

CHEMISTRY 36, GENERAL CHEMISTRY
Section A (10117), MWF 10:50 – 11:40 am, Votey 209
University of Vermont
Spring Semester, 2016

GENERAL INFORMATION

Instructor: Prof. Chris Landry

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Office Hours: I will provide more information about office hours in the next few lectures.

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LEARNING GOALS

1. Students will demonstrate general knowledge of chemistry and will be able to apply chemical and physical principles in the solution of qualitative and quantitative chemical problems.
2. Students will understand the interplay of observational data, hypotheses, and hypothesis-driven experimentation through application of the scientific method.
3. Students will become proficient in chemical laboratory techniques and be able to apply these to practical and current problems in research.

These learning goals are part of a broader strategy to define the requirements for successful training of chemistry students. If you would like to learn more, please visit the chemistry department website at <http://www.uvm.edu/~chem>.

LECTURE

Required Textbook: Atkins, Jones, *Chemical Principles: The Quest for Insight*, W. H. Freeman & Co. The ISBN number for this book is 1429288973. Although a sufficient number of books should be available at the bookstore, you are welcome to purchase this book through other outlets such as **half.com** and **amazon.com**, where you will probably find it for a better price (you will need the ISBN number to order it). I like this book because it is flexible—it can be used for an upper-level, faster-paced course such as this one, but it still has fundamentals at the beginning for students who want to go back and brush up on the basics. I also like the fact that it contains many problem-solving exercises within the body of the text. I anticipate that we will mainly rely on lecture notes, but we will stay very close to the structure of the book, at least for the first half of the class. There are also many problems at the end of each chapter to which we will refer in class, and these problems are a good way to prepare for tests.

Lectures are primarily used to cover new material. I will attempt to cover as much material from the chapter as I can; however, you are responsible for all the material that I designate, even if we have not gotten to it in lecture, unless I mention otherwise. You should feel free to use notes from your previous classes to help you study. We will review some topics briefly to refresh your memory; however, a certain level of knowledge is assumed at this level.

Blackboard will be set up for this class. The website will contain copies of old exams, answer keys after each test and quiz is given, and copies of my lecture notes. I will generally post my lecture notes on the Chem 36 website on each Friday, for the previous week. But I tend to fall behind, and in any case the notes usually contain less information than was provided in lecture (because not all information used in class comes from my notes). In no case will the lecture notes be provided prior to the class time, because I feel that they should *supplement* your own notes, not replace them. If the website is incomplete, that is still no excuse for your own performance.

Sapling Learning: I am experimenting with the use of Sapling Learning to supplement our own course resources. This semester, I plan to use it for homework problems but not for quizzes. I think most of you should be familiar with how to access the Sapling materials but more information on that process will be provided in the first week of class.

A **tentative** schedule covering the timing of lecture topics, readings, and lab schedule is included at the end of the syllabus. **Modifications to the lecture schedule will be made as the course progresses.**

QUIZZES, TESTS, AND EXAM

Testing schedule and **approximate** lectures covered on each test:

	Review session	Test dates	Lectures covered
Test #1	Thursday, February 25	Tuesday, March 1	January 20 – February 24
Test #2	Thursday, March 31	Tuesday, April 5	February 26 – April 1
Test #3	Thursday, April 21	Tuesday, April 26	April 6 – April 25
Final Exam	Thursday, May 5	Friday, May 6, 10:30 am – 1:15 pm	Comprehensive

Tests will be given during the regularly scheduled testing time for this class on Tuesday evening from 6:00 to 9:00 pm, in Votey 207. If a test or exam is missed, **official written documentation** of sickness or family crisis is required. Unexcused absences will result in a grade of zero on that exam. If you have a scheduling conflict with any of the tests, you must notify me at least one class meeting in advance. The easiest way to resolve a conflict will be to take the test earlier on the same day it is scheduled. Except in very unusual circumstances, **make-up tests are not administered after the scheduled test time.**

Review sessions will be given during the lab sessions in the week prior to each tests. During that week, the review session will replace the test. The **final exam** will be given in the lecture room (**Votey 209**).

Calculators are necessary for this class, and it is your responsibility to bring a calculator to each test and to the final exam. However, the Chemistry Department has defined a new policy beginning this semester that **programmable calculators are not allowed during tests and exams.** This should not hinder your performance, since only simple calculations are required (inverse logarithms and roots to the n^{th} power should be the most involved calculations). I recommend that you purchase a basic, non-programmable calculator as soon as possible.

