Academic Success Centers
Northern Arizona University

How to Study Chemistry

Space out the work: An hour every day is better than trying to cram many problems into a single study session.

Read before lecture: Doing the assigned readings *before* class will help you understand the lecture.

Focus on the main points in lecture: Do not attempt to produce a transcript or verbatim account of the lecture. Rather, get the high points and fill in details later.

Rework your notes after lecture: Work through the notes carefully, and make sure that you understand each concept.

- Redraw any structures or important diagrams
- Expand each point from lecture using the textbook
- Fill in blank spaces or abbreviated material in your notes

Keep up with the readings: Read and take notes on the assigned material before you come to class.

Memorize essential information including reactions: But remember that memorization is not the goal!

Conceptual understanding is the goal: The point of working on problems is NOT to get the "right answer." By working on problems, you will become more familiar with central concepts and ideas in chemistry. Having a conceptual understanding means that you can:

- Take a core chemistry idea and apply it to a new situation or problem
- Think about core ideas and their implications
- Predict and explain chemical systems
- Use critical thinking to solve problems

Work problems until you can teach the material to someone else: You should do every problem from each chapter. If you run out of problems, find another text or look online.

- If you are stuck on a problem, consult the text *before* asking for help (Use the index!)
- If you cannot solve a problem in about 15 minutes, you are probably missing an important step or detail. Go back and review your textbook as well as lecture notes.
- Return to difficult problems after you have had more practice.

Attend office hours: Students who use office hours learn more chemistry and get higher grades.

Form study groups: Working with a small group of students (3-4) will enhance your learning through the exchange ideas. Teaching others is one of the best ways to learn chemistry.

Think like a molecule: Always consider what is happening on the molecular level. Where are the electrons, what are they doing, and why?

References

"Chemistry Study Habits" by Steve Hardinger, University of California, Los Angeles, accessed July 27, 2017, http://www.chem.ucla.edu/~harding/study_hints.html.

Holme, Thomas A., Cynthia J. Luxford and Alexandra Brandriet. "Defining Conceptual Understanding in General Chemistry." *Journal of Chemical Education* 92 (2015): 1477-1483.