

Chem. 1A Laboratory and Seminar  
Continuation of Chem 1A Greensheet

Spring 2023

Attendance is **required** for lab **and** seminar on a weekly basis since seminar quizzes and lab reports are part of your grade! Lab is 35% of your total grade!

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Will post office hours once I schedule them

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### Seminar

The seminar is a part of the laboratory portion of the course and it is a REQUIRED component, not optional. During seminar you will be discussing the following week's experiment and data analysis. It is also when you will be taking your lab quizzes and exams. **There will not be make-ups for lab exams and quizzes.** We delete two quiz scores to allow for all the issues students might have.

### Laboratory

**UNLESS the university closes for fires, ALL labs are in person.**

Your lab instructor will give no more than a very brief review of what is to be done in lab since the experiment was presented and discussed during seminar. It is your responsibility to complete the experiment in time, particularly if you don't come prepared! For some experiments there will be a prelab, work you must do prior to coming to lab. You must show the lab instructor that you completed the pre-lab before you are allowed to start the experiment, if the lab has a prelab.. If you show up to lab without the completed prelab the instructor can indicate that you cannot come in to lab to do the experiment at all, so don't leave it for the last minute.

Credit for doing a lab comes from attending the lab, doing the lab and then handing in the necessary reports/worksheets. Without the reports, you will not get credit for the lab. If you hand in a report without having attended the lab, you will be dropped from the course and reported to the University's Office of Student Conduct. The same will happen if you use data from another semester.

Many of the labs do not take the full three hours, if you work efficiently. We have allowed time for you to complete your lab report and/or practice problems in lab. In many cases, you must hand in your lab report or a portion of it prior to leaving lab if you wish to receive credit for the lab.

You will be warned 15 minutes before the lab ends to clean up and leave! Do NOT extend the time you are in lab since we have other sections that need to start.

**Please do not be absent from lab! Two unexcused absences are sufficient for us to fail you in the full course.**

### Grading

The grade for lab is a % forwarded to your lecture professor. He/She will combine that with your lecture grade to give a grade for the full course. The grading is based on quizzes, lab exams and lab reports. **These points do not all have the same weight.**

**Quizzes** – We expect that you will have twelve 10-point lab quizzes, which includes a syllabus quiz and the safety quiz. The quizzes are all worth 10 points so a total of 120 points is expected. We

will divide the sum of your quizzes by 100 rather than 120, so technically this is somewhat equivalent to deleting two quiz scores. **We do not have make-ups for quizzes. Students with SJSU approved absences need to take the quiz EARLY!**

**Lab Reports/Prelabs/Worksheets** – We expect that there will be 12 lab reports/prelabs/worksheets that must be handed in to receive credit for labs. The value of each lab differs so look at the report sheet to determine the value. There are also prelabs that count for points.

**Exams** – Two 50 minute, 100-point exams will be given during the seminar time. The exam dates and the experiments they cover are included in the attached Lab Schedule. **We do not have make-ups for lab exams.**

**Total Lab score is made up by 35% lab exams, 35% lab quizzes and 30% lab reports. You must pass the lab with a 55% or better to pass the FULL course!**

### **Safe and Respectful Community**

We hope that the classroom and laboratory will serve as an environment that will promote learning and the development of new ideas, as well as be a safe and respectful community. Behavior that interferes with the normal academic function in a classroom or lab is unacceptable. Students exhibiting this behavior will be asked to leave the class. Examples of such behavior include

- a) Persistent interruptions or using disrespectful adjectives in response to the comments of others.
- b) The use of obscene or profane language.
- c) Yelling at classmates and/or faculty.
- d) Persistent and disruptive late arrival to or early departure from class without permission.
- e) Physical threats, harassing/bullying behavior, or personal insults (even when stated in a joking manner).
- f) Use of personal electronic devices such as pagers, cell phones, PDAs in class, unless it is part of the instructional activity.

### **Important Reminders about Lab and Seminar**

- 1) Quizzes will be given during the seminar time. Only the safety quiz will be open through Canvas for 24 hours. We expect the quizzes all to be in person unless the university sends us to online mode due to COVID restrictions or air quality issues due to fires.
- 2) Seminar serves as the time to discuss the following week's experiment. Read the experiment before viewing the seminar video. The lab instructor will not be going over the experiment with you prior to the start of the lab.
- 3) Many of the experiments require that you hand in the lab report sheet at the end of the lab! Make sure you know when the work is due.
- 4) **If a report or worksheet is due at the end of the lab**, it must be handed in at the end of lab. If handed in after the lab period is over and the instructor has closed the lab, the penalty will be 50% off. Lab reports more than one week late will receive a grade of zero.
- 5) **If a report sheet is due at the start of a lab**, it must be handed in no later than 5 -10 minutes after the lab starts. The lab instructor can allow one late report (20 minutes) if a valid excuse is provided. Reports handed in late (but no later than one week late) will result in a 50% penalty. Your

report will be graded following the grading key and your grade will be cut in half. Reports handed in more than one week late will receive a score of zero. This rule had to be created because students were taking lab time to do the report sheets, copying from each other, when they should have been in lab listening to the instructor and starting the new experiment.

