

CHEM 1C Syllabus for Section 3

Instructor: Rose Wang and Semere Bairu Lecture: MW 11:30 am -12:45 pm in Room S34 Lab: MW 8:30 – 11:20 pm in Room SC 2208 (sec 3) Office Hours: Prof. Wang MW 12:45-1:45 either in S34 or in faculty office room SC 1206. Prof. Bairu: W 11:30 – 12:30 in faculty office room SC1206	Email: Lecture: wangxiao@fhda.edu & wang932@yahoo.com Lab: bairusemere@fhda.edu Email is reserved for contacting us regarding absences, scheduling, etc. not for office hours. Course Website: in Canvas https://deanza.instructure.com/courses/34505 (sec. 3)
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This syllabus is a contract, please read it carefully.

PREREQUISITES: Chemistry 1B with grade C or better.

COURSE DESCRIPTION:

This class will cover the principles of solutions, buffers, electrochemistry, transition metals, and nuclear chemistry. This course is divided into two separate instructional periods, the lecture and laboratory sections. The lecture portion is primarily devoted to the material discussion while the laboratory portion gives a chance for chemical experimentation. One registration code will enroll for the lecture and lab sections. Lecture and lab sections must be taken together to pass Chem 1C and will both go towards a single grade.

REQUIRED MATERIALS:

1. Primary Lecture Text: CHEMISTRY: The Molecular Nature of Matter and Change, Silberberg and Amateis, 9e. Other editions will be essentially the same and will work great to study, but practice problems given in this syllabus correspond to the 9th edition. **We will NOT be using CONNECT or ALEKS this quarter.** So, when buying your textbook you don't have to purchase the access to these platforms. Instead, **we will use another homework platform called Aktiv.** There are multiple options to obtain the text for this course depending on your specific needs.

a) Option 1 – Hard copy text (any edition). I might assign extra practice problems from the back of the book, which will differ slightly between editions. Regardless, this option is great if you prefer physical books and want a quality chemistry textbook for reference in the future.

b) Option 2 – 90 day access to an electronic text specifically for CHEM 1C. This is a great, cheap option that will give 3 months of access to the textbook and is perfect if you don't plan on immediately continuing in the series. This can be purchased with ISBN: 9781307600940.

2. Supplemental (Free) Textbook: While lectures will closely follow the textbook above, this text gives an alternate explanation while also being a free resource. OpenStax, Atoms First 2e:

<https://openstax.org/details/books/chemistry-atoms-first-2e>

3. A non-programmable scientific calculator capable of logarithm and exponential functions. Please plan on bringing this calculator to class every day. Also, during the test times, only non-programmable calculators are allowed.

4. Aktiv Online Homework Platform: This quarter, we will be using Aktiv for online homework. A subscription to Aktiv is available online through the de Anza bookstore, and I will send you instructions to discuss how to subscribe to and utilize this platform.

5. Lecture Handouts: Lecture pdf chapter slides will be available ON CANVAS (module 3) after lecture. Before I post the lecture handouts, you could use the PPT from the textbook on Canvas (module 11). So you have two packages of lecture handouts to use.

6. Lab Manual: The lab content for this course will be available on the Canvas site, no lab manual purchase necessary. Also, you could find most blank labs on the website:

<https://www.deanza.edu/chemistry/Chem1C.html> Be sure you can download them, and you need to print out the lab manual pages before our lab. In Chem 1C lab, we do NOT have a printer.

7. Lab Equipment

a) Goggles: For your protection, safety goggles or Visorgogs (<https://www.flinnsci.com/flinn-visor-goggles/ap1362/>) with indirect ventilation and an ANSI minimum rating of Z87 must be worn *AT ALL TIMES* in the laboratory while experiments are taking place. I will send out more info in an email.

b) Personal Protective Equipment (PPE): Long pants and the shoes cover all feet must be worn in lab. Specifics are provided in the safety document at the end of the syllabus.

c) Laboratory Notebook *Any notebook is fine. You have to number the pages from beginning page to end page, so you don't tear any pages and keep all pages during the course. You have to upload your prelab to Canvas at least half hour before your lab start!*

CANVAS COURSE WEBSITE:

Course material including lecture notes, blank labs, and other resources will be posted on Canvas. Grades are also posted on this site as we go through the quarter. Announcements and other notifications will be through Canvas as well. **Make sure to check Canvas on a daily basis.**

CLASS REGISTRATION:

Registration limit is strictly set at 30 per section since we limited by the space in lab. The class will be filled based on the official roster provided by the De Anza Admissions and Records, including an official waitlist. Students on this waitlist may attend the lecture within the first week but will not be allowed to come to lab until officially enrolled due to space restrictions. Students on the waitlist will have access to the class CANVAS site during the first week since I make the Canvas visible for campus during the first week.

ACADEMIC INTEGRITY:

By enrolling in classes at De Anza College, you are agreeing to the academic integrity policy and are held to all standards. Specifics can be found at <https://www.deanza.edu/studenthandbook/academic-integrity.html>.

