

CHEMISTRY 1B Lab & Seminar

Continuation of Chem 1B Greensheet

Fall 2019

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DH 16

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Office Hours – Monday 11:30 -12:20 PM, Wed 2 – 3 PM and by appt

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BOOKS/SUPPLIES/COURSES

Required

1) **Lab Manual/Handouts for Chemistry 1B** - Sold during the first 2 weeks of school by the Chemistry Student Club (DH20- basement) - They only take cash, \$20!

2) Hand-held scientific calculator - **Must be non-programmable** and should have $\log x$, 10^x , $\ln x$, e^x and x^y keys. - **You will not be allowed to use your programmable calculator during a lab exam or quiz!**

Not Required (But useful)

1) **Academic Excellence Workshops** to help you study for Chem. 1B. These are 3 hour a week organized study sessions. I will provide more information on how to enroll and the times.

2) **Suggested items to purchase for lab:** small notebook to keep in your drawer (you can staple together 15 sheets of lined paper?), safety glasses and a china marker (sold at bookstore). The note book is to keep a set of data in your locker in case you lose your lab manual. The safety glasses are in case you don't want to use the goggles provided in your locker and the china marker writes on glass to label things quickly. Note though the china marker will not label things that go in the oven!

THINGS YOU MUST DO THIS FIRST WEEK OF CLASS

1) Attend your lab section to claim your space. **Miss your first lab, we drop you from the course!**

2) Attend seminar on the first week of school.

3) Read this greensheet thoroughly. It is the rules of the game. Best to know the rules before you start. There is a greensheet quiz covering this greensheet and the one for lecture on Canvas for your seminar that you must complete. Don't forget to get it done by the due date.

4) If you purchased the manual, read pages i – xii of the lab manual before attending your lab session. If not, go to the yahoo group or SJSU Chem Dep website and read the safety rules for teaching labs.

5) If you decide to drop the course, please give Dr. Singmaster a note with your name indicating that you will be dropping the course. It will allow us to add people efficiently.

6) Do the calculator practice in your lab manual. **It is your responsibility to know how to use your calculator. Instructors will not assist you during an exam or quiz!**

7) **Start working on Exp. 13 problems on concentration and stoichiometry.**

ATTENDANCE/WORKLOAD

Regular attendance to lab are required. Absences to lab can and will result in an F grade for the FULL course (two unexcused absences from lab are sufficient for me to drop or fail you!!). Please remember this is a 5 unit course, it will require a great deal of your time. Seldom does a student who works and carries a full course load succeed in this class. Make arrangements now, don't wait until you

are behind. SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in [University Policy S12-3](http://www.sjsu.edu/senate/docs/S12-3.pdf) at <http://www.sjsu.edu/senate/docs/S12-3.pdf>.

To attend another lab section so as to complete work, you will need the consent of the section's lab instructor. They are not required to accept you in their lab, particularly if their lab is full! I strongly encourage you to not be absent from lab.

MISCONDUCT

Students are to do only those laboratory experiments assigned. Certain chemicals when improperly used are very dangerous. You are responsible for disposing chemical wastes safely; the lab instructor will inform you on particular waste disposal issues for each experiment. If they forget to inform you, ASK THEM!! Any student found preparing anything that may in any way endanger her/his safety or the safety of others will be immediately dropped from the course with an F grade. Any student found disposing of wastes incorrectly is also in danger of being dropped from the course or failed. Students are expected to behave maturely and honorably in the lab and lecture course.

While taking exams or quizzes, the student should keep his/her eyes down on his/her own paper. No whispering or talking is allowed. You are not allowed to share a calculator or periodic table during exams or quizzes. If your calculator fails inform the instructor. They can then decide a course of action. You may not use your cell phone or PDA as a calculator; these should be stored in your backpack or on the floor beneath your seat. You may not answer the phone during a test. You cannot have headphones/earphones in your ears irrelevant of what you are listening to. All printed or written material (notebooks, textbooks, etc.) should be placed under the seat, left outside the room or placed near the lecturer's table, at the front of the room. Failure to comply will cause the instructor to pick up the exam and give a grade of F for the exam and/or course. Willful solicitation, procurement or conveyance of exams/quizzes/unknowns will also result in failure of the course. The instructor can and will bring the person caught cheating to the attention of the university committee in charge of student misconduct.

