

CHEM 31E - General Chemistry I - Fall 2015

Prof. Willem R. Leenstra

Lectures on Tues-Thurs 4:25-5:40 PM, in Marsh Life Science 235
Exams/Reviews: Wednesdays 7:00-9:00 PM, in MLS 235

Contact Information

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General

Professor's Office Hours: I have tentatively chosen Tuesdays, Wednesdays, and Thursdays, 9:00-10:00 for regular office hours. These times straddle the class-meetings patterns, thereby increasing the probability that you will have a free chunk of time to come see me. As I gather information about how convenient these times are for you, these office hour times may change. If you need to see me outside of the office hours for an urgent matter, we can set up an appointment at another, mutually convenient time. Also, occasionally I will have a conflict that prevents me from being in my office at the posted time; if so, just contact me with a request to see me individually, and we'll make it happen as soon as possible. Since your schedule and my schedule are busy ones, we can zero in on a mutually convenient time most efficiently with a phone call (leave me your cell to call back if I'm not picking up), rather than emailing back and forth.

Teaching Assistants' Office Hours: Each Teaching Assistant who is part of Chem 31 will have one office hour per lab that he/she teaches. Since there are more than 45 lab sections in the daytime lecture offerings of Chem 31, there will be more than 45 (non-overlapping) hours throughout the week at which you can receive help. The General Chemistry TA table is in Cook room A-302. During this office hour, the TA will answer questions not only about the lab, but also about the lecture material. The schedule of these hours will be publicized on Blackboard, our course communication platform, in the near future. *You may utilize ANY of the TA's for help with lab or lecture questions - don't rely on just your lab TA.*

Supplemental Instruction (SI): There will be additional course help available through the Supplemental Instruction program. Two SI Leaders have been selected, and will service the entire Chem 31 course: Ali Watson and Alex Olson will hold a number of review sessions during the week, at which they will go over problems related to lecture material. When details about the specific times/places become available, they will be posted on the web (we use Blackboard as the course web site).

Help Sessions: As you know, the Wednesday evening time slot is specifically reserved for our four exams during the semester. One way to use the rest of those Wednesday evening times will be to hold occasional review sessions (mostly focused on doing problems to complement the lectures, which are designed to discuss the concepts). I will only keep holding these if there is demand for them; if only a handful of people show up, we'll go back to using only the regular office hours and appointments. These recitation/review sessions will be held in Cook A-142 (subject to change), not the large exam room MLS 235) at 6 or 7 PM, starting in week 3. I will announce the details later.

Communication: I will use postings on Blackboard (bb.uvm.edu) and class-email throughout the semester to publicize important information. Blackboard is a course management system where you will find class announcements, this syllabus with updates, lecture notes, sample exams, homework assignments, and a record of your grades as they are earned. You are responsible for checking these communication channels at least once

per day so that you won't miss critical messages. In general, I prefer a phone call to me directly instead of umpteen iterative emails so please try that route first [for office phone number, see above]. Leave a contact phone number if I happen to not be in my office.

Lecture Component

Class Notes and Schedule: The lectures will be used principally to introduce and explain new material. This sometimes includes working out numerical problems, but going over the assigned homework problems is not the purpose of the lectures (see HW, below, and Help Sessions, above). I will post copies of my actual class notes on Blackboard after each lecture. These are very detailed, and written out – not just skeleton outlines. You can thus choose to take notes, or just listen and absorb. But please, do not interpret my extra effort of posting these notes as an excuse for not attending lecture. There is no substitute for hearing someone explain the many, diverse, and difficult concepts you'll encounter in this course. The tentative outline of material covered in each lecture is as follows. This schedule may be off a day or so in either direction.