Cheating during an exam/quiz or copying/using work other than your own for assignments will result in a 0 for the entire assignment, regardless of what percentage of the work is from cheating.

Worse than a 0 on an exam, I am required to report such incidents to the disciplinary committee, who will make a note of the incident on your transcript, which then becomes visible to 4 year colleges upon reviewing your transfer application.

Academic dishonesty includes:

- Plagiarism (copying or allowing someone to copy) lab exercises or reports.
- During an exam, communicating or transferring information to another student, casual glances at your neighbor's paper, providing or receiving assistance, and/or consulting unauthorized materials. To avoid these, I will assign the seats. The main purpose to assigning seats is to give students more test times.
- Having another person complete and submit work in your name.
- Lying to an instructor to improve your grade.
- Altering a graded work after it has been returned and then submitting the work for regrading.

DISABILITY SERVICE SUPPORT:

De Anza is committed to providing support for all students. Please contact me as soon as possible if you require special accommodations and I will be happy to do what I can to help. For more information, visit Disability Service Support at <https://www.deanza.edu/dss/>

GRADING POLICIES:

Overall Course Grade

	pts	%	Bonus/drop
Lecture Exam #1 (Ch-13)	100	10	May have 0.5% bonus
Lecture Exam #2 (Ch-19)	100	10	May have 0.5% bonus
Lecture Exam #3 (Ch-21)	100	10	May have 0.5% bonus
Final (Ch-24 & 23)	150	15	May have 0.7% bonus
Online Homework	100	10	
Lecture Pop Quizzes (19x3-6)	51	5.1	0.5% bonus, drop lowest 2
Research Paper	25	2.5	
Canvas Discussion (4x5)	20	2.0	
Prelab (9x6) – submit on Canvas	54	5.4	
Lab Report (6x20)	120	9.6	
QA Cation Reports (3x6)	18	1.8	
QA Cation Results (10x2)	20	2.0	
Lab Quizzes (7x3)	21	2.1	
Lab Final	100	10	May have 0.4% bonus
Lab Safety Module Assignments	11	1.1	
Evaluation Lecture	5	0.5	
Evaluation Lab	5	0.5	
	1000	100%	Lecture part: 65.1%, lab part 34.9%

A letter grade will be assigned according to the following percentage scale and categories:

A+ ≥99.0%	A ≥92.0%	A- ≥89.0%	B+ ≥86.0%	B ≥82.0%	B- ≥79.0%
C+ ≥75.0%	C ≥67.0%	D+ ≥64.0%	D ≥60.0%	D- ≥56.0%	F <56.0%

1. Precise cut-offs may differ by $\pm 1\%$ of the above listed numbers, and are determined only after all points for lecture and laboratory have been totaled.
2. **You must take the final exam to pass the course.** If you miss the final exam scheduled for this course, then you will not receive an overall passing grade. There are no make-up exams for the final exam.
3. **If your average exam percent, or your average lab percent is less than 55% you WILL NOT receive a passing grade.**
4. **In order to be fair to all students, advance or make-up exams will NOT be given.**
5. A grade of F is also given for cheating or for being disruptive during the lectures or labs.

Many pop quizzes will be given during the quarter. Pop quizzes could be distributed at any time during the lecture or lab lecture. Usually I may distribute the pop quizzes at beginning or at end of the class. **Pop quizzes are open book, open notes, and open discussions with limited time.** Pop quiz time is about 10 to 15 minutes. **You have to stay in the class all the time and solve the quiz questions correctly to get the full scores for pop quizzes.** Pop quizzes will help you to understand the materials just learned in lecture and lab, **also they will help students to have good participation in the class, thus to help you pass this difficult course with good grades.** **Besides 5.1% scheduled pop quiz scores, I'll distribute around 0.5% extra credits in pop quizzes.** I may distribute around 2% extra credit in exams as well.

Please note that the instructor will NOT provide extra credit work at the end of the semester for students who are doing poorly. Thus, you need to perform well in your tests, quizzes, and lab reports, etc. If you follow all rules, have good participation (means attend all lecture and lab, finish all prelabs, lab reports, assigned homework questions, etc.) and your score is within 1.0% lower than the cuts, I'll give those students 1.0% consideration when I assign the grades 😊.

ATTENDANCE AND INCOMPLETE GRADES:

This is a fast-paced and challenging course, attending the class regularly will help you to understand the material and pass the class. Students are expected to attend all lectures and lab sessions. You are responsible for all the material covered in this course. You should also exchange contact information with a few classmates who you can contact regarding material missed if you must be absent. Since this is an experimental course, your presence in the laboratory is essential for the understanding of the materials covered. **Missed lab work WILL NOT be excused nor made up.** You will NOT receive a passing grade if **more than 1** unexcused lab absence is counted. Allowances may be made for emergencies. **Please show me the documents as the evidence of an emergency. It is students' responsibility to drop the course officially if desired (Note: Before you drop the course, please check out of the laboratory.)** In order to help you to pass this difficult course, I will check the attendance regularly. In this way with good participation, the passing rate and students' grades would be higher. We will try to achieve good results as a whole group! Please try your best.