EMERGENCIES/EVACUATIONS

If you hear a continuously sounding alarm, or are told to evacuate by Emergency Coordinators (colored badge identities), walk quickly to the nearest stairway (end of each hall). Take your personal belongings with you as you may not be immediately allowed to return. Follow instructions of Coordinators. Be quiet so you can hear. Once outside, move away from the building. Do not return to the building unless the Police or Coordinators announce that it is permissible. If an alarm should occur during an exam or quiz, please attempt to give your instructor the paper.

MISCELLANEOUS

1) You must bring the lab manual to each lab class and seminar; however you do not need to bring the textbook to lab or seminar, unless you want to.

2) Safety glasses must be worn at all times during the lab experiments; if they fog up, take them off outside the room!! SJSU provides you with goggles in your lab drawer but you might consider buying your own at the bookstore or from the Chemistry Club, although note that the club has limited quantities and only sells for the first two weeks of school.

3) Keep track of your scores. At the end of the semester compare your grade sheet with the lecturer and lab instructor's grade sheets to make sure we have transcribed and adjusted you grades correctly. **You have only 9 days from the day a quiz or exam is returned to ask for a regrade of your exam or quiz. I will not do regrades after nine days have passed.**

4) **If a fire alarm were to interrupt an exam please do the following: Leave the room via the door closest to the instructor and give the instructor your quiz or exam. Provide assistance to any disabled students. Take your books with you since there is some chance you might need to go to your next class before you are allowed in the room. If a fire alarm interrupts lab, please turn off any gas line.**

5) Please remember that you must check out of the lab even if you drop the course. A \$25 charge will be billed to you if you do not check out.

6) **Any student with a disability requiring special testing conditions must let Dr. Singmaster now within the first two weeks of class so as to determine times for lab exams.**

7) **A student has two weeks to determine whether they wish to remain in the course. Students dropping after those two weeks will be charged a \$25 fee to help defray the costs incurred in lab and for the fact that we can't replace them with an add. All students dropping the course are strongly encouraged to let Dr. Singmaster know in writing of their intent to drop.**

8) It might be useful to purchase a small, inexpensive bound notebook to keep in your lab locker. You can keep a **second** copy of your raw data for each experiment in that notebook. (First copy of data goes on the data section of an experiment in your lab manual.) That way, if you lose your lab manual or misplace the data, you have a safe copy in your drawer and you do not need to start the experiment over. All you need to copy is the raw data, you can always redo the calculations. Some labs take two periods and would require you redoing everything to get a final result.

9) You get your own two lockers in Chem. 1B. You do not share these. Once you check in you are financially responsible for any breakage or loss. More details in lab.

10) We have been having issues with students checking out certain equipment and not returning it in a timely manner for other students to use. **There will be a late charge of \$5.00 to all Chemistry 1B students who do not return limited resource items at the end of the lab period. Subsequently students will be charged \$5.00 for each additional day (not including weekends and Holidays) they fail to return these items to the Service Center.** Past the initial late fee charge of \$5.00, students will not be required to pay a late fee greater than the replacement cost of that item. Late Charges for Chemistry 1B students are for the following limited resource items: Liquid and Gas Burets, Volumetric Pipets and Bulbs, Volumetric Flasks, Conical Flasks (except 500 ml), Graduated Cylinders, Centrifuge Tubes, Funnels, Aluminum Spiral, Stopwatches, Digital Thermometers, and Volt Meters.

Laboratory

It is your responsibility to complete the experiment on time, particularly if you don't come prepared! Chem. 1B experiments often take more than one lab period and require that you come to class with a clear idea of what you have to do and in what order. Also they often require that you process more than one run at a time or you won't have enough lab time to complete the experiment. You must pay attention to the lab instructor when they say "Start cleaning up". This will usually be said 15 minutes before the end of lab. There will be times when the instructor might say that you cannot start X part of the experiment because there isn't enough time to complete it. Follow those instructions or you will damage experimental runs and you will get to start over!