#	Date	Chapter		#	Date	Chapter				
1	9/1	syllabus		15	10/20	8				
2	9/3	1		16	10/22	8				
3	9/8	2		17	10/27	9				
4	9/10	3		18	10/29	9				
5	9/15	3		19	11/3	9				
6	9/17	4		20	11/5	10				
7	9/22	4		21	11/10	10				
8	9/24	5		22	11/12	10				
9	9/29	5		23	11/17	11				
10	10/1	6		24	11/19	11				
11	10/6	6		25	12/1	11				
12	10/8	7		26	12/3	review				
13	10/13	7		27	12/8	review				
14	10/15	7,8								

Course Materials: We will again be using the textbook, “Chemistry - A Molecular Approach”, by Nivaldo Tro, the 3rd edition, which has had positive feedback from students. Once again, we were able to negotiate a special arrangement with the publisher, Pearson. Instead of your having to buy a huge book for the entire year of General Chemistry (31 and 32), the UVM Bookstore now sells the Chem 31 portion in the fall, and the Chem 32 portion in the spring. For those who won't be going on to Chem 32 it means that you will save about 50%, and for those who will go on to take Chem 32, you can spread your costs out over the two semesters. These custom-made volumes are labeled as 2nd edition, but that is an error – it actually is Tro's 3rd edition.

Chem 31 Package: This package costs \$152.35 at the UVM Bookstore, and contains:

- (1) Hard copy of Volume 1 of “Chemistry – A Molecular Approach” by Tro (chapters 1-11).
- (2) Hard copy of the Solutions Manual that shows the worked-out solutions for every end-of-chapter problem in detail (the book itself gives only the answers of odd-numbered problems).
- (3) An individualized Access Code that allows you to use MasteringChemistry, which is an online program tied to our textbook. MasteringChemistry has a lot of resources, including tutorials, an e-Text version of the book and the electronic version of the Solutions Manual. But most importantly, it is the mechanism through which you will do assessed homework that is part of your course grade – therefore obtaining a new Access Code is a must-have. For this program you will need to use the course code LEENSTRAFALL2015 (case-sensitive). You should start right away exploring all of this tool's capabilities.

Other options: If you do not feel you need to have a hard copy of the textbook, you can buy just the electronic version of the above package at www.pearsoncustom.com/vt/uvm_chemistry/ (don't forget the underscore after uvm). You can buy the Code with the e-Text of the book (\$70) or without the e-Text (\$35). These options get you the materials just for Chem 31 (including the Solutions Manual for chapters 1-11); this Access Code is good for only 6 months (one AY).

You can, of course, supplement the electronic-only options by purchasing a used earlier edition somewhere. Although the 3rd edition of our textbook is not very different from the previous, older editions, there are slight variations here and there. If you do use the older version, it is your responsibility to check for variations in end-of-chapter problems' numbering against a copy of the Tro we are officially using. Caution: do not buy an access code from anywhere else because once it's used by someone, no one else can use that code.

Homework: First of all, on Blackboard, under the "Suggested EOC HW" tab, you will find 20-30 end-of-chapter problems which I have chosen as being representative of the chapter's content. Clearly you can add to that list if you feel like you need more practice. Since you should have the Solutions Manual, doing the problems is a painless way of deepening your familiarity with the material. For obvious reasons, homework will not be graded. I will also post this list on MasteringChemistry under "Assignments" so that you can't miss the point that, while not graded, I consider working the end-of-chapter problems to be a real homework assignment. To access this list via MasteringChemistry, click on "Chapter X EOC Problems". [The "due date" that MC requires me to set does not really apply here since I don't collect anything. Instead, I will write it in as the "assign date".]

Getting the right answers for the assigned homework problems is certainly one way to assess your mastery of the content of each chapter. But you really should think of "homework" as a more encompassing task than just doing problems. It includes following parts: (1) read the textbook ahead of the material covered in class; (2) review the material within a day of having had it presented in lecture but before the next class; (3) use MC tutorials to practice and refine your problem-working skills; (4) do the end-of-chapter HW, and use the Solutions Manual to understand each step in getting to the answer; don't memorize procedures because it won't stick.