**6) Prelabs** must be shown to the instructor at the start of lab, within the first 10 minutes of lab. If it isn't done at the start of lab, the student will be told to attend another lab section, ASSUMING that is possible. Labs run Monday through Thursday of a given week.

**7) Lab Make Ups, IF allowed** – Labs go Monday through Thursday. If your lab meets on Thursday and you know you will be absent, then you have to attend a lab on Monday, Tuesday or Wednesday of the SAME week. The reason for the make-up must be a strong and compelling reason. **You can only make-up ONE lab.** Note that make-ups depend on the capacity of the room. If the lab is full, the make-up will not be allowed.

**The detailed schedule for lab and seminar is a separate document in the module and a CONTINUATION of this syllabus.** This makes it easier for us to update the schedule independently if issues like closures for air quality or COVID happen during the semester.

## **Beginner Course on Ethics in the Sciences and Engineering**

These are some of the codes of ethics scientists, engineers, health professionals, etc. are expected to follow. There are courses (Phil 133) and textbooks on the subject of ethics that can cover much more material and expand on these topics. Not following these codes can: get you fired from a job, generate criminal/civil charges leveled against you and will definitely cause your colleagues to not respect your work. At SJSU not following the codes gets you reported to the Office of Student Conduct and Ethical development. Both Colleges, Engineering and Science, report many students every year. You, as budding scientists, engineers, health professionals, need to start applying these codes in your work. Be aware that “Does the applicant behave ethically?” is a question faculty and former employers have to answer when serving as a reference for you.

1) **Never, ever make up data.** You cannot fabricate data to fit the final answer, even if you know the final answer. I understand that you want to please the professor and give her the right answer but this is not the way science is done. As an example as to why fabricating data is the wrong thing to do, think of medical researcher who made-up positive results on the testing of a new drug for diabetes just because he thinks it should work. Not a drug you would want to take! Or consider a civil engineer, whose calculation leads to answers he does not like so he changes the value to something he thinks it should be. You might not want to use that bridge or building he built. We are often biased towards wanting a certain result but we can't let that bias cloud our judgement. Ultimately it is data correctly obtained and analyzed that will determine whether you have succeeded.

2) **Never alter or delete your data.** If you have a data point that you feel is not valid because you are aware that you spilled some of the solution, or you went past the end point in a titration, etc., you lightly cross out the information in your notebook or report sheet, not erase it, and then write an explanation as to what happened. With guidance from the instructor, you can also not incorporate that data point into the calculation of the average

value, since you have written evidence of a fault in your technique. In more advanced courses, you can submit your data to statistical scrutiny (least squares fit, T test, Q test, etc.) which will give you guidance on whether that data point can be removed from consideration. Again, think of a medical researcher who decides to ignore the one patient out of 20 that developed cancer while under the drug he was testing. You would not be pleased if this side effect is not reported to you when you are deciding on whether to use that drug. This is why those drug commercials come to a point in which someone is rapidly reading every side effect observed so far (which freaks most of us out!). They can't ignore one data point. Or consider the civil engineer who is testing 15 supporting beams and decides to ignore the one that is not meeting specs so that beam gets used in the construction.

3) **Never take someone else's data and claim it as your own (i.e. plagiarism).** This is what a subset of Chem 1A students are currently doing, looking at old report sheets. You signed a document indicating you would not do that! Occasionally in Chem 1A you will do experiments with a partner. That is fine, you collecting data for both of you. Or maybe you were out sick and provide documentation of the issue, then the instructor might give you a fake data set to work out a report sheet or instruct you to obtain a data set from another student. That is OK. But "stealing" data from a classmate in lab because you don't want to do the work or want to get out of lab early, or using data from an old report sheet is plagiarism and will be reported to SJSU. Aside from the sporadic permission from an instructor to obtain data from another student, you are not allowed to use data collected by another student, even if the student gives you permission to use it!

4) **Give credit to others that were involved in collecting the data.** This is why your report sheets often ask you to include the names of your partners, if the data was collected together. You should never work with other collaborators and then submit the data as only your work. That is one way to really upset your colleagues and get alienated from the group. In the same manner, contribute your fair share if you expect to get credit for the work. A researcher that watches his colleagues do the work and does not contribute assistance physically, intellectually and, occasionally, even financially should not be included as a co-author.