Old tests from this class will be available on the Chem 36 website prior to each test. However, this course has undergone several revisions in the past few years, and thus the old tests may not accurately reflect the material on this year's tests. The best preparation, therefore, is still to work problems from Sapling and at the end of the chapter and to ask questions about things you don't understand. Recommended problems will be available on the website prior to each test. **Review sessions** are an excellent way to summarize your studying for the tests and the exam. This year, review sessions will be held in place of lab sessions, prior to each test; you will work in groups to solve problems from the end of the chapter (some from the "official" list, some not). A review session will also be held prior to the final exam.

The **American Chemical Society (ACS) standardized exam** will be given at the completion of the general chemistry course material (early April). It will occupy one of your laboratory periods. This serves two purposes: it gives me an idea of how well you know the material from the year compared to your peers across the country, and it gives you the opportunity to place out of the final exam. Once you have received your percentile score on this exam, you can either apply it toward 150 of the 200 points on the final, or you can forget it and just take the normal 3-hour, 200 point final. It's your choice. Thus, it won't hurt you to take the standardized test; it can only help you.

Quizzes will be given each week in lab at the beginning of the lab session (with the exception of weeks when there is a test). They will be graded and will count toward your final grade in lecture. They should last approximately 10 minutes and will cover material from the past week (i.e., from the last quiz). I also reserve the right to give pop quizzes during class.

If you have trouble with the course material, don't wait to fail a test before getting help! Give yourself ample time to learn the course material; studying for twelve hours a few days before the test is not going to get you as far as doing an hour of work three times a week, and then studying three to six hours before the exam. **Tutors** are available through either the Chemistry office (second floor, Cook Building) or through the Learning Co-op.

LABORATORY

There is no **lab manual** for this course (which, by the way, saves you the cost of purchasing yet another book). Laboratory information for this course will be posted online on the Chem 36 Blackboard, and you will be expected to download the appropriate procedures prior to arrival in lab. You are responsible for familiarizing yourselves with the procedures prior to your lab time. Many of the experiments for this class are either new or have only been in place for a few years, so I ask your patience as you work through them. I have attempted to make the experiments match the topics that are being discussed in class, but this is not always possible. I welcome any constructive comments you might have about the laboratory.

Lab Notebook: A bound composition notebook is required for recording all data. They are available at the UVM Bookstore. All data must be recorded in ink.

Safety Goggles: Approved goggles **must** be worn by everyone once an experiment has started in any area of the lab room. Students not observing this rule will be given a zero for that experiment. Contact lenses are a health hazard; some of the solvents used in lab will melt them onto your eyes (no kidding). Prescription glasses may be worn under the safety goggles.

Breakage Card: Prior to the first lab, you must purchase a breakage card from the Chemistry stockroom if you have not already purchased one last semester. Never leave your card at home on lab days because you cannot start the experiment without it.

Locks: There will a charge of \$1 if the stockroom has to look up the combination to your lab drawer.

You must attend all regularly scheduled labs, including weeks labeled as discussion sections, unless it is absolutely impossible. Attendance **will be taken**. You had the opportunity to choose your lab section when you sign up for the course. You must attend that section (switching sections arbitrarily is not permitted). After the lecture begins, add/drop of lab sections cannot be done on the web and must be done by contacting me. Switches will be made on a first-come, first-serve basis. Make-up labs will be given only if written documentation of sickness or family crisis is provided. Unexcused absences will result in a grade of zero for that experiment. To attend a make-up lab, you must obtain permission in advance; you will normally make up the missed lab **during the same week**.

If you miss two labs without appropriate approval, **you will receive an F for the entire course**. Not just an F for the laboratory section, but the whole darn thing. This is because it's impossible to learn about chemistry and about what chemists do without participating in lab. Don't take your attendance at lab lightly; a grade of "incomplete" for the course can only be granted by your academic dean, and only for medical reasons.

The laboratory teaching assistant (TA) only assigns points for the lab, not letter grades. The numbers they submit are normalized to compensate for differences in the performance of each lab. This means that the numbers submitted for your laboratory performance may be adjusted slightly. While they might be adjusted upwards, I can guarantee that I will never normalize grades down.

GRADES

The course will be graded out of 800 points, as shown below. Note that the final exam and the laboratory together account for **half** of your grade; so it is to your advantage to take both of them seriously. **Letter grades** are not given for each assignment — only after all points are added at the end of the semester.

Quizzes:	100 points	12.5 %
Test 1:	100 points	12.5 %
Test 2:	100 points	12.5 %
Test 3:	100 points	12.5 %
Final Exam:	200 points	25.0 %
Laboratory:	200 points	25.0 %
Total:	800 points	100 %