Quizzes: At the end of the last lecture during which a particular chapter is discussed, I will open up a Quiz, administered via MasteringChemistry, which comprises 10 problems, each worth 1 point. These will consist of some combination of tutorials and EOC exercises. For many of these, the actual input values you get will be randomly generated so that everyone gets different answers. The MasteringChemistry software grades each question based on a protocol that assigns value on how much help you need in the form of hints, etc. These quizzes are open-book, and I don't mind if you work with others on understanding the relevant concepts, and how to attack problems. However, filling in an answer that was almost entirely obtained by someone other than yourself constitutes cheating. There are 11 chapters, therefore 11 quizzes. I will drop the lowest of these scores, for a total of 100 possible points that you can earn towards your course grade.

Not all of the valuable tutorials will appear on the graded Quiz. So, in order that you can benefit from them, for each chapter I will set up an Assignment called "Chapter X Tutorials". Do them!

Semester Exams: Four exams, worth 100 points each, will be given on Wednesday evenings, from 7:00 PM till 9:00 PM. They are designed to be one-hour exams, but you can take the full two hours if you like. Your lowest exam score from the first three will be dropped; this way you will not be penalized if you are having a slow start to the course. Our assigned examinations room is Marsh Life Science 235. I will not answer any material questions on examination days.

We will be crowded, but the half-dozen proctors will keep everyone honest. Put away all cell phones, iPods, etc. No papers are to be in your vicinity. The only calculator that is allowed to be used is the simple scientific

type (non-graphing), like the Sharp Model EL-501 that is for sale in the UVM Bookstore for less than \$10. We have had unpleasant cheating incidents with graphing calculators in the past, so there will be no exceptions granted. In general, offenses against the Code of Academic Integrity are not tolerated. Any suspected violations of the Code are taken very seriously and will be forwarded to the Center for Student Ethics and Standards (more details can be found at their website www.uvm.edu/csces).

The Wednesday evening exams will cover material up to and including the previous Thursday's lecture (but I will reserve the right to occasionally include material from the preceding Tuesday if there is a more natural break in the content). We will take them in Marsh Life Sciences 235. They will occur at equal intervals on the following days:

Exam 1 — September 23 (Lectures 1-6)

Exam 2 — October 14 (Lectures 7-12)

Exam 3 — November 4 (Lectures 13-18)

Exam 4 — December 2 (Lectures 19-24)

I will not give make-up exams. If you miss an exam for illness or any other reason, your zero will be thrown out as your lowest score. If your illness is of an extremely serious nature, you may get individual dispensation, but we must have a private, face-to-face conversation in my office before the exam in order for you to receive any consideration. If you have a bona fide, serious conflict with the time for a particular exam, you must contact me prior to the exam day to get my permission to take it at another time. [You must furnish me with contact information such as, for example, your coach, lawyer, parole officer, etc. so I can verify your request. If you work in the evenings, it is your responsibility to reschedule with your supervisor right away.] The exams will be returned to you in your laboratory the following week. If you want it sooner than your lab meeting, you must contact your TA first and arrange a pick-up time that is convenient for the both of you.

Course Withdrawal: The last day to withdraw from the course with a W is Monday, November 2. You will have had 2 exams by then, giving you a good idea of where you stand. (Along these same lines, course add/drop must be done by Monday, September 14.)

Final Exam: The Final Exam is comprehensive, counts for 200 points, and will be a multiple-choice format. The entire Final Exam is designed to be a two-hour test. Our Final will be given on Tuesday, December 15 at 4:30 PM in your lecture room, MLS 235. *Please make your travel arrangements now, with this obligation in mind.*

Attendance: During the lecture, the concepts are being presented in a different way from how you probably were reading/studying them in the textbook. Thus, coming to lecture and absorbing the material is enormously important. Logistically, I cannot take attendance, however, I can also tell you that in the past when I did administer attendance quizzes, I found, as one would expect, that there is a very strong correlation between attendance and grade earned.

Extra Credit: I don't give any "extra credit projects" with which you can enhance your grade. However, at various times during the semester I will give unannounced quizzes for which you can earn a few points. These points could help you get over a grade border if you are just below it!