Incomplete grades are only given for extenuating circumstances; for example, verified illness or legitimate emergencies. If an incomplete is given all exams and lab work prior to the incomplete are

still counted in your grade, only material that has not yet been completed can be made-up in the future. **You must be passing the course to receive an incomplete grade.**

IMPORTANT DATES:

4/8 (Mon)	Class Begin
4/21 (Sun)	Last Day to drop for Refunds and without grades.
5/31 (Fri)	Last day to drop the class with a “W” grade. After midnight on this date, you CANNOT receive a “W”, you WILL receive a letter grade.

EXAM DATES:

Exam	Date/Time	Coverage***
Midterm #1 (Week 4, Wed.)	5/1 during Lecture Time in S 34	Ch-13
Midterm #2 (Week 7, Wed.)	5/22 during Lecture Time in S 34	Ch-19
Midterm #3 (Week 10, Wed.)	6/12: during Lab Time in SC 2208	Ch-21
Final Exam (Week 6, Thur.)	Thur. Aug. 10 th 1:45 - 3:45 pm in Lecture Room S 34	Comprehensive, But focus on Ch-24 and 23

***Note: Exact Chapter and Sections Coverage may vary depending on pacing of course ***

ONLINE HOMEWORK:

10% of your grade will be based on this. Therefore, **register Aktive and access homework is required!** *Homework due dates are suggested on the last page of schedule. But I have already postponed homework to the exam dates (all around 10:30 AM to exam dates.) So due dates will NOT be postponed again. Please check the deadlines for each chapter online.*

- Please do homework as soon as we cover the materials in class.
- Please also go over all examples in each chapter.
- Keep in mind that if you do not work the problems or just copy the answers from the back pages of your text, it is difficult for a student to be successful in the course and exams.

The suggested homework due times are on the schedule page. All online homework due times are already postponed to the test dates (the due times for the most chapters are 10:30 AM.) No further postpone will be given. Late homework will get 15% deduction each day.

RESOURCES:

1. **Your peers!** It's been shown that working in groups is a GREAT way to process material. Helping others to learn is a wonderful way to solidify your own understanding. Asking each other questions, explaining difficult concepts and working together on the practice problems will all help immensely! I **HIGHLY** recommended forming some sort of study group – try to exchange contact information and meet for a bit each week to synthesize material.
2. Academic support can be found at the **Learning Resources Division** <https://www.deanza.edu/learningresources/>. Information about **tutoring** can be found at the Math Science and Technology Resource Center <https://www.deanza.edu/studentuccess/mstrc/>.
3. **Office Hours:** Come by to ask questions during the office hours. The office hours are before the lab in faculty office SC 1206.

4. Besides homework, I may provide **more review questions for most chapters**. Please check the review modules for each exam.
5. **Questions in Textbook:** You could try to study those questions with the answers and detailed explanations.
6. **Discussions on Canvas** – This is a good way to encourage students to help each other and get some easy earning points. I put 2% discussions (4 discussion assignments) in grade this summer. Hope you will like them. 2.5 pts is for you to post a difficult question, and another 2.5 pts is to answer another student's question with explanations. The first discussion you need to do is introduce yourself to the class.

CLASS RULES AND REGULATIONS:

- I will help you to be on time by distributing the pop quiz at the beginning of the lecture.
- Turn off or turn to silent mode all cell phones and electronic messaging devices. DO NOT talk on the phone or receive/transmit text messages during lecture or lab.
- Follow all written and verbal instructions.
- Laptop computers may be used during class ONLY for class business. For instance, you may use your laptop to view and/or take class notes, but please do not disrupt/distract your fellow classmates by using your laptop during class for other business and/or activities that do not pertain to the class. The instructor and the school are not liable for any damage to electronic equipment used during class.
- I will drop any student who, in my judgment, is habitually disruptive or disrespectful. Repetitive disruptive or rude behavior in the class or lab will be cause for dismissal from the class.

STUDY STRATEGIES: This is a very difficult and fast-paced class. How could you be successful?

Success in the course = practice, practice, practice!

1. **You should study outside of class AT LEAST 20 hours per week** in summer for a 5-unit class to keep up with your reading, homework exercises, notebook preparation, lab reports, etc. Be sure to make the study time count by removing distractions—for instance, do not watch television or carry on conversations while studying.
2. Read (or at the least skim) the corresponding chapter in the text BEFORE lecture (*you could use the last module PPT slides*). Keep the questions in mind and pay attention during the lecture time so you may get the answers for the questions that previously you don't understand.
3. Don't fall behind! Keep up with the reading and the recommended textbook problems! My strategy to help you is keeping a pop quiz each time.
4. **Attend the class and lab on time so you have chance to take the pop quizzes and lab quizzes. It's quite hard to catch up if you miss the lectures and labs.**
5. Take scratch paper each time for the lecture. I hope you could participate in the problem solving actively in class. Frequently sketching the problem solving process on the scratch paper would be a good habit.
6. Ask questions! Come to office hours, tutoring, or form a study group to get them answered! It's YOUR responsibility to **take charge of your learning**; there are many resources to help you succeed!