Credit for doing a lab comes from attending the lab, physically doing the lab and then handing in the necessary reports/worksheets. These report sheets get graded for accuracy and precision. This counts for as much as 60% of your grade on your report sheet. Thus doing the experiment will not get you through the course. You have to do it WELL. Without the reports, you will not get any 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 Disciplinary Committee. Some of the labs are done in groups. Members of the group are expected to be physically involved in doing the experiment and collecting the data. If one student does all

the work, the partner will not get credit, even if the partner hands in a report sheet!

Extra time in lab will be used to either work out data and the report sheet, or to practice doing problems. You have an instructor in the room who can help you study! Don't waste the opportunity.

Please do not be absent from lab! Two unexcused absences are sufficient for us to fail you in the full course. To make up an absence it is possible to attend another lab section. However, if the lab is full the instructor can deny you access (most will be full!). Request a make-up slip. Follow the instructions on the slip. **You only have the privilege of one make-up. After that you need to consult Dr. Singmaster.**

Friday Seminar

This is when we discuss the following week's lab, do the lab quizzes and lab exams. Attendance is required, is not optional. We also discuss the calculations. This will not be done in lab! This is also when we give the lab quizzes. You can take a quiz early but we do not do make-up quizzes.

Lockers

You will not be sharing lockers with a student from another lab section. To check out equipment you will be using a checkbook. It is important that you follow the instructions on how to use the checkbook. They will be provided to you in the lab manual. Equipment checked out with a check that is not returned at the end of the semester will be billed to your SJSU account.

Grading

The total lab grade constitutes 40% of the final grade. **Failing lab (55.0% or less) or lack of attendance to lab will result in an F grade for the FULL COURSE, irrelevant of how well you are doing in lecture.** Do not miss labs!! **PLEASE note we do NOT provide extra credit work at the end of the semester for students who are doing poorly.**

The grade for lab is 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, lab reports and evaluations points. **These points do not have the same weight!** Quiz and lab exam point weigh more than lab report points!

Quizzes

We expect that you will have TEN 10-point lab quizzes which includes a Canvas quiz on the greensheet. We drop your lowest score to calculate your total quiz score. You must get 80% or better in the safety quiz to remain enrolled in the course. You will have a maximum of two chances to pass the safety quiz. If you fail the safety quiz the first time, you will have to either visit your lab instructor or Dr. Singmaster to get a make-up chance.

Lab Reports/Unknowns

Typically you must submit a lab report at the end of every experiment. Many of these experiments have unknowns. Point value for the reports varies greatly depending on the nature of the experiment. Exp. 16, 19 and 23 are quantitative analysis of a sample. As such they are the reports that are worth the most points. Exp. 24 and 25 are "lab practicals" and also count for a lot of points. We will be provided with a goal to accomplish and you will have to write the procedure and test it out. More details to be provided below and in lecture. These experiments will count for a significant number of points. Quantitative analysis **unknowns** in Chem. 1B require that you report the amount of material present. You are graded for both precision and accuracy. To obtain a perfect score for an unknown your result must have the proper units, the correct number of significant figures and, typically, must be less than a 1% off from the correct value. In addition the range of your data runs must be small (less than 1% of your value).

This might seem like a strict grading scheme but for 90% of the students the scores on the unknowns are higher than for their lab exams and quizzes, thus unknowns typically raise your grade. The scores also reflect your ability to perform scientific procedures in a meticulous manner. If an experimental run is damaged, it is your responsibility to repeat it. You will need to discuss with your lab instructor whether you have the time to complete it in class or whether you need to attend another lab. ***Report sheets have due dates that are listed at the end of this greensheet.*** You are strongly encouraged to hand in the report sheets well before the due date and prior to the quiz on the experiment so that you can ascertain whether you are doing the work correctly! **Report sheets handed in after the due date will have points deducted from the score at a rate of 20% per week late!** This hopefully forces students to keep up with the work load and minimizes last minute grading by the lab instructors.

Exams

Two 100-point exams will be given during the activity time on Friday. The exam dates are included on the schedule. The lab exams often have more of the calculations portion of the course, whereas the lecture exams often have a larger theory component. You can request to take an exam early but we do not do lab exam make-ups.

