

You may be apprehensive about this course. Chemistry has the reputation of being difficult. It certainly is not easy—for several reasons. First, vocabulary: a beginning student of chemistry may learn as many new words as a student studying the first year of a foreign language. Second, are the many “rules” that govern chemical behavior of substances and that we use for predictions. Yet there are many exceptions to these rules. Third, you need to be able to perform several types of calculations. It is important that you obtain precise results from these calculations, a goal that may not have been the case in your previous study. Finally, chemistry is a vertical discipline; later material depends heavily on what has been learned before. In truth, though, a very common reason why students find chemistry hard is that they pay little attention to the instructor. If the instructor tells them to memorize something, they wait until the night before the exam; and then the exam is hard. Even learning all that material the night before the exam was hard, because they needed the information they should have memorized previously to understand that material.

For all of these reasons it is crucial that you keep up in your study of chemistry. You cannot possibly learn the material by studying just the day (or few days) before each examination, although students have tried (and, unfortunately, failed!). A reasonable amount of study time during summer is three to six hours each night of the week. Study every night, much like an athlete in training. If you have very little time on a given night—perhaps because of an examination or a paper in another course—make sure to spend some time studying chemistry, even if only an hour or so. If you routinely spend more than an honest seven hours each day on chemistry, you probably are studying inefficiently. Ask me for advice. In addition, we will spend time in class discussing how to solve problems and how to study chemistry. Also, **PLEASE** don't try to hold down a full-time job and take this course!

We conduct this class in the summer in discussion format. Each day, members of the class indicate which assigned problems gave them difficulties. We solve these problems by interaction between the class members and the instructor. Each student is questioned about an aspect of each problem of concern until a final solution is obtained. The class is small enough that each student will participate several times each day.

Course Materials:

TEXT: *Chemistry*, 7th ed., Steven S. Zumdahl & Susan A. Zumdahl, Houghton Mifflin Co., 2007.

A CALCULATOR that has log, ln, 10^x (antilog), and e^x functions.

LABORATORY MANUAL: *Experiments in General Chemistry*, Gerald S. Weiss, Thomas G. Greco, Lyman H. Rickard, Prentice Hall Publishing Co., 2007. (Some experiments may be replaced by handouts.)

LABORATORY NOTEBOOK: **MUST** be bound (no ring binders) approximate size 7×9.5 ", quadrille ruled. Carefully follow the instructions for the laboratory notebook on pages 10 AND 11 of the laboratory manual.

LABORATORY SAFETY GOGGLES: Available in the prep room (Caputo 330, ≈\$5) and the bookstore. You **MUST** wear goggles whenever you are in laboratory, even if just visiting.

MOLECULAR MODEL KIT: From members of the ACS group (Caputo 330, ≈\$4.50), or commercially (≈\$15.00).

Preparation Evaluation: On the first day of class, a twenty-question twenty-minute quiz is administered, then self-scored to determine whether you have sufficient background to be successful in the course. If you do not have this background, you are advised to successfully complete CHEM 110 first. Alternatively you may take a similar evaluation, the Chemistry Placement Test, before you enroll in CHEM 111. Information about this test, including testing dates are on the chemistry department's web page <http://www.millersville.edu/chemistry/>

Working Problems: Practice in working problems is essential for success in chemistry. For that reason, I will assign problems each class day from the textbook. Hand in your solutions (on 8.5×11 " paper with smooth edges, pencil OK) at the start of the next class. They are evaluated based on whether you attempted those assigned. Because my solutions to the assigned problems are handed out at the beginning of class, late assignments receive no credit.

Nomenclature: Although mastering the new vocabulary of chemical nomenclature is mainly memorization, you will flounder in chemistry unless you know it thoroughly. It is the subject of most of the quizzes. In addition, one fifth of the questions on the final cannot be started until you write chemical formulae, given names.

Pre- and Post-Lab Quizzes: On the day each experiment is scheduled to start, a prelaboratory quiz will be given early in the lecture time. Each five-minute closed-book quiz is worth five points. The purpose of the quiz is to ensure that you have carefully read and understand the experimental procedure. Having so prepared, you will be able to collect data efficiently and will not have to repeat an experiment. Also you will not be a hazard to yourself or those around you. Rather than write a lab report, there is a five-point post-lab quiz the day after we complete each experiment. That quiz will be straightforward if you have answered the questions about the experiment in the laboratory manual.