STUDENT LEARNING OUTCOMES:

*Apply the principles of equilibrium and thermodynamics to electrochemical systems.

- *Apply the principles of transition metal chemistry to predict outcomes of chemical reactions and physical properties.
- *Evaluate isotopic decay pathways.
- *Demonstrate a knowledge of intermolecular forces.

Chemistry 1C is a very difficult course. You have to put much time to study really hard to pass the course or to get a good grade. I wish you have good luck with Chem. 1C this quarter!

Chemistry 1C Lab Syllabus for Section 3

♦ CAREFULLY read the attached DeAnza Chemistry Department laboratory policies and safety and housekeeping rules.

♦ You must find the Safety Signature sheet (last page), sign it, and upload to the Canvas before the deadline (8 am of 7/5)

♦ You need to finish the safety training module on Canvas (module 2) and get the certificate, and submit the certificate to Canvas before the deadline (8 am of 7/5).

♦ A passing grade in the lab section is required in order to pass the entire course.

REQUIRED LABORATORY MATERIALS

1. **Chem 1C Laboratory Experiments and Handouts:** available in CANVAS or you could get from the department website: <https://www.deanza.edu/chemistry/Chem1C.html>
2. **Laboratory Notebook** *Any notebook is fine. You have to number the pages from beginning page to end page, so you don't tear any pages and keep all pages during the course. You have to upload your prelab to Canvas at least half hour before your lab start!*
3. A scientific **calculator**. During the exam time, graphing calculator is not allowed.
4. OSHA-approved **Safety Goggles**. You may purchase it in bookstore if you want to keep your own goggles in your locker. The lab room may have goggles for students to borrow and return each time. **Please be sure to return them each time since the goggles are for all 1C and 25 students in all sections in the lab room. Please wash it with water before you use them.**

LABORATORY PROCEDURES

All students are expected to arrive to lab on time and to come to lab prepared to carry out the experiment scheduled for that session. This means that you have studied the experiment for the day, have a basic understanding of its purpose and procedure, the chemistry involved and *have prepared your laboratory notebook for the experiment prior to the start of lab*. **Please follow the following procedures for each experiment: (do 1,2,3 before you come to the lab; do 4 to 7 in lab)**

(1) Read the Lab manual and understanding principle and procedure.

(2) Complete a prelab on your notebook.

(3) Submit your notebook preparation to Canvas before 8 am (see due time on Canvas)!

(4) Attend the lab introduction at the beginning of the lab period. If can write something down on the notebook if you want during the lab discussions.

(5) Perform the procedure

(6) Do a conscientious and thorough job of cleaning up whether it is in your own work area or shared areas such as the chemical supply table and balance room.

(7) Before you leave, let the instructor sign your notebook data page and your report data page. Also, let instructor grade your lab quiz if any.

(8) Go home to finish the report (*your report should be written in printed out blank pages*) and answer the follow-up questions/show calculations

(9) write a conclusion in the report.

(10) Submit your report and data page(s) with instructor's signature in one week at the beginning of the lab.

LAB ATTENDANCE

Attendance in the laboratory is **mandatory**. Instructors will be taking roll in the lab each time at beginning. And I will sign off the data page before you leave the lab. If you miss one lab time (not one lab), you will lose that portion of score. You may not have chance to understand the materials if **more than 1 absence** is counted – it might result in a failure of the course. I may allow for emergencies and other complications in life. **You need to submit the documents for verification.**

TARDINESS:

Students have to be on time in the lab for full lab credit. You are counted as tardy if you arrive more than 5 minutes late. **Each tardy will deduct 2 points from your lab notebook preparation. If you are more than 15 minutes late, you will not be allowed to perform the experiment for that day, and will be counted as absence.**

LAB SAFETY

Being safe in the lab is a top priority. The importance of safety in the laboratory will be focused upon during the first day of classes. **Students who are absent for this essential lab period will be dropped from the course. As the first important assignment, students need to go over all materials in ACS SAFETY MODULE of the canvas, take the online test, and get the certificate, then upload your certificate to the Canvas before the deadline (7/5 at 11:20 AM).**

During the quarter, any unsafe behavior, intentional or not, will be noted and may be cause for dismissal from the course. For your protection, **safety goggles must be worn AT ALL TIMES as long as one student is still doing the lab and have chemicals in the lab bench.** One or two warnings will be issued to any student that is observed wearing their goggles on their forehead, hanging them around their neck, etc. instead of wearing over their eyes. If the warnings are disregarded or ignored repeatedly, points will be deducted or expulsion from the lab may result with zero credit. **Those students with prescription glasses will be required to wear safety goggles over their prescription glasses.** After you get the certificate in Canvas, if you still have questions for safety, please ask me.

DRESS CODE FOR THE LAB

- A t-shirt is the minimum coverage required for the upper body
- Long pants are required

- The shoes that cover all feet are required
- **Ankles must be covered with pants, socks, or shoes (bring an extra pair of long socks to lab)**
- Safety splash goggles are required

Failure to meet these requirements will result in having to leave the laboratory section until the deficiencies have been addressed.