Course Grade

Categories: The entire course will be graded on 1000 points that you are able to garner from lecture (800 points) and from lab (200 points). You can earn the 1000 points as follows:

- | | |
|--|------------|
| 1) Four exams at 100 points, dropping the lowest score, for a total of | 300 points |
| 2) One final exam valued at 200 points, for a total of | 200 points |
| 3) Ten best graded quizzes at 10 points each, for a total of | 100 points |
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These 600 points from exams will be multiplied by $4/3$, to generate a possible 800 points

- | | |
|--|------------|
| 4) The lab score (details below) can generate a possible | 200 points |
|--|------------|
-

Thus, the total points score possible for the entire course is 1000 points

Grading Scale: Assuming a large sample and a Gaussian distribution of scores, I am assigning the average grade to be a C+. Grade cutoffs will come at approximately equal intervals from the average. Using last year's Chem 31 results as an example, out of 1000 points, the average score was almost exactly 700. This number was used as the middle of the C+ grades. With 40 points as the incremental steps, we had the following grading scheme:

<u>above the average</u>		<u>below the average</u>	
range	grade	range	grade
680-720	C+	640-680	C
720-760	B-	600-640	C-
760-800	B	560-600	D+
800-840	B+	520-560	D
840-880	A-	480-520	D-
>880	A	<520	F

If the average is higher, the whole class benefits with more high grades. (If the average is much lower than 700, I may scale individuals' point totals. To be clear, the above is only a guideline based on last year's class performance. The ultimate grading scheme that will be used will be constructed after the Final has been graded, and all lab grades are in. Your scores will be posted on Blackboard.

Laboratory Component

Laboratory Coordinator: Christine Cardillo
E-Mail: Christine.Cardillo@uvm.edu
Office: A235 Cook

Teaching Assistant (TA): TBD
TA Office Hours: A302 Cook
TA office hour times to be posted

Laboratory and Recitation: The weekly recitation and laboratory period are a required component of Chem 31, and your work in that section (pre-labs, quizzes, reports, etc.) comprises a total of 200 points or 20% of your overall course grade.

Attendance and Lab Make-ups: Attending the lab section you are registered for is mandatory. Chemistry is an experimental science and we consider the laboratory experience of paramount importance to the discipline of chemistry. An unexcused absence from your laboratory section will result in a **ZERO** grade for that experiment. Official documentation of sickness or family crisis is required for an excused absence. Excused absences can only be granted by the laboratory coordinator and require an official letter or e-mail documenting the reason for missing the laboratory period.

If for any reason more than two labs are missed (even for legitimate reasons/excused absences), you will receive a failing grade of **F** for the entire course. Also note that an incomplete (grade of I) can only be granted for circumstances beyond your control by the academic dean of your college.

If there is a serious issue such as, for example, a debilitating sickness, a family crisis, a scheduled sports competition, or a similarly unavoidable situation, you may request to make-up the lab in another section during that same week. Permission to attend another lab section will only be given by the Laboratory Coordinator, Christine Cardillo (Christine.Cardillo@uvm.edu). Such switches can only happen within the week that a particular lab is running because experimental set-ups are only available in the labs during the week the experiment is scheduled. All lab experiments run on a Monday through Thursday schedule, with the specific times listed below. Be forewarned that the later in the week your lab meets, the more limited your options for a switch become. Also, you will only be allowed a maximum of two lab make-ups a semester and only for valid reasons (i.e., illness, family emergency, religious holidays, and sanctioned university events).

If a foreseeable conflict arises, you must obtain the permission of the laboratory coordinator, Christine Cardillo via e-mail: Christine.Cardillo@uvm.edu, in advance to attend a different lab section. Make it easy to help you: Tell her why you need to switch, your scheduled lab section, who your TA is, and some other lab section days and times that might work for you from the list below.

