you need to discuss accommodations.

### Missed Lab Assignments

Please be aware that the lab materials are set out and removed by the Chemistry Department on a rigid schedule, so if you miss a lab, there will be no access to materials to make it up at a later date. Missing 3 labs will cause you to fail the course.

## Extra Credit

Extra credit assignments are not offered in this class on an individual basis. It is unfair to allow some students to improve their grade while not allowing others that same opportunity; however, extra credit problems may be given to the class as a whole from time-to-time. These may appear at the end of homework or exams, or they may be given as optional assignments to the whole class.

## Descriptions of Assignment Groups

### 1. Homework, Polling, and In-Class Assignments Through Aktiv (20% of Course Grade)

Problem-solving practice and practice in critical thinking are essential to success in chemistry and will be partially assessed through your performance on Aktiv assignments.

#### Homework on Aktiv

After reading through the chapter, you should work through textbook problems and those assigned on Canvas to gain mastery before attempting the homework problems on Aktiv. You should use your performance on Aktiv assignments to assess your own mastery, not to gain mastery. When you are ready to attempt Aktiv homework, you should already have confidence in problem solving related to the chapter's material and not need the assistance of friends, the internet, or the textbook to work problems. This will help you assess whether you have gained the mastery to do well on midterms and the final exam. While it is not hard to project the appearance of mastery, remember that **your responsibility to yourself is to gain mastery** if you want to succeed in Chem 1B and Chem 1C. Chemistry is a topic that very much builds on prior knowledge, so taking the time to build a strong foundation will benefit you greatly in later courses. **Late Policy:** Late homework (but not in-class assignments which must be completed in class) will be accepted for 1 week after the initial due date and this grace period will be indicated on Canvas; however, a 5% per-day late penalty will be applied.

#### Homework on Canvas

In addition to homework on Aktiv, sometimes homework will be posted to Canvas. The same late policy applies for Canvas assignments as for assignments on Aktiv.

#### Polling and In-Class Assignments on Aktiv

Warm-up questions designed to keep relevant concepts fresh in your mind will be given at the start of lecture frequently throughout the quarter. It is imperative that you attend lecture and that you arrive on time so you can engage in these assignments. (But if you must arrive late, that is better than not coming at all.) These are graded assignments designed to encourage students to practice problems routinely and keep up on the reading. They are also a mechanism for helping students and the instructor understand what material needs to be reviewed. This course proceeds at a very fast pace and it is imperative that you don't allow yourself to get behind.

### 2. Lecture Exams (30% of final grade)

There will be three lecture exams during the quarter (see course calendar on Canvas for dates). You must come to class on exam days as no make-up exams will be administered. These exams will cover material from lectures, homework, and book chapters. Some questions may require solving types of problems that have not been explicitly demonstrated before and so will require critical thinking skills and a true understanding of course concepts. The best way to prepare for these exams is to work as many practice problems as possible, because working problems will help you find weaknesses in your understanding of important concepts.

### 3. Lecture Final (15% of final grade)

A comprehensive final will cover all material from the course but will emphasize Chapters 10

and 11 since these chapters will not have been covered by other exams. The time is set by the final schedule for **Monday 6/26 6:15-8:15PM**. Please do not sign up for this class if you can't make the final time.

4. *Lab Assignments (25% of final grade)*

Most labs will consist of a prelab, a short lab quiz, in-lab performance of experiments (e.g., data acquisition) and a written lab report that could include calculations, graphs, answers to questions relating to the lab, and written well-structured paragraphs describing your finding in lab and their significance. Lab write-ups will typically be due at the beginning of the lab period following completion of the lab. **Late Policy**: Late lab reports will be accepted for 1 week after the initial due date and this grace period will be indicated on Canvas; however, a 5% per-day late penalty will be applied. Failure to turn in a lab report will be treated as failure to do the lab.

5. *Lab Final Exam (10% of final grade)*

A cumulative lab final will be given on the last day of lab, after lab checkout. This exam may require graphing, data analysis and interpretation of results. It will draw on concepts emphasized during lab.