PRELAB (NOTEBOOK PREPARATION)

Please see the order of sections for a lab notebook below:

Purpose

This is a sentence or two on why you are conducting the lab: what are the objectives. (*What you want to do/prove*) **This is part of the pre-lab write up.**

Introduction/Background

This is a brief explanation of the theory and practice the lab is based on. It demonstrates your understanding of what we are doing and what we will learn from it. It should be 1-2 paragraphs long. (*What are you basing this experiment on*) **This is part of the pre-lab write up**

Chemicals/Equipment

All equipment & chemicals are listed here with basic chemical safety info (including **basic hazard info** like is it flammable, corrosive, etc; **handling and safety precautions** like use only in the hood or keep away from open flames; and **emergency/first aid info**) on **all** the chemicals being used. Read the procedure to get all the chemicals & equipment used. This can be a table or a paragraph. (*What you need to think about as you're doing the experiment*) **This is part of the pre-lab write up.**

Safety (Personal Safety and Chemical Hazard Information)

- ◆ The personal safety including wearing goggles and suitable lab attire, and some lab needs to wear gloves, etc.
- ◆ You could get the chemical hazard information in department chem 1C site: <https://www.deanza.edu/chemistry/Chem1C.html> You should read carefully about those chemical listed there, and **write down relative hazard information in your notebook.**

Pre-lab Calculations

Any assigned pre-lab calculations are to be completed in your notebook prior to beginning any lab. This section is not common but do check! **This is part of the pre-lab write up.**

Procedure

Reference the procedure in your lab notebook and then write down any changes to the procedure in enough detail so others reading the notebook could repeat the lab with the changes. (*What you did.*) **This is part of the pre-lab write up.**

Data Tables Data (not turning this as prelab, but need be prepared before the lab)

Make the data table ready for you to record the data during the lab. **Your pre-set data tables are part of the pre-lab write up. But you cannot tear this part to me before the lab.**

Prelab is safety related item. It is important to finish prelab before you come to the lab. **If you do not do the prelab, you will not allowed to perform the lab work!**

LAB REPORTS:

Many lab reports will be due **in one week** you finish the experiment. Worksheet, if any, might be due in the same day or in the next lab period. There will be **15% deduction for each late day.** You will receive a grade of zero for lab reports that are more than one week late. The report is due at the

beginning of the lab meeting. A laboratory report is considered late if not received **by me in person** on the day and time it is due. Although for 50% experiments you will be working with one partner, **everyone must turn your own report each time.** You are encouraged to discuss lab questions and results with your partner and other group students to enhance the understanding of the experiments. Please don't copy other students' report and please don't use your lab partner's excel graphs, you need to make your own graph.

DURING THE LAB: You need to continue notebook recording **in ink!**

- During the lab lecture discussions, you could record some background notes and/or principles in your notebook.
- Record your lab data and observations **directly to notebook**, then transfer the data to your report page.

◆ Points will be deducted if you forget to bring your notebook to the lab, if you write in pencil for the lab results, or if you record data on scratch paper.

◆ You need to let me sign your notebook for your data sheet before you leave the lab as the evidence you perform the lab.

FOLLOWING THE LAB: After the lab, you need to finish the Data Analysis and Post-lab Questions in data pages and report pages. **You do NOT do these parts on notebook, so no need to use pen (pencil is OK).** **Please print the blank report pages, and fill in your answers.**

Lab report that you submit should include:

1. Data analysis in printed out pages and/or graph. Please submit instructor's signature in report.
2. Post lab questions if there are any (in printed out paper).
3. Calculation pages if there is any calculations. For multiple trials, show one trial calculations.
4. **You must write brief conclusion paragraph for several points**

LABORATORY GRADE

Please see details in lecture syllabus on page 3.

For a 20-point lab report, it includes:

- 1) **lab data on your notebook that instructor already graded before you leave the lab. 3 pts**
- 2) **Report pages: results, calculations, reasoning explanation, etc. 15 pts.**
- 3) **Conclusion 2 pts – please write at least one paragraph about what you have learned and mistake analysis if any.**

There are several lab quizzes to help students prepare the the lab final. They are open-book, open-notes, open-discussion but with limited amount time to finish. You have to come to the lab on time to get the quiz. And you have to stay in the lab for all times (some labs contain two sessions) to get the full points.

In order to be fair to all students, advance or make-up lab quizzes and lab tests will NOT be given.

CHEMICAL DISPOSAL

As a concern for the environment and to follow county, state and federal law, proper chemical disposal is essential. **In De Anza, students need to dump the waste to the waste bottles that YOUR OWN INSTRUCTOR prepared. So try to see your instructor's name and waste bottle contents on the label.** Check with the instructor if you have any questions.

CLEAN UP

You must clean up your lab area and put the equipment back at their storage locations after the experiment. If you spilled a bit of chemicals at the reagent area, you **must** clean it up immediately, and put the chemicals into the waste bottle. If you do not do clean up, your lab performance grade will be low. If you have a large reagent spill, you need to report to your instructor to get help to do clean up.