Fall 2015 Lab Times	Morning	Afternoon	Evening
Monday	<i>No Labs</i>	1:10 pm to 3:55 pm	5:05 pm to 7:50 pm
Tuesday	8:30 am to 11:15 am	1:15 pm to 4:00 pm	6:00 pm to 8:45 pm
Wednesday	8:30 am to 11:15 am	1:10 pm to 3:55 pm	5:05 pm to 7:50 pm
Thursday	8:30 am to 11:15 am	1:15 pm to 4:00 pm	6:00 pm to 8:45 pm
Friday	<i>No Labs</i>		

Laboratory Schedule: Most students were either initially scheduled into a laboratory section or selected a section when they registered for the course. If you want to change your laboratory day/time, you should do so by September 4th, but this can only be done if there is space available. You can change your laboratory section on your MyUVM page to another section with space (fewer than 22 students enrolled).

Labs will not be conducted during the first two weeks of classes. They will start the week of September 14th, and are scheduled as follows:

Fall 2015 Chemistry 31 General Chemistry 1 Recitation and Experiment Schedule

Week	Dates	Recitation and Experiment	Due*
1	Aug 31 – Sept 4	No Labs Purchase your Breakage Card and Safety Glasses.	Intro Quiz
2	Sept 7 – Sept 11	Sign up for Sapling Learning, complete the required lab quizzes. Complete all the above BEFORE your first laboratory period.	Safety Quiz
3	Sept 14 – Sept 18	Recitation 1: Chapters 1-4 Laboratory Check-In & Experiment 1: Determination of Acid Content in a Food Product	Exp 1 Pre-lab Exp 1 Quiz
4	Sept 21 – Sept 25	No Recitation Experiment 2: Chemical Reactions of Copper	Exp 1 Lab Report Exp 2 Pre-lab Exp 2 Quiz
5	Sept 28 – Oct 2	Recitation 2: Chapter 5 Experiment 3: Gas Law Determination of Molecular Weight	Exp 2 Lab Report Exp 3 Pre-lab Exp 3 Quiz
6	Oct 5 – Oct 9	Recitation 3: Chapter 6 Experiment 4: Heat Capacity and Heat of Neutralization	Exp 3 Lab Report Exp 4 Pre-lab Exp 4 Quiz
7	Oct 12 – Oct 16	No Recitation Experiment 5: Heat of Formation of Magnesium Oxide	Exp 4 Lab Report Exp 5 Pre-lab Exp 5 Quiz
8	Oct 19 – Oct 23	Recitation 4: Chapters 7-8 Experiment 6: Flame Emission Spectra of Metals	Exp 5 Lab Report Exp 6 Pre-lab Exp 6 Quiz
9	Oct 26 – Oct 30	Recitation 5: Chapter 9 Experiment 7: Qualitative Analysis, Week 1	Exp 6 Lab Report Exp 7 Pre-lab Exp 7 Quiz
10	Nov 2 – Nov 6	Recitation 6: Chapter 9 Experiment 7: Qualitative Analysis, Week 2	Exp 7 Flow Chart
11	Nov 9 – Nov 13	Recitation 7: Chapter 10 Experiment 8: Molecular Models	Exp 7 Lab Report Exp 8 Pre-lab Exp 8 Quiz
12	Nov 16 – Nov 20	Recitation 8: Chapter 11 Experiment 9: Evaporation and Intermolecular Forces	Exp 8 Lab Report Exp 9 Pre-lab Exp 9 Quiz
<i>Fall Break</i>	<i>Nov 23 – Nov 27</i>	<i>Fall Break</i>	
13	Nov 30 – Dec 4	Recitation 9: Review Laboratory Clean-up & Laboratory Check-Out	Exp 9 Lab Report
14	Dec 7 – Dec 9	No Labs	
Finals	Dec 11 – Dec 18	Final Exams <i>Good Luck!</i>	

*All Pre-Lab Quizzes must be completed online through Sapling Learning before the start time of your lab period. Pre-Labs and Lab Reports are to be handed in to your TA at the beginning of your lab period. If you are late to your lab/recitation period, points will be deducted for the work being handed in as late.

