

# Chemistry Study Tips

## Mindset

- College chemistry requires understanding concepts, not simply memorizing formulas. You must understand the why and how behind the formulas.
- It takes longer to reason your way through to this deep level of understanding, but the concepts will stay in your memory longer and you will be better equipped to solve difficult or unusual problems.
- Think of your chemistry class as time-consuming rather than hard. If you want to do well, you may need to study chemistry 15 hours per week possibly longer if your background from high school is weak.
- Get comfortable with being confused. Even your chemistry professors are sometimes confused when they look at a chemistry problem, so don't think that being confused means that you can't do chemistry.
- When you're confused, first try to figure things out on your own by rereading your notes or the textbook and by looking at sample problems. If you're still confused, consult another student, your TA, or your professor.
- Reasoning your way out of confusion is great exercise for your brain; the mental strength you build in chemistry can later be used in your other courses. (Think of the benefit of lifting fairly heavy weights rather than lifting light weights.)

## Lectures

- Preview your lecture by either reading or skimming the chapter. This will help you take more intelligent notes.
- As you take notes, leave plenty of white space so you can later add notes from your textbook.
- Try leaving a column on the left side of each page where you can add headings for your notes. For example, you might use this column to label the type of problem you have written out on the right side of the page.
- The same day of the lecture be sure to review your notes. Fill in gaps and clarify concepts by consulting your text. Think about the major concepts you learned.

## Reading the Textbooks

- If you find the textbook confusing, read a simplified version first (a review book or an online summary of the material). This will help you move through the course material more quickly and with better comprehension.
- Focus on objectives listed on the syllabus or in the textbook.

- Look for the big picture and analyze how the various details fit into the big picture.
- Talk to yourself as you read, constantly paraphrasing the material: Oh , I see, she's saying \_\_\_\_.
- Translate words into symbols and visual images; translate symbols and visuals into words.
- Stop at the end of a paragraph or section to write a note in the margin of your textbook or notebook. Only note what is new to you and also important.
- Focus on and explain to yourself all diagrams, charts, examples, and formulas. These are often the heart of your text.
- As you read, do the computations along with the book.
- Chemistry reading takes longer than other reading. It might take an hour to truly understand five pages, and you have to read some of the material twice.

### **Homework & Studying**

- Work through as many problems as you can . Quantity counts! Keep solving problems until you can do them quickly and easily.
- Analyze why you missed each problem so you can avoid future mistakes.
- Try solving problems on a blackboard and/or explain your thinking process to another student. The more you enrich the input of information, the better equipped you will be to recall it later.
- Make and use a few summary sheets or flashcards to reinforce your memory of equations and definitions.
- Avoid marathon study sessions and instead review frequently and in small increments.
- Doing well on homework is no guarantee that you will do well on exams. Be sure to do sets of mixed problems as practice exams.
- Before an exam, give yourself 3 or 4 practice exams. If the professor makes a practice exam available, use that as a template and write your own additional exams. (You can also use problems from chapter review sections.) Be sure to mix up the problems so they are not in the same order as in the text.
- Do at least one timed practice exam.

### **Exams**

- To optimize your higher order thinking, get plenty of sleep the night before a test.
- When you first get the actual test, apportion your time and begin work on the easiest section. Skip difficult questions and return to them later.

- Expect a few extremely difficult problems and don't let them throw you off balance. Return to them at the end of the test, by which time you may have gained new insights. Clearly write out each step so that even if miss the answer you may earn partial credit.

- When your test is returned, rework all problems you missed and analyze the cause of each error to avoid making the same mistake in the future.

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