CHECK-OUT

Check-out occurs at the last lab session. If a student drops the course, he/she **must check out during his/her regular laboratory section meeting with his/her lab instructor or come to the last lab session to check out.**

Good Luck with the Chem1C Labs and have fun!

How to Keep a Lab Notebook

1. Lab notebooks are bound (pages tied and glued together so that they are not easily removed. They are also numbered on every page, so again it is difficult to add or remove pages without this being obvious.
2. **All notebooks records are kept in ink. Mistakes in a notebook should be lined out with a single line, never covered with Whiteout or similar products, nor scribbled over to obscure the original notation(s).** This generates a permanent non-changeable record of the work done. This is crucial! If you ever work in a laboratory, you must NEVER erase, whiteout, cover over, or remove any mistakes or data. If you did so, this would be classified as data falsification and you could be fired, as well as face fines and criminal prosecution.
3. All notebook pages must be dated and should also have the title of the experiment being carried out on it.
4. **All notebooks should have a table of contents** for the work done. The traditional place for a table of contents is in the front of the book. Many notebooks will include a space for a table of contents. If yours doesn't, **leave the first 3 pages blank** and construct your own.
5. Ideally, all parts of a lab are written directly into the notebook. In this class however, I will not be requiring you to attach all your graphs and conclusions to your notebook. Some of your work may be done on separate paper and turned in as your final report. Be sure to refer to the next page in order to ensure that you have the right sections in your notebook. All your data must be recorded in your notebook.
If you record your data into the manual or on a piece of paper, THIS is your original data and it MUST be taped or glued into your lab notebook. Although you may recopy your data in your notebook in a neat table, your ORIGINAL data must also be there!
6. For every experiment, in addition to a title, there should also be a "Purpose", a short background introduction, a Chemicals and Equipment section, a Safety and Waste section, a Procedures section, an Observation/Data Collection section, and a Data Analysis section. Formal reports will also include a Discussion/Error Section and a Conclusions section. The following page shows the required order for these sections in the notebook.
7. **The following sections must be included in your notebook: Title, Purpose, Chemical/Safety Equipment, All Pre-Lab work, Procedure, Data, and Calculations. All other sections, including Graphs and Tables, Discussion/Errors, Conclusion and Post-lab Questions may be done on separate pages.**
- 8.

Some tips on preparing your notebook

1. Make sure your name and the experiment title are on each prelab, lab data page. **If you work with a lab partner, please write lab partner's name as well.**
2. Make sure your data collection pages are neat and your records legible.

3. **Make sure all chemicals needed are listed with the necessary concentrations.**
4. What glassware to be used can usually be streamlined in the procedure. Specifying the size of a test tube or beaker is often not necessary.
5. For the procedure DO NOT INCLUDE ANY OBVIOUS “HOW TO” STEPS. ONLY INCLUDE “WHAT TO DO” STEPS. For example, if the procedure calls for preparation of 25 mL of 0.050 M NaOH solution by dilution of 0.10 M NaOH do not include the steps involved to prepare the pipet (i.e. washing, rinsing with solution to be pipetted). Your notebook simple needs to read: “Prepare 25 mL of a 0.050 M NaOH solution by dilution from a 0.10 M stock solution.” For this example, you should also record the volume of the 0.10 M solution used and the type of glassware used (i.e. pipette, volumetric flask, etc.).
6. OMIT ALL REFERENCES TO SPECIFIC LABQUEST PROCEDURES. The LabQUEST Guide is always available as a reference. Simply state what to do. For example, “Calibrate the pH sensor using pH 4 and 10 buffers.” Would be an adequate step for using pH sensors.

CHECK LIST FOR COMPLETED LABORATORY ASSIGNMENTS/REPORTS

1. **Write your name on the first page. All loose papers must be stapled together!** (No paper clips, no bent corners, etc.) Loose papers will not be accepted and if you do turn them in, points will be deducted! Turn-in only what is asked for, no extra pages.
 2. The lab report or assignment should be neat. Lab reports could be completed neatly in pencil or pen. Mistakes during data collection should be **crossed out with a single line (not erased!)**. All writing must be legible. On graphs, circle the points so they can be seen. **INCLUDE UNITS on all data, graphs, calculations, etc...!**
 3. Unless otherwise notified by your instructor, all exercises and problems in a lab report or assignment must be completed for full credit. If you are having trouble solving a problem, see your instructor or school tutoring center for help. You also are encouraged to form a study group to do discussions. But do not try to copy each other's reports.
 4. **In all calculations show the set-up with units! If multiple trials are performed, you only need to show the set-up for the first trial.**
 5. All data must be recorded to the precision of the instrument. For example, never round the balance data. If you are unsure of the precision ask your instructor or refer the Measurements Lab (completed in class). For example, a buret reading where the meniscus falls exactly on 15 mL is recorded as 15.00 mL not 15 mL. The trailing zeros in the 15.00 mL reading are significant!
 6. In your calculations use the rules of significant figures to determine how many significant figures your answer should contain. Review the rules for significant figures! Points will be deducted for every significant figure error.
- Rules for Safe and Efficient Chemistry Laboratory Operations.**

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. *Take containers to the stock of chemical reagents.* Do not bring stock chemicals to your laboratory bench.
5. *Read the label on a reagent bottle carefully.* Is it the correct chemical? Is it the correct concentration?
6. Do not insert your own pipette, medicine dropper or spatula into a stock bottle.
7. *Use special care with stoppers or tops of stock bottles.* Do not allow them to pick up contamination. Your instructor will provide additional instructions for handling the stoppers or tops found in your laboratory.