Required Materials:

Sapling Learning: A Sapling Learning (saplinglearning.com) account is required for access to the Chem 31 Labs page. Here you will find the laboratory experimental procedures and the required pre-lab quizzes. Detailed instructions for how to log in and enroll into the Chem 31 Lab Sapling Learning page are included on the last page of this syllabus.

Lab Notebook: A spiral-bound laboratory notebook with carbonless copies is required, and is sold at the UVM Bookstore. This style of notebook has copy sheets between each written page that can be torn out and turned in, this saves time and money compared to photocopying each page to turn in. Also recommended is a permanent marker or grease pencil to use for labeling your glassware while working in the laboratory.

Breakage Card: A breakage deposit is required for the laboratory equipment you will be using throughout the semester, as well as any special equipment issued to you. This deposit comes in the form of a breakage card that is purchased from the 1st floor chemistry stockroom, room A143 in the Cook Physical Sciences building. It is advisable to purchase this as soon as possible to avoid waiting in yet another line. You will need the breakage card for your first laboratory period, without one you will not be issued a laboratory equipment drawer. You must bring your breakage card with you to lab every week, as it will be used to obtain any special equipment needed from the 1st floor stockroom. The breakage card may also be used to rent safety glasses. The balance remaining at the end of the semester, minus any breakages, will be refunded to you. At the end of the semester after you have checked out of your lab the 1st floor stockroom can process your refund. All breakage card refunds will be processed through your UVM CATcard and deposited as CAT\$scratch. If you are in a Fall semester Chemistry course and plan on taking another Chemistry course in the Spring semester you should retain your breakage card for use in the Spring semester. All breakage cards have an expiration date of June 30th, breakage card refunds not processed by June 30th will not be refunded.

Safety Eyewear: Safety glasses or goggles must be worn by everyone once any experimentation has started in any area of the lab room. Students not observing this rule will be asked to leave the laboratory and will receive a ZERO for that experiment, warnings will not be given. Safety glasses are available for purchase from the UVM Bookstore, or from the 1st floor chemistry stockroom, room A143 in the Cook Physical Sciences building. The glasses must be OSHA approved, which is usually indicated by being stamped with "Z87" on the earpiece or some other area of the glasses. If safety glasses do not fit over your regular glasses you must wear safety goggles, which are larger. Contact lenses should not be worn in the laboratory as they are a potential health hazard and should only be worn in the lab if you have no other type of corrective lenses. If you wear contact lenses in the lab, you must wear safety goggles, not safety glasses, over them and let your TA know. If you forget to bring your safety glasses to lab, a pair can be rented from the 1st floor stockroom, A143.

Laboratory Safety and Laboratory Safety Quiz: It is of utmost importance that UVM Chemistry students are knowledgeable in basic laboratory safety tenets before beginning the lab portion of any chemistry course offered at UVM. To satisfy this requirement all students are required to take and pass our Lab Safety Quiz (LSQ) before doing any lab work. The LSQ is accessed through the Chem 31 Lab Sapling Learning page, and allows you to retake the quiz (as many times as needed) until a passing score of 80% or higher is achieved. Your score from the LSQ will be automatically recorded and until you have passed the LSQ you will not be permitted to take part in any lab work.

General safety precautions and guidelines are reviewed in the safety presentation and the laboratory introduction both available on Sapling. These precautions must be rigorously observed and will be strictly enforced. Failure to abide by any of these guidelines can result in your removal from the laboratory and receiving a zero grade for that experiment. These guidelines include but are not limited to: wearing proper attire and eye protection, no food or drink, acting professional, etc.

