

Study Tips for Chem 131

Making the most out of the lectures:

1. Preview the topic and subtopics for the lecture powerpoint if available before class if not available use the textbook designated for said lecture.
2. After the lecture go through your notes marking areas of confusion with question marks and annotate specific questions beside.
3. Re-attempt any example problem(s) your professor solved during the lecture on your own. Compile the ones you could not solve on your own to a sheet/doc and attend office hours to adjust your clarification of the problem.

Problem Solving Tips:

Often students attempt to memorize problems and the steps to solving them similar to that for mathematics. However, chemistry problems are not a one track solving process, it requires understanding several smaller concepts to solve and understand the bigger picture. Additionally, all problems have unique wording where you must be reliant on your understanding of the science in order to distinguish key information for solving it.

After reading a problem ask yourself:

1. What topic is this question within; e.g., Limiting Reagent, Redox Reactions, Gas Law?
2. What formulas and concepts are relevant to this topic?
Some may be available on a given formula sheet if not, it would be your responsibility to memorize it!
3. What given/known information in this question is helpful to answering it?
E.g., Molarity, Molecular weight, balanced equation etc.
4. What are the unknown variables?
A question can ask you to determine molarity but [of course moles are needed to be known first] (you need to know moles first). Remember unknown variables are not always the final answer!
5. What are you answering?
This may seem to be a no brainer but students sometimes are not sure what their aim is for solving the question, make sure you have convinced yourself what you're answering before you approach solving it!

Strategies for Problem Solving:

Now that you have assessed all of the puzzle pieces you have to now devise a plan as to how to go about obtaining the answer.

1. Make sure you have chosen the correct formulas/equations relevant to solving the problem.

You may have chosen a formula relevant to the question topic, but does it use up all of the useful given variables or solve for an unknown variable needed to reach the final answer? If not you should search for the correct formula(s) which does use up all of the given variables.

2. Recall methods for solving this topic of question but do NOT attempt to solve it exactly as you remember, not all problems are written the exact way!
3. Make sure you have used all of the given information. If you have variables/values not used from the question you must have either missed a step or used an incorrect equation. Review your work and back track to see where that missing info can be used.
4. Check your calculations + significant figures. Don't lose points because of a miss calculation or rounding up numbers. Always check your work!

Using Study Groups:

1. Form a study group consisting of three to six serious chemistry students.
2. Try to convene at the same place and same times weekly – recommended 2 hours a week with more hours before an exam.
3. Assign specific tasks to members.
4. Spend most of your time discussing and solving problems.
5. Increase the time for your sessions to prepare for exams. Each member should be responsible for preparing and presenting material that will appear on the upcoming test

Preparing for and Taking Exams:

1. A week before the exam, take a moment to exercise active recall. Take a practice test to self-assess your current knowledge. On a sheet of paper write down all of the main topics of the exam material. Fill in as much information as you can that you can remember conceptually and quantitatively for that area. Compare

your sheet of paper to your class notes and see what you have missed. Concentrate on these areas the most during your study time first, and leave the rest for review.

2. Chemistry exams generally consist mostly of problem solving, your preparation can only be effective if you practice solving relevant problems. Review the assigned problems, solve additional problems in the text and study guide, and from previous exams if available. DO NOT only review the solutions of problems. For problems already solved, simply change given values and rework the problem finding a different answer. To be successful on a problem-solving exam, you must have the experience of solving many problems yourself.
3. Review your practice/previous exams to re-familiarize yourself with the kinds of questions your professor asks. Identify the questions you were most successful answering as well as those you could not correctly complete. Emphasize understanding problems that resemble those that were particularly difficult for you in the past.
4. Take time to attend a professor's office hours/TA office hours/tutoring to gain clarification on practice problems or concepts you still have confusion on.

Taking the Exam:

Make sure your calculator can perform all required operations and replace your batteries before the exam. Use a calculator you are comfortable with and used often during your preparation for the exam.

1. Read instructions carefully.
2. Answer the questions or solve the problems you feel sure about first.
3. Show all work clearly.
4. Use a calculator with all required functions.
5. Check your answers to see if they match the questions and if they are reasonable.

The Laboratory Period; Preparing for the Laboratory Exercise:

1. Read and understand the lab in advance. Connect concepts taught from lecture to your lab experiment. Your lab is an opportunity to see how your science on paper comes to life.
2. Write out objectives and procedures of the lab in your own words/voice. You are the scientist here, conducting a lab experiment is far easier if you understand and remember the steps.

3. Ask your lab instructor questions before you begin. It is completely reasonable to gain clarification on any confusing parts of procedure or data collection and it's better to be safe than sorry.

Writing the Lab Report:

1. Begin writing your lab report as soon as possible in sections. Begin with the easier part such as organizing data values and formatting plots.
2. If there are any specific questions needed to be answered in your report answer them all first. Having these ready will make writing the rest of the report more facile.
3. Recall the aim of the experiment when writing your introduction/abstract.
4. Use your answered questions and aims of the experiment to write your results/discussion section.
5. If you are unsure about content, talk with your instructor and perhaps request a sample lab report. Your report should be grammatically correct, well organized, and should contain all the information required. Lab instructors generally emphasize your data and analysis, but they also consider the effectiveness of your writing technique. 1. Include only what is asked for by your instructor.
6. Review your returned lab reports and determine how you may improve future reports. All scientists have their work peer reviewed in order to make it better. You too should take your TA's comments as helpful peer-review commentary to gauge a path to improvement.