## Winning Lecture Strategies

Chem 1A will cover chapters 1-4, and 6-11 from the assigned textbook. The lecture will serve to cover the most important aspects of the chapter. However, students are still responsible for all material in the indicated book chapters. More details will be given in the respective Chapter modules on Canvas. Below are some helpful tips that will make learning much easier this quarter.

- Full Attendance at Lecture and Lab is Required. Use In-Class Hours Wisely

This class covers a lot of abstract topics very rapidly. You are expected to spend 3 hours in lecture and 6 hours in lab each week. Make sure to do assigned reading **BEFORE** the lecture and formulate your questions so that you are prepared to get answers when the topic is covered in class. Being intellectually “present” and not wasting in-class hours will allow you to learn in the most efficient way. **DON'T FALL BEHIND** so you don't get lost in lecture.

- Review (Even Re-Write) Lecture Notes Within 24 hours of Lecture

This is a *proven technique* for learning that is based on the science of neural pathway development. When you review the material, you will discover holes in your understanding. Look up answers in your textbook or be prepared to ask clarifying questions during the next class.

- Engage With Course Material Frequently Through Problem-Solving

Neuroscientists have shown that frequent repetitive engagement with time in between engagements is the only way to generate long-term learning. Don't cram! Engage with the material for an hour or so each day. Your discipline will pay off in time saved and better test scores as the quarter progresses and in following classes.

- Seek Help in a Timely Manner

Seek out help *immediately* if you find you are struggling. There are many ways to get help. You are encouraged to work with your peers in a study group, text each other for homework help (but not just for answers!!), ask questions in lecture and lab, come to office hours, or seek out tutoring at some of the links above. Chemistry is conceptually difficult! There is no shame in not understanding. Learning is about not knowing and then knowing. Not knowing makes people uncomfortable. Be brave! Be vulnerable! Be smart! Get help as soon as a difficulty arises. The best time to get help is as soon as you realize it would benefit you.

- A Note on Academic Honesty

You already know! But if you need a refresher, [read De Anza's academic integrity policy here](#). Personal integrity, academic or otherwise, is an important character trait that we all sometimes need to work at. When you cheat on an exam you are unfairly taking advantage of other students. In a moment of panic when trying too hard to succeed, you may forget that one of the most important things you do in college is develop self-esteem and faith in yourself. You cheat yourself. When you copy homework or use homework aids like Chegg to complete assignments without learning, you are short-changing yourself once again, because you are not learning what you came to college to learn. You can do this! I have faith in you and you should have faith in you, too! Cheating IS its own punishment, but if you are caught cheating you will still be given a zero on the assignment and a referral to the dean.

## Laboratory Policies

### Attendance

Lab class is in-person and mandatory for this course. Lab materials are only available during the week(s) that a given lab is scheduled, so make-up labs cannot be accommodated. Failure to complete more than two labs will result in an automatic failing grade of F in the course.

### Laboratory Safety

1. *Laboratory Safety Training (2-hr Online Course, Mandatory)*

All students must complete the American Chemical Society (ACS) Student Lab Safety Course before the second lab meeting on April 12<sup>th</sup>. After working through the module assigned on Canvas, please download the certificate of completion and upload it to the assignment on Canvas. Completion of this safety course is a pre-requisite for doing labwork at the second lab meeting.

2. *Laboratory Safety Contract*

In addition to the ACS Safety Training, the ACS puts out a set of guidelines for laboratory safety that must be read, signed and turned in on Canvas (for 5 points) by all students before lab period on Wednesday April 12, 2023. These guidelines must be followed by all students and rigorously enforced by all chemistry faculty. Look on Canvas for your personal copy.

3. *Lab Personal Protective Equipment (PPE)*

Goggles, long pants, long sleeved shirts and close-toed shoes must always be worn whenever any students are conducting any labwork and remain on until all students complete their work or until you leave the lab. Failure to wear proper PPE will result in student being asked to leave the lab.