Course Policies: If you have an objection to any aspect of the course, please communicate it (anonymously or otherwise) to the instructor. Because of “academic freedom,” neither department chair nor dean can do as much to help.

Absences: YOU ARE RESPONSIBLE for obtaining the notes from a classmate for any class you miss, whether your absence is excused or not. You must arrange to make up any missed work. Absences may be excused for university-sponsored events, jury duty, military duty, death or critical illness in immediate family, or personal illness. Support each request for excuse with a written statement of the absence's reason, signed by the responsible person (coach, faculty member, judge, commander, physician), including that person's phone number. Except for death or illness, requests for excuse must be presented before the date of the anticipated absence. Other requests must be presented within three class days after you return to class. An excuse for personal illness is granted **ONLY** if a physician states you were too ill to come to class. Do not expect to miss more than three class days for any reason and still pass the course. (There are enough extra credit points built into the course to make up for an unexcused quiz or two.)

Academic Honesty: You have plagiarized when you submit someone else's work as your own, including copying lab reports or problem assignments without giving credit. The penalty ranges from zero for the assignment plagiarized to a course grade of "F." That penalty becomes part of your official record. We refer both the copier and the one copied from for appropriate action, since we cannot tell who copied. However, we encourage working together on problems. To protect yourself from the charge of plagiarism, simply write, either: "I received help from Joe Smith on this part," or "I helped Sue Jones on this part."

Course Grading: In order to pass the course, you must perform all experiments, turn in all lab reports, and earn a lab grade of 60% (120 points) or more. You must also earn a pre-final lecture grade of 60% (300 points) or more.

Eight (8) experiment reports (none for Expt. 6)	80 points	[Often in your notebook in lab]
Eight (8) prelab quizzes (none for Expt. 0)	40 points	[Early in lecture on lab day]
Eight (8) postlab quizzes (none for Expt. 6)	40 points	[At the start of lecture after lab]
Identification of Common Chemicals (Expt. 6)	40 points	lab total = 200
Twelve daily quizzes (~12 points each)	150 points	[Mostly nomenclature, reactions]
Problem assignments (3 points each)	50 points	
Five 30-minute exams (60 points each)	300 points	
Final examination	200 points	lecture total = 700

TENTATIVE LECTURE SCHEDULE

Chapt	TOPIC
1.	Chemical Foundations
2.	Atoms, Molecules, and Ions
3.	Stoichiometry
4.	Types of Chem. Rxns & Sol'n Stoichiometry
5.	Gases
6.	Thermochemistry
7.	Atomic Structure & Periodicity
8.	Bonding: General Concepts
9.	Covalent Bonding: Orbitals
10.	Liquids and Solids
11.	Properties of Solutions

GUARANTEED LETTER GRADES

A ≥ 90%	(≥ 810 points)
B ≥ 80%	(≥ 720 points)
C ≥ 70%	(≥ 630 points)
D ≥ 60%	(≥ 560 points)
F < 60%	(< 560 points)
minus is _0, _1, _2; plus is _7, _8, _9	

TENTATIVE EXAM SCHEDULE

Friday 19th June	Thursday 25th June
	Thursday 2nd July
Tuesday 7th July	Tuesday 14th July
Final 1 thru 11	9:15-10:45, Fri, 11 July

Monday	Tuesday	Wednesday	Thursday	Friday
15 1. Foundations 0. How It Measures	16 2. Atom. Theo. 1. Mass & Density	17	18 3. Stoichiom. 2. Hydrate Formula	19 3. Stoichiom.
22 4. Chem Rxns 2&6. Comm. Chem.	23 4. Chem Rxns 6. Common Chemicals	24	25 5. Gases 7. Titration	26 5. Gases
29 6. Thermochem 8. Grav & Vol.	30 6. Thermochem 8&11. Thermochem.	1	2 7. Atom. Period. 11. Thermochem.	3 4th July HOLIDAY!
6 8. Bonding Genl 6. Comm. Chem.	7 8. Bonding Genl 12. Aspirin	8	9 9. Bond Orbitals 13. Molec. Models	10 9. Bond Orbitals
13 10. Liquids Solids 6. Comm. Chem.	14 11. Solutions Conductivity	15	16 11. Solutions 6. Timed Test	17 FINAL