This one is often an issue throughout your college education and at work. Whether it is an experiment in lab, your senior project or a report in a class, working in groups can be tough. All members have to contribute in some way if they want their name included in the report. The problem often is that one student wants to have an A paper and the other one just wants to pass the class with a C so she does not want to put in as strong an effort. The student who wants an A, Sally, does a lot of extra work to produce that A paper but then has to write the other student's name, Jill, on the paper. Sally will be angry that Jill is getting credit for her hard work, but she still has to write Jill's name because she contributed some effort. Whenever possible try to form a group with people who have similar goals so that the work is better distributed and the commitment to the project is similar.

Since you are not generating new knowledge for the world when doing your Chem 1A experiment, we won't go into the rules for intellectual property. But that is also an issue that you need to learn about when you go work for a company in research and development. They own your ideas because they are paying for your time, training and access to things (equipment, chemicals, journals, experts, etc.) that allow you to come up with the new idea.

## How do YOU study for Chem 1A? – Self Survey

For more details and a full description of each item, look for the file in Canvas called, “How to Study...”.

### What is your motivation to excel in this class? Check all that apply.

- I want to get a good grade for my GPA
- I enjoy and want to learn chemistry.
- I need to excel in this class to reach my educational/career goal.

### Organization

- Use a three ring binder to organize notes, handouts, **support sheets** so that everything is in topic order.
- Use a notebook (or a section of your binder) to collect your worked out practice problems in an organized manner.
- Keep a copy of the syllabus and calendar with due dates, etc. in the binder.
- Schedule time to study on a consistent basis.

### Before class

- Lightly read the section(s) in the book to be discussed in class.
- Review your notes from the last class.
- Update your schedule for updates or additions to due dates, exam dates, etc.

### During class

- Attend class.
- Take notes, even if the instructor provides you with notes later.
- Ask questions, when in doubt.
- Listen for queues from your instructor like “good question”, “nice problem for a test”, “this is something many students get wrong or do incorrectly”, etc.
- Do the practice problem(s) the instructor is using as an example in class, including plugging in numbers into calculator.

### Soon after class (same day or close to it)

- Rewrite your notes, using post-its to write down questions you want to ask the instructor/tutor/SI leader/study group or need to look up in the book to fill in gaps.
- Create a brief summary (**support sheet**) with what you need to approach your practice problems.
- Read your notes and **support sheet** aloud.
- Rework problems done in class to make sure you understood them. If they are math problems, consider what you would have had to do to solve for a different variable.

### During the week

- Do assigned problems using your **support sheet**. Add things to it as needed.
- Find additional practice problems.
- Test yourself.
- Attend supplemental instruction sections, tutoring sessions, etc. if available.
- Work in a study group.
- Explain tough concepts to others, including people who don't know chemistry.
- Assess whether you need more help and, if needed, start looking for it in tutoring centers, office hours, etc.

### Before a test

- \_\_\_\_\_ Review your **support sheet** often. Look over your practice problems. Do more practice problems.
- \_\_\_\_\_ If you have access to practice exams, do the practice exams. Set a clock for the exam time limit to see if you can get it done in the required time.
- \_\_\_\_\_ Determine if there is anything that you need to memorize because it confuses you.

### After a test

- \_\_\_\_\_ Look over your **support sheet** and make sure that what you needed was on it.
- \_\_\_\_\_ If you get the test back, look it over well to decide what you need to correct.

### How to manage the Chem 1A Lab – Chem 1A Lab is 35% of your total grade

- 1) Read the experiment BEFORE attending seminar.
- 2) Attend seminar. Take notes and ask questions.
- 3) Prepare a recipe (in list form?) of the procedure so it is in a format that you can follow without having to read the lab manual over and over during the lab.
- 4) Attend lab. Ask questions. Collect the data. Reading the experiment in lab for the first time is not the way to approach this lab! You will be very confused, you will run out of lab time and trusting your peers could lead to incorrect and/or unsafe work.
- 5) Stay in lab to start working the report sheet, if the report sheet is not due at the end of the lab. You have the support of the instructor and peers so take advantage of it. It will be much more time efficient than taking it home and starting all over when the experiment is no longer fresh in your mind and you can't recall what you did.
- 6) Complete the report sheet and do problems at the end of the experiment. Note that many of these problems are also practice for lecture.
- 7) Create a SMALL **support sheet** to prepare for the quiz. Save these support sheets to use to study for the lab exam. Maybe a 3.5 x 5 in card, or start on a full paper and then add other experiment support there as the semester progresses.

### Support sheet

A support sheet is an 8.5" x 11" paper, lined or not lined, where you handwrite everything you think you need to know for a test, in abbreviated form. You don't have to fill the full thing, if you don't need that much support. Think of it as the paper you would like to have with you while taking the test. It must be well-organized, not just notes all over the place. Boxes with headings, using different colored pens, highlighting things, etc. will help you organize it. Note that you will probably rewrite this several times and that is studying! And writing it over will cause it to imprint in your brain. Don't be surprised if you can visualize the support sheet while taking a test. The support sheet also serves as your review sheet for the final, to review content in future classes and even for exams like the MCAT, Chemistry GRE, etc.