8. *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.
9. *When pouring liquid from bottles, hold the bottle with the label against the palm of your hand so that the liquid is poured from the side opposite the label.* If any liquid runs down the outside of the label, immediately wipe off the liquid.
10. *Do not take any more of a reagent than is required.* Many of the chemicals used in the laboratory, including deionized water, are costly.
11. *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.
12. Set up your glassware and apparatus away from the edge of your laboratory bench.
13. Thoroughly clean the area around your laboratory bench and the top of your laboratory bench before leaving lab.
14. *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.
15. *Keep your laboratory equipment clean.* Good results depend on clean equipment.
16. *If a piece of equipment containing mercury is broken, inform your laboratory instructor immediately.* Keep the area blocked off to avoid scattering the mercury.
17. Follow any other housekeeping rules given by your laboratory instructor.

Safety Rules

From the American Chemical Society Safety In Academic Laboratories Guidelines, 7th Ed., the following mandatory minimum safety requirements must be followed by all students and be rigorously enforced by all Chemistry faculty:

- 1)** Chemistry Department-approved safety goggles purchased from the De Anza College bookstore (NOT safety glasses) must be worn at all times once laboratory work begins, including when obtaining equipment from the stockroom or removing equipment from student drawers, and may not be removed until all laboratory work has ended and all glassware has been returned to student drawers.
- 2)** Shoes that completely enclose the foot are to be worn at all times; NO sandals, open-toed, or open-topped shoes, or slippers, even with socks on, are to be worn in the lab
- 3)** Shorts, cut-offs, skirts or pants exposing skin above the ankle, and sleeveless tops may not be worn in the lab: ankle-length clothing must be worn at all times
- 4)** Hair reaching the top of the shoulders must be tied back securely
- 5)** Loose clothing must be constrained
- 6)** Wearing "...jewelry such as rings, bracelets, and wristwatches in the laboratory..." should be discouraged to prevent "...chemical see page in between the jewelry and skin...".
- 7)** Eating, drinking, or applying cosmetics in the laboratory is forbidden at ALL times, including during lab lecture
- 8)** Use of electronic devices requiring headphones in the laboratory is prohibited at ALL times, including during lab lecture
- 9)** Students are advised to inform their instructor about any pre-existing medical conditions, such as pregnancy, epilepsy, or diabetes, that they have that might affect their performance.
- 10)** Students are required to know the locations of the eyewash stations, emergency shower, and all exits
- 11)** Students may not be in the lab without an instructor being present
- 12)** Students not enrolled in the laboratory class may not be in the lab at any time after the first lab period of each quarter.
- 13)** Except for soapy or clear rinse water from washing glassware, NO CHEMICALS MAY BE Poured INTO THE SINKS; all remaining chemicals from an experiment must be poured into the waste bottle provided.

14) Students are required to follow the De Anza College Code of Conduct at all times while in lab: “horseplay”, yelling, offensive language, or any behavior that could startle or frighten another student is not allowed during lab;
15) Strongly recommended: Wear Nitrile gloves while performing lab work; wear a chemically resistant lab coat or lab apron; wear shoes made of leather or polymeric leather substitute.

Lab Safety Signature Sheet

By signing below, I, _____, acknowledge that

First Name Family Name

I fully understand and agree to abide by the laboratory safety rules listed above. Further, I acknowledge that my failure to abide by these rules will result in my being dropped from this chemistry class immediately.

Signature Date

Chemistry 1C Lab Calendar Spring 2024

	WEEK	MONDAY	WEDNESDAY
4/8 -4/10	1	CHECK-IN	Freezing Point (1)
4/15-4/17	2	Freezing Point (2)	pKa of indicator (1)
4/22-4/24	3	pKa of indicator (2)	Buffers (1)
4/29-5/1	4	Buffers (2)	Ksp & Common Ion Effect (1)
5/6-5/8	5	Ksp & Common Ion Effect (2)	Anions (1)
5/13-5/15	6	Anions (2)	Electrochem (1)
5/20-5/22	7	Electrochem (2)	Cations (1)
5/27-5/29	8	MEMORIAL DAY	Cations (2)
6/3-6/5	9	Cations (3)	Cations (4)
6/10-6/12	10	Cations (5)	Review & Check out
6/17-6/19	11	CHECK OUT. Lab final	JUNETEENTH
6/24-6/26	12	FINALS 11:30 -1:30	

TENTATIVE LECTURE AND LAB SCHEDULE:

Schedule is subject to change. I will announce the change in the class and/or in canvas announcement.