Lab Attire: This is a chemical laboratory - dress appropriately! It is best to wear full pants and a shirt with sleeves. Shirts that expose the shoulders or midriff are not allowed. Shorts can be worn in the lab, but only if they come down to the knee. Baggy or loose clothes are not advisable. Jewelry and accessories should be removed, and long hair must be tied back. Proper footwear is also required in the laboratory. Full shoes, preferably constructed of leather or other chemically resistant material, should be worn in when in the laboratory. Open toed shoes, open backed shoes, and shoes that expose the top or other portions of the foot are not allowed. If you arrive at lab in inappropriate attire, you will not be allowed to perform the experiment. Finally, you will be handling potentially hazardous chemicals. Beside the personal risk, you can also potentially damage your clothing, so it is advisable to not wear your best clothing to lab. Lab jackets and aprons are not required, but if desired can be purchased at the UVM Bookstore.

Lab Videos: The Department produced videos detailing the operations for each experiment of the course (<http://www.uvm.edu/~chem/courses/?Page=31Videos.html>). The videos demonstrate the proper use of new equipment and the safe handling of chemicals. By taking several minutes to watch each video before the corresponding experiment, you will be prepared to quickly execute your experiment in a safe and correct fashion. Before coming to laboratory you should view the video that goes over what you will be doing during that lab. It is an excellent way to help you with the pre-lab as well as prepare you for any questions on the experiment that may come up in the quiz. The link for the videos can be found by going onto the Chemistry Department's web page ([uvm.edu/~chem](http://www.uvm.edu/~chem)) and then clicking on "Courses" in the left-side panel, after which you'll find the CHEM 31 Laboratory Instructional Videos.

Laboratory Format: Each laboratory period is scheduled for 2 hours and 45 minutes. This includes recitation, pre-lab discussion, running the experiment, and clean-up. The lab period will start with a 30-45 minute recitation (if scheduled), followed by a 10-15 minute pre-lab discussion leading to the start of experimental work. All experimental work will be stopped 15 minutes prior to the end of the laboratory period to allow enough time for clean-up and proper waste disposal before leaving the laboratory.

Preparation: Read the experiment, watch the demonstration videos on line, prepare your lab notebook, and dress for the occasion. Before each laboratory period you should carefully read the experiment and plan an approach to take for the experiment. Watching the lab videos posted online provides additional understanding of the lab. If you spend a little time preparing for the lab, you will complete the experiments faster, obtain better results, and perform better in the course.

Recitations: The in-laboratory recitations have been designed to reinforce material that has been introduced in lecture. You should review the appropriate textbook chapters prior to your scheduled recitations and come prepared to discuss the material and work through selected problems. Recitation is mandatory, and if miss your recitation, you will not be allowed to do that day's experiment. Also, arriving late to recitation will result in a zero grade for that week's pre-lab write-up and minimum deductions of 1 point on the lab report being handed in and 1 technique point on that day's lab.

Pre-Lab Quizzes: Prior to each laboratory experiment you are required to take the corresponding pre-lab quiz on the Chem 31 Labs Sapling Learning page. These quizzes are usually 5-8 questions in length and are designed to take 10-15 minutes to complete. The pre-lab quiz must be completed before your scheduled laboratory period. Late quizzes are not allowed.

Pre-Lab Write-ups: To ensure that the experiments have been read prior to coming to lab, a pre-lab write-up must be handed in at the beginning of your laboratory period. The pre-lab write-up is just a brief description of the purpose and the experimental procedure to be followed. This need not be lengthy, a half to one page should suffice, but it should be sufficiently detailed to convince your TA that you have adequately prepared for the experiment. The pre-lab write-up must be completed before your scheduled laboratory period. Late pre-labs are not allowed; if you arrive to your lab/recitation period late you will automatically receive a zero for that week's pre-lab write-up.