Lab Practicals

Experiment 24 is to prepare a solution with certain assorted concentrations and then test your solution to see if you prepared it correctly. This will require a solid understanding of significant figures, units, molarity, dilution, use of pipets, balance(s) and volumetric flasks. You get to write a procedure and then follow it. You test your solution and decide whether you are satisfied with your result or not. You then get a second chance to adapt your procedure and prepare a new solution. Exp. 25 will consist of preparing a buffer and testing to see whether you have done so correctly. An understanding of acid-base equilibria and stoichiometry will also be needed to complete this task. Again you will have the chance to test your procedure. Your written procedure as well as your result will be graded. Plagiarism will not be tolerated. If you do not know what plagiarism means come see me!

Total Lab score is made up by 35% lab exams, 30% lab quizzes and 35% lab reports. You must complete the lab with a 55% or you will fail the FULL course irrelevant of how well you did in lecture!

Students can redo a lab on their own time as long as the needed equipment is in the room AND there is extra space in the lab section, if attending a lab other than their own. Highest possible value on a redo is 10% lower than the original value of the experiment. Report sheets have a penalty of 20% off for every week late!

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

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

Fall 2019 Chem 1B Lab Schedule

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	WEEK
AUG			21 Check in	22 Check in	23 Safety, 13	0
	26 Check In, 13	27 Check In, 13	28 13	29 13	30 Discuss 15, 16 Safety Quiz	1
SEP	2 See Note 1 below Labor Day	3 15, NaOH	4 15, NaOH	5 15, NaOH	6 Discuss 16 Quiz 13	2
	9 16	10 16	11 16	12 16	13 Discuss 23	3
	16 16/23	17 16/23	18 16/23	19 16/23	20 Discuss 17	4
	23 17	24 17	25 17	26 17	27 Discuss 19 Quiz 16	5
	30 19	1 19	2 19	3 19	4 Discuss 18 Quiz 17	6
OCT	7 18	8 18	9 18	10 18	11 Discuss 20 Quiz 19	7
	14 23	15 23	16 23	17 23	18 Lab Exam I	8
	21 20	22 20	23 20	24 20	25 Discuss 21 Quiz 18	9
	28 21	29 21	30 21	31 21	1 Discuss 24	10
NOV	4 23/24	5 23/24	6 23/24	7 23/24	8	11
	11 Veterans Day	13 23/24/25	14 23/24/25	15 23/24/25	16 Discuss 22 Quiz 21	12
	18 24/25	19 24/25	20 22/24/25	21 22/24/25	22 Q and A Quiz on 22 due through Canvas on Dec 2	13
	25 22/24/25	26 22/24/25	27 28 29 Thanksgiving Break			14
DEC	2 Quiz 22 Due 25	3 25, Check Out	4 25, Check Out	5 25, Check Out	6 Lab Exam II	15
	9 25, Check Out	10 DEAD DAY	11	12	13	16

Note 1 - Monday labs will have to attend another lab section to do Exp 15. We will try to have NaOH solutions made for Monday labs.

Lab Exam I – Experiment 13, 15, 16, 17 and 19
Lab Exam II – Experiment 18, 20, 21, 22 and 23

Fall 2019 Chem 1B Lab Schedule in Accessible Format

Week	Dates	Lab	Seminar
		Experiment number	
0	8/21 - 8/23	Check-in	Safety, Discuss Exp 13
1	8/26 - 8/30	Check-in, Exp 13	Safety Quiz, Discuss 15/16
2	9/3 - 9/6*	15, 16 NaOH	Quiz 13, Discuss 16
3	9/9 - 9/13	16	Discuss 23
4	9/16 - 9/20	16 and 23	Discuss 17
5	9/23 - 9/27	17	Quiz 16, Discuss 19
6	9/30 - 10/4	19	Quiz 17, Discuss 18
7	10/7 - 10/11	18	Quiz 19, Discuss 20
8	10/14 - 10/18	23	Lab Exam I
9	10/21 - 10/25	20	Quiz 18, Discuss 21
10	10/28 - 11/1	21	Discuss 24
11	11/4 - 11/8	23 and 24	Quiz 20, Discuss 25
12	11/12 - 11/15	23, 24 and 25	Quiz 21, Discuss 22
13	11/18 - 11/22	22, 24 and 25	No Seminar
14	11/25 - 11/26	22, 24 and 25	Quiz 22, Q and A
15	12/2 - 12/6	25, Check Out	Lab Exam II
16	12/9	25, Check Out	
Lab Exam I - Experiment 13, 15, 16, 16 and 19			
Lab Exam II - Experiment 18, 20, 21, 22 and 23			
* Monday labs need to go to another section to perform Exp 15.			
Students can redo a lab on their own time as long as the needed equipment is in the room AND there is extra space in the lab section, if attending a lab other than their own. Highest possible grade on the redo is 10% lower than the original value of the experiment. Report sheets have a penalty of 20% off for every week late!			