4. *Proper Disposal of Laboratory Chemicals (Important and Mandatory)*

Proper disposal of chemical waste is important to protect the environment and is mandatory. Disposal instructions are lab-specific and will be explained for each lab as part of the pre-lab lecture.

### Preparing for Lab: What to Do Before You Come and What to Bring

1. *The Lab Protocol:*

The lab protocol: Download, print, read and bring to class the appropriate lab procedure for the day. This lab procedure can be found at <https://www.deanza.edu/chemistry/Chem1A.html>

2. *Your Lab Notebook*

Complete the pre-lab set-up as described under "The Lab Notebook" below and bring your lab notebook with you to class.

3. *Pre-Lab Questions:*  
Complete any assigned pre-lab document(s) on Canvas.
4. *Personal Protective Equipment (PPE)*  
Personal protective equipment (PPE): goggles; long pants; long-sleeved shirt (or lab coat); closed toe shoes
5. *A Scientific Calculator*

#### The Lab Notebook and How to Prepare It

1. A bound lab notebook in which the pages cannot be removed, such as a composition book, is required for this class. Number all pages in your lab notebook and date each page as you enter information into it.
2. Leave the first four pages blank for a table of contents or to collect important equations or constants there. Use page 5 only for the title of the first lab.
3. Between the end of each lab and the beginning of the next lab, leave one page blank and enter only the title of the new lab on the page after the blank. This will create a nice break that will make it easy to see where one lab ends and the other begins.
4. At your discretion, you may choose to add additional headings as part of individual labs, but the following sections headings are required parts of every lab. Each section will be described in more detail below.
  - a. Purpose
  - b. Procedure
  - c. Safety and Waste Disposal Information
  - d. Data
  - e. Instructor sign-off on Pre-Lab work
  - f. (Optional) other sections may be required depending on the lab

#### a. *Purpose*

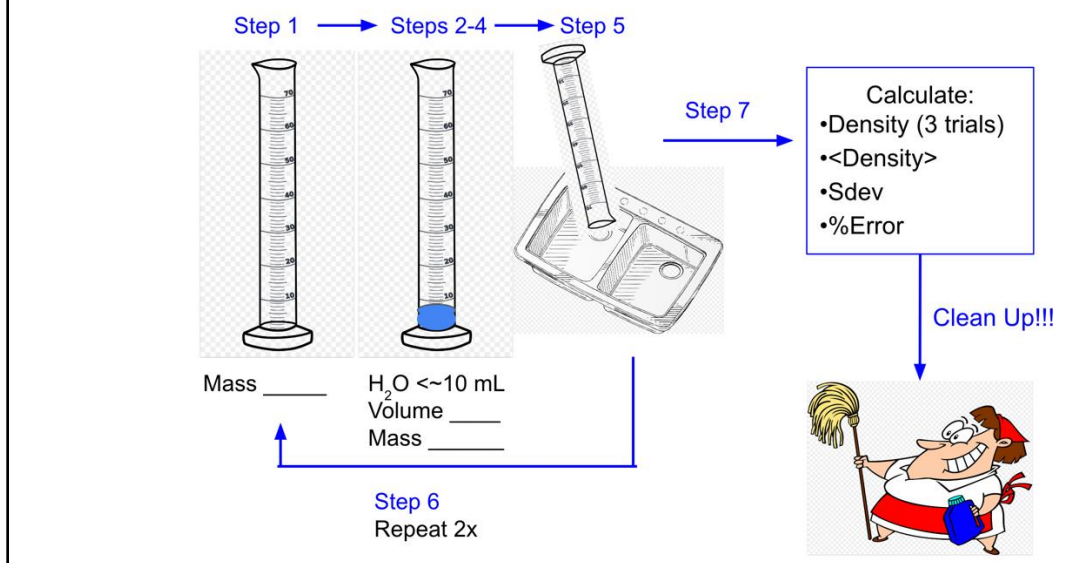
**Write out the purpose of the lab procedure.** This is not the “learning outcome” mentioned in the procedure, it is the purpose of the procedure you will perform in lab. For example, in Lab 1, the Measurements lab, you might write that the purpose is to measure the density of water using measuring methods that have different precisions.

