

CHEM 112 – Tools for success!

Content and study habits

Chem 112 is taught in a rigorous fashion for students who need to know how to solve problems that depend on chemical concepts and require quantitative answers.

The material in Chem 112 is far more mathematical in nature than the material in Chem 111. If any of the math is unclear, get help ASAP from math courses, SI, TA, or the instructor.

While studying, **read the chapters at least twice through**, working the in-chapter examples, **before** attempting the OWL problems. You should be able to solve the OWL problems **without** consulting your textbook, notes or any additional materials – just a pencil, paper, and calculator.

For the OWL problems, it is best to use the values of fundamental constants and chemical data (masses, heats of formation, etc) that are provided within the OWL software.

The odd-numbered problems at the end of each chapter in Reger have answers printed in the back of the book. Most students will benefit from solving a number of these problems in addition to the OWL assignments. There will be some topics that we skip over.

You are required to attend weekly recitations; the recitation quizzes are intended to test your skill and help you prepare for the exams.

I encourage everyone to attend SI sessions at least once a week – there is no cost to you. The SI leader is a former Chem 112 student.

Time management

Chem 112 is a 3 credit hour course and you should expect to spend at least 12 hours per week on this course. You may want to set aside time as follows:

- 1) Read the chapter (2 hrs/wk)
- 2) Attend lecture and recitation (~3 hrs / wk)
- 3) Do the assigned OWL problems (2-4 hours / wk)
- 4) Do additional odd-numbered problems (1-3 hours / wk)
- 5) Review 9 hours for each exam (works out to about 3 hrs / wk)

Be an active participant in class!

Many studies have shown that people do not learn well when they see material for the first time in lecture!

Read the chapter first so you can use the classroom time to your advantage. Ask questions, practice solving problems, and make connections between different concepts.

Stop me if you don't understand – please! Especially if you can't envision the system that we are describing.

Make the connection

Chemistry 112 describes things that happen in the real world around you.

Make connections between what you are doing in Chem 112 and what you are doing elsewhere – other classes in science, business, etc; research, extracurricular activities, sports, cooking, news stories, weather, etc. It will help you to envision the processes we are talking about in class and get to the right answer more quickly on exams.

Preparing for a Chem 112 test

I will hand out a practice exam prior to each test. You should be able to solve the problems using just a pen, paper, and calculator. Give yourself extra time if needed. The actual exam problems will of course be different and may test concepts that did not appear on the practice exam.

Make sure you can re-do all OWL problems, in-chapter examples, and practice end-of-chapter problems.

Attend SI sessions.

On the exam, for most people, the greatest challenge is setting up the problem – the concepts might not appear in the order that we encountered them in the course. Make sure you read each problem carefully and can envision the process or system the problem is asking about, **before** you select a quantitative relationship (equation) to use, if needed.

Recommended practice problems

A range of problems is specified in the syllabus/course schedule for each lecture, but here is a list of especially pertinent problems for each chapter:

Chapter 11 (review):	49-54
Chapter 12 (Solutions):	20,32,33,41-48,49,55,59,64,75,79,82,85,92,93
Chapter 14 (Equilibrium):	14,26,33,35,36,41,43,62,63,67,71,72,75,78
Chapter 15 (Acids & Bases):	23,24,27,28,32,40,41,45,46,47,52,58,64,69,70,87,97,98,101
Chapter 16 (Acid/Base rxns):	12,14,19,30,33,38,41,46,47,102
Chapter 13 (Kinetics):	21,29,35,37,43,47,49,52,59,61,64,73,77,85,93
Chapter 17 (Thermo.):	25,31,37,45,50,55,65,76,79, 85(answer is -21.67 kJ), 91,97,105 <i>plus</i> Chpt. 5: 5.35, 5.81
Chapter 18 (E-chem):	17-20,28,33,36,41,47,54,64,66

Read through these – before the relevant exam if not earlier. If you're dead sure you know how to do it, move on. If not, solve it, check your answer (for odd #), and if you can't get the right answer or aren't sure how to start, re-read the chapter or bring it up with TA/SI/instructor.