Due Dates of Report Sheets — You can hand in earlier!

Cautionary note — Dr. S strongly encourages you to not leave Experiment 23 for the last minute!

9/3 – 9/5	13	Due at the start of lab to your lab instructor (Monday labs due 9/9)
9/9 – 9/12	15	Due at the start of lab to your lab instructor
9/30 – 10/3	17	Due at the start of lab to your lab instructor
10/4	16	Due in Friday seminar to Ms. Padmadabhan
10/7 – 10/10	19	Due at the start of lab to your lab instructor
10/21 – 10/24	18	Due at the start of lab to your lab instructor
11/4 – 11/7	20	Due at the start of lab to your lab instructor
11/12 – 11/14	21	Due at the start of lab to your lab instructor (Monday lab due 11/19)
12/2 – 12/5	22	Due at the start of lab to your lab instructor
12/4	23(earlier OK!)	Due to Dr. Singmaster (DH 16, door pocket)

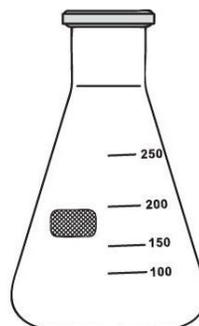
Exp. 24 and 25 are due by the LAST lab meeting to your lab instructor. Early is better though, if you have it done!

Students' biggest mistakes in Chem 1B lab - Very honest comments from Dr. Singmaster, in case you are interested

- 1) **Not taking the time to do and understand all the problems in Study Assignment 13.** Those problems will *haunt* you all semester because all semester you are doing concentration and stoichiometry.
- 2) **Being in a hurry in lab.** You have 4.25 hours to get it done right and to get help with the report sheet. Don't waste points because you were cutting corners, not checking your calculations, etc. For experiment 16 we often have as many as 50% of the students handing in calculations that are wrong. Take advantage of the fact that the lab instructor is there to see if you are doing the calculations correctly, etc.
- 3) **Not being ready for lab.** Read the experiment, attend seminar and create a summary (recipe) so that you know what to do. Do not expect others to have this for you. They might be lost and you do the wrong thing, wasting time, etc. Sometime many mess up because they followed the mistakes one person made.
- 4) **Expecting others to do the work for you when working in groups.** This is particularly a problem in Exp. 23.
- 5) Not taking advantage of the FREE Sci 1 workshops and of office hours with instructors.
- 6) **Waiting for magic to fix it all...** If you are lost, don't wait for your score in Lecture Exam I to prove it to you. By that time you can't fix it and the material gets tougher.
- 7) **Forgetting material learned in Chem 1A.** For example, you learned how to construct a graph in Chem 1A. Use that knowledge in Chem 1B or we just take the points away and wonder why we passed you in Chem 1A. Even for Exp. 23 final report I get graphs that are so wrong in terms of axis choices, correct plotting, etc. that it is depressing for me to grade.
- 8) **Doing poorly on the Safety Quiz and Greensheet Quiz on Canvas.** You should get at least 90% in both of these so that you start with two GOOD quiz scores.
- 9) Not paying attention to Prelab Quizzes for Exp. 16 and 23. Both are giving you significant hints!
- 10) **Not taking advantage of the resources YOU PAY FOR,** like: Counseling Services for test anxiety; Career Center to plan your future; Accessible Education Center if you have accessibility issues; Peer Connection for workshops and tutoring; and CoSAC for tutoring.
- 11) **Glassware Names** – Use them correctly, particularly in Exp. 23, 24 and 25 write ups. And figure out what they do. Measuring a volume is NOT the same as delivering a volume. A pipet delivers 10.00 mL to a flask, it does not contain 10.00 mL. The pipet sucked up a little more than 10.00 mL because it stays wet.



Volumetric Flask
(very narrow neck)



Conical or Erlenmeyer flask