Date	Lecture	Mon. or Wed Labs	Tue. or Thur. Labs
Wk 1: 4/8 & 4/10	<ul style="list-style-type: none"> ● Discussion of Syllabus ● Ch-13: Solutions ● Pop quiz 1 (Ch-13) 	<ul style="list-style-type: none"> ● Introduction /Safety ● Lab notebook/Check-In 	Lab 1 – Freezing Point (1) (Submit Prelab on Canvas before the lab)
Wk 2: 4/15 & 4/17	<ul style="list-style-type: none"> ● Ch-13: Continued ● Ch-19: Ionic Equilibria ● Pop quiz 2 & 3 (Ch-13) 	<ul style="list-style-type: none"> ● Lab 1 – Freezing Point (2) ● Lab Quiz 1 (lab 1) 	Lab 2 – pKa of Indicator (1) (Prelab on Canvas)
4/21(Sun.)	<u>Deadline to drop this class with a refund and without grade</u>		
Wk 3: 4/22 & 4/24	<ul style="list-style-type: none"> ● Ch-19: Continued ● Pop quiz 4 & 5 (Ch-13 & 19) ● HW*Ch-13 due Sat. (4/27) 	<ul style="list-style-type: none"> ● Lab 2: pKa of Indicator (2) ● Lab Quiz 2 (lab 2) 	Lab 3 – Buffers (1) (Prelab on Canvas)
Wk 4: 4/29 & 5/1	<ul style="list-style-type: none"> ● Ch-19: Continued ● Pop quiz 6 (Ch-19) ● Wed: Lect. Exam 1 (Ch-13) 	<ul style="list-style-type: none"> ● Lab 3 – Buffers (2) ● Lab Quiz 3 (lab 3) 	Lab 4: Ksp and Common Ions (1) (Prelab Due)
Wk 5: 5/6 & 5/8	<ul style="list-style-type: none"> ● Ch-21: Electrochem ● Pop quiz 7 & 8 (Ch-19) 	<ul style="list-style-type: none"> ● Lab 4: Ksp and Common Ions (2) ● Lab Quiz 4 (lab 4) 	Lab 5: Anions (1) (Prelab Due)
Wk 6: 5/13 & 5/15	<ul style="list-style-type: none"> ● Ch-21: Continued ● Pop quiz 9 & 10 (Ch-19) ● HW Ch-19 due on Sat (5/18) 	<ul style="list-style-type: none"> ● Lab 5: Anions (2) ● Lab Quiz 5 (lab 5) 	Lab 6: Electrochem(1) (Prelab Due)
Wk 7: 5/20 & 5/22	<ul style="list-style-type: none"> ● Ch-21: Continued ● Pop quiz 11(Ch-21) ● Wed: Lect. Exam 2 (Ch-19) 	<ul style="list-style-type: none"> ● Lab 6: Electrochem(2) ● Lab Quiz 6 (lab 6) 	● Lab 7-1: QA Cation -Group A (Prelab Due: introduction & Group A)
Wk 8: 5/27 & 5/29	<p>Monday: MEMORIAL DAY</p> <ul style="list-style-type: none"> ● Ch-24: Nuclear Chem. ● Pop quiz 12 (Ch-21) ● HW Ch-21 due on Sat (6/1) 	MEMORIAL DAY	Lab 7-2: QA-Group B (1) (Group B Prelab Due)
5/31(Fri.)	<u>Deadline to drop this class with a grade W</u>		
Wk 9: 6/3 & 6/5	<ul style="list-style-type: none"> ● Ch-24: Continued ● Pop quiz 13 & 14 (Ch-21) 	Lab 7-2: QA-Group B (2)	● Lab 7-3: QA-Group C (Group C Prelab Due)
Wk 10: 6/10 & 6/12	<ul style="list-style-type: none"> ● Ch-23:Coordination Compds ● Pop quiz 15 & 16 (Ch-21) ● HW Ch24 due on Sat (6/15) 	<ul style="list-style-type: none"> ● Lab 7: QA-Catch up ● Lab Quiz 7 (lab 7) ● Check-out 	● Wed: Lect. Exam 3 (Ch-21)
Wk 11: 6/17 & 6/18	<ul style="list-style-type: none"> ● Ch-23: Continued ● Worksheet for Chapter 23 ● Pop quiz 17 & 19 (Ch-24) <p>WED.: JUNETEENTH DAY</p>	<ul style="list-style-type: none"> ● Finish Check-out ● Monday: Lab Final 	HOLIDAY on Wed. HW Ch-23 due Sat. (6/22)
Wk 12: 6/24 & 6/26	<ul style="list-style-type: none"> ● Final Exam on Monday in S34 From 11:30 – 1:30 pm 		

*I already extended due dates of homework of all chapters to the test days, so no more extension will be given.

Student Learning Outcome(s):

- Apply the principles of equilibrium and thermodynamics to electrochemical systems.
- Apply the principles of transition metal chemistry to predict outcomes of chemical reactions and physical properties.
- Evaluate isotopic decay pathways.
- Demonstrate a knowledge of intermolecular forces.

Office Hours:

M,W 12:45 PM 01:45 PM In-Person S34 then SC1206