#### b. *Procedure*

**Draw flow charts for each of the lab procedures.** Draw separate flow charts for each part of the lab and enter them into your lab notebook. An example flowchart for the first part of Lab 1: Measurements is provided as a guide below. Your flow chart can be hand-drawn or electronically drawn, it does not need to be artistic or beautiful. It DOES need to be functional and contain all important details so that you can perform the lab by following it. Include every step number in the protocol (although they may combined, e.g., “steps 1-5”). Avoid just rewriting each step. Make it easier to use than reading the lab instructions. Include important information re/ masses, clock times or repetitions. Make sure the last thing on your last flow-chart is a reminder to yourself to clean up your lab bench. Leave enough space in this “procedure” section that you can it to jot down important procedural details, if necessary, during the pre-lab lecture.



## Lab 1: Measurements -Part 1 Flow Chart (Example)



c. *Safety and Waste Disposal Information*

**Create a space** in your lab notebook for this information. On lab day, listen to the pre-lab lecture and write down any lab-specific safety precautions and any lab-specific waste disposal instructions mentioned during the lecture.

d. *Data*

**Prepare the place where you will record your data.** Draw or cut-and-paste data tables from the lab instructions into your lab notebook. This is the place where you will write your original data *in ink* as you take it on the day of the lab. Leave enough space in the data section to write down important observations as you make them during lab.

e. *Instructor Sign-Off on Pre-Lab Work*

**Draw a line** that marks the completion of your pre-lab work. Before beginning work, get your instructor's sign-off just below this line.

f. *Optional Other Sections*

Although original data must be entered in ink, other information, such as purpose statements, calculations, graphs, pre-lab lecture notes, etc that you choose to include in your lab notebook do not need to be in ink. It is fine to print out lab questions, data tables or figures and paste them into your lab notebook and to do lab calculations in pencil, if you prefer.

### What To Do on Lab Day

1. *Be On Time to Hear Mandatory Pre-Lab Lecture*

The instructor will use the beginning of the lab period to explain procedural details and theoretical underpinnings of the lab as well as to outline important safety features and discuss proper chemical disposal methods. Use information from the pre-lab lecture to write notes in your notebook about how to perform the lab and how to safely dispose of waste streams. You must be present to listen to the pre-lab lecture to participate in the day's lab activities.

2. *Collect Your Raw Data*

Record your raw data and any relevant observations in ink into your lab notebook as you acquire it. Pay attention to *significant figures* and be sure to include *units* as you record your data. Always record data to the maximum possible precision to receive full credit.

3. *Dispose of Waste Streams Properly*

Dispose of waste streams properly as indicated in the pre-lab lecture and as written in your lab book for the day.

4. *Clean Up Your Lab Space*

Clean up your lab space before leaving the lab. This is VERY important! Failure to clean up your lab space before leaving will result in points being deducted from your lab score: 1 point for the first offense and doubling each offense thereafter up to 50% of the total for each lab.

5. *Check Out with Your Instructor*

Your instructor will sign off on your raw data and check your bench to make sure chemicals have been disposed of and bench is clean. On a rotating basis, individuals will be asked to clean up common spaces such as sinks and the scales before leaving.

### After the Lab – Lab Reports

1. *Full Lab Reports*

Full lab reports will be required for six of the 11 labs performed this quarter. Lab report guidelines are posted on Canvas. They should be typed (except calculations, which can be handwritten) and submitted electronically to Canvas as a PDF. **Make sure to show units on all calculations and final answers!** A full lab report will include the following sections: 1) Student identifying information; 2) Lab identifying information; 3) Lab purpose; 4) a copy of the pre-lab flow-charts; 5) lab safety and waste disposal information; 6) data tables and relevant observations; 7) data analysis or results, including *properly and carefully drawn graphs* (see “Best Graphing Practices” guidelines on Canvas for help drawing graphs) and error analysis; 8) post-lab questions and answers; 9) a concluding claim supported by evidence and reasoning in the form of a well-structured paragraph. This paragraph should also discuss error (both experimental and human).

2. *Abbreviated Lab Reports*

Abbreviated lab reports will be required for the remaining five labs. These reports might be answering post-lab questions or taking a post-lab quiz. Details will be posted on Canvas.

3. *Remember, Each Student Must Take His Own Lab Data!*

Using another student’s data or making up data is a form of cheating and will result in a zero on the assignment and referral to the dean. (In the special case you are instructed to use a set of data that is not your own, make sure to cite the source as part of your lab write-up.)

### Late Lab Assignments

**All lab reports, full and abbreviated, need to be turned in to receive a passing grade in the course.** Due dates will be listed on Canvas. All labs are due 1 week after the lab period in which they are completed unless otherwise noted on Canvas. When in doubt, check Canvas for due dates. Late lab reports will be accepted for a grace period of one additional week (that is, two weeks after the lab period in which they are completed), but will receive a maximum credit of 80%.

### The Lab Final

After checkout, on the last day of lab, you will have a written lab final that will test your understanding of the concepts taught in lab during the quarter. You will be allowed to use your lab notebook during this test, so it is beneficial to efficiently organize your notebook and to pay attention to / take notes on the pre-lab lectures at the beginning of lab.

## Resources

### Getting Academic Help Via Online Media

There are some GREAT online media resources to help you if you are struggling with a particular topic ... or if you are curious and want to go deeper. You can find these resources by searching the topic, but here are some of my favorite places to go:

1. *For Help With Math*

For help with math, try A) Purplemath; B) Khan Academy; C) Lumen Learning

Here are some links to specific topics you might like to review:

- a) Online calculations and graphing: [Desmos](#)
- b) Dividing Fractions: [Khan Academy on dividing fractions](#) OR [Purplemath on dividing fractions](#)
- c) Conversions: [Youtube video on conversions](#) OR [Purplemath on conversions](#)
- d) Dimensional Analysis: [Khan Academy Dimensional Analysis](#) OR [Lumen Learning Dimensional Analysis](#)

2. *For Help With Chemistry*

Try A) [Chemistry Crash Course](#); B) [Khan Academy Chemistry](#)

3. *A Secondary Textbook Available Online for Free*

For a secondary textbook that might present things a little bit differently, try: [OpenStax Chemistry](#)

### Getting Academic Help from a Person

1. *I'd Like to Help*

Talk to me! Ask me for help during lab. Come to office hours. Can't make office hours? Make an appointment.

2. *Academic Support Through Tutoring*

Academic support and information about tutoring can be found at the [Math Science and Technology Resource Center](#).

3. *Online Tutoring Services*

Online tutoring services are available. Check at <https://www.deanza.edu/studentuccess/onlinetutoring/>.

### Non-Academic Help

The community at De Anza College is committed to helping all students. Here are some services that may be of value to you:

1. *Support Programs and Services*

De Anza is committed to providing support for students with disabilities. If you need special accommodation, please be sure to let me know. DSPS will be an important resource for you. Please check their website for current services and assistance: <http://www.deanza.edu/dsps/>

2. *Student Services*

For counseling and advising, career services, disability support and more, check out [student services](#).

# Rules for Safe and Efficient Chemistry Laboratory Operations

## Safety Rules:

1. *Locate the Safety Equipment in the lab.* Know the locations of the eye wash, safety shower, fire extinguishers, fire blankets, first aid kit, fume hoods, telephone and all exits that are to be used in an emergency.
2. *Wear PPE which included goggles, long-sleeved shirts, long pants, and closed toe shoes.* Do not wear loose flowing clothing or jewelry such as bracelets, rings or necklaces that hang down.
3. *Tie back long hair.* This precaution will keep your hair out of burner flames, harmful chemicals and spinning equipment.
4. *Do not eat or drink in the laboratory.*
5. *Do not taste any chemical reagent.*
6. *Do not smell chemical reagents directly.* When you are instructed to smell a chemical, do so by gently wafting the vapors toward your face. Do not inhale deeply.
7. *Do not pipette solutions by mouth.* Use a rubber suction bulb to fill the pipette.
8. *Do not work with flammable liquids near a flame.*
9. *Do not engage in games or horseplay in the laboratory.* Never run in the laboratory.
10. *Do not attempt unauthorized experiments in the laboratory.*
11. *Do not work in the laboratory in the absence of your instructor or his or her authorized representative.*
12. *Use a fume hood when required.*
13. *Handle glass tubing and thermometers carefully.* When inserting glass tubing or thermometers through a rubber stopper, always hold the glass close to the stopper and use a lubricant such as glycerin to help the glass slide through the stopper. Do not continue to try to force glass through a stubborn stopper, get a new stopper and/or get help. When inserting a pipette into a pipette bulb, hold the pipette near the bulb and GENTLY insert the pipette.
14. *When diluting, never pour water into concentrated reagents.* Always pour the reagent into the water.
15. *If you spill a chemical reagent on yourself, immediately flood the exposed area with water and then summon the laboratory instructor. Inform the instructor immediately about any other accidents or spills.*
16. *Be aware of your neighbors. Are they obeying the safety rules?* A neighbor's accident may injure you.
17. *Avoid touching your face and rubbing your eyes while in the laboratory.* If you must do so, first wash your hands.
18. *Wash your hands before leaving the laboratory.*
19. *Never heat a closed container.* Pressure build-up can cause the container to explode.
20. *Assume any chemical is hazardous if you are unsure.*

## Housekeeping Rules:

1. *Clean up broken glass immediately with a broom and dustpan. Do not use your hands.* Dispose of broken glass in the special container that is provided, never in a regular trash can.
2. *Chemical spills must be cleaned up immediately.* Immediately notify your instructor who will advise you how to clean it up and/or assist you. Dispose of the collected contaminated chemical properly as instructed.
3. *Do not pour any chemical down into the sink or in the trash without authorization.* Clearly labeled disposal

- bottles will be provided when needed.
4. *Set up your glassware and apparatus away from the edge of your laboratory bench.*
  5. *Keep shared areas of the laboratory clean.* This includes areas such as the balance room and where the stock bottles are stored. It is especially important to keep the balances clean and free of chemical spills.
  6. *Keep your laboratory equipment clean.* Good results depend on clean equipment.
  7. *Thoroughly clean the area around your laboratory bench and the top of your laboratory bench before leaving lab.*
  8. *Respect the bottles of stock reagents.*
    - *Take containers to the stock of chemical reagents.* Do not bring stock chemicals to your laboratory bench.
    - *Read the label on a reagent bottle carefully.* Is it the correct chemical? Is it the correct concentration?
    - *Do not insert your own pipette, medicine dropper or spatula into a stock bottle.*
    - *Do not allow stoppers or tops of stock bottles to become contaminated.*
    - *Always replace the stopper or top of a stock bottle when you are finished taking some of the reagent.* Make sure that you put the stopper or top back onto the correct bottle.
    - *Do not take any more of a reagent than is required.* You can't put it back!
    - *Never return any unused reagent to a stock bottle.* If you take too much of a chemical, dispose of it as directed by your instructor or offer it to a classmate who needs it.
  9. *If a piece of equipment containing mercury is broken, inform your laboratory instructor immediately.* Mercury is highly toxic and can be absorbed through your skin. Keep the area blocked off to avoid scattering the mercury.

**Student Learning Outcome(s):**

- \*Identify and explain trends in the periodic table.
- \*Construct balanced reaction equations and illustrate principles of stoichiometry.
- \*Apply the first law of thermodynamics to chemical reactions.

**Office Hours:**

M,W 02:30 PM 03:30 PM In-Person Chemistry Faculty Office Area