Laboratory Notebook: Each student is required to have a carbon-less copy laboratory notebook for recording observations and data obtained during an experiment. The bookstore sells notebooks of this type. All work pertinent to an experiment (i.e., pre-lab write-ups, additional data, calculations, observations, results and discussion) must be recorded in blue or black ink in your notebook. Do not record data on loose pieces of paper as you can easily lose them. The first two pages of the notebook should be reserved for a table of contents, and the remaining pages numbered. New experiments should be started on a clean, right hand page. Data recorded in your notebook should be entered neatly, and in tabular form. To make corrections, mark through errors with a single straight line or draw an X over part of a page. Do not black out errors as later you may find out that what you thought was an error was in fact the correct observation. Notebooks must be signed or initialed by the TA before leaving the lab. Unsigned sheets will receive a grade of ZERO.

Lab Reports: A laboratory report consists of a brief introduction, data sheets from your lab notebook, calculation sheets from the lab manual, a results and discussion page, and answers to the post-lab questions. The calculation and post-lab question sheets are posted on the Chem 31 Labs Sapling Learning page. Data sheets are the carbonless copies of your raw experimental data and observations. Lab reports, calculation sheets, data entered in the lab notebook, etc. must be done in blue or black ink. Excessively illegible work/reports will not be graded.

Laboratory reports are due the week after an experiment is completed and are to be handed in at the start of you next scheduled laboratory session. If handed in late, 10% of the lab grade will be deducted for every day a report is late, or approximately 1 point per day late. Arriving to your laboratory/recitation period late will also count as late, and 1 point will be automatically deducted from the lab report being turned in. Also note that Saturday and Sunday count as late days, as the Cook Physical Sciences building is open on the weekends.

Technique Points: A portion of each lab grade will be reserved for technique points. Technique points are rewarded at the discretion of the TA and can be added or subtracted accordingly based on your ability in any of the following categories: preparation for recitation and lab, participation in recitation and lab, ability to set up apparatus properly, dexterity and skill in performing experiments, following safety guidelines, showing proper laboratory techniques, following proper laboratory housekeeping, following proper waste management guidelines, following TA instructions, etc.

Laboratory Grading: For each laboratory experiment you can earn 20 points (for a total of 200 points). The approximate weight percent, as contributions to the overall total of 200 points, assigned to each category has been set as follows:

Intro Quiz	1 x 10 points = 10 points,	or 5% of the lab grade
Lab Safety Quiz	1 x 10 points = 10 points,	or 5% of the lab grade
Pre-Lab Quizzes:	9 x 8 points = 72 points,	or 36% of the lab grade
Pre-Lab Write-up / Notebook:	9 x 2 points = 18 points,	or 9% of the lab grade
Laboratory Reports:	9 x 8 points = 72 points,	or 36% of the lab grade
Laboratory Technique:	9 x 2 points = 18 points,	or 9% of the lab grade

The grading scheme outlined on the next page shows how the points for the laboratory will be distributed, with each laboratory experiment worth 20 points.

Experiment	Quizzes	Pre-Labs	Lab Reports & Post-Lab Questions	Technique & Safety	Totals
Intro Quiz	10	-	-	-	10
Safety Quiz	10	-	-	-	10
Exp 1	8	2	8	2	20
Exp 2	8	2	8	2	20
Exp 3	8	2	8	2	20
Exp 4	8	2	8	2	20
Exp 5	8	2	8	2	20
Exp 6	8	2	8	2	20
Exp 7	8	2	8	2	20
Exp 8	8	2	8	2	20
Exp 9	8	2	8	2	20
Totals	92	18	72	18	200

The laboratory instructors will consider most or all of the following criteria in evaluating your laboratory performance: your ability for recording numerical data and qualitative observations effectively, your proficiency in performing calculation correctly, the accuracy and precision of your results, your adeptness in interpreting experimental results to draw reasonable conclusions, and your understanding of concepts and ideas as illustrated through your written laboratory discussion and conclusions, and the assigned post-laboratory questions.

Normalizing Lab Sections: Even though each TA has the freedom to design their own grading schemes for pre-labs and lab reports, at the conclusion of the semester we will standardize all of the points earned in each lab section to the same average of 80%. This will erase differences in grading standards among the large number of TA's that we have for the course.

Teaching Assistants' Office Hours: You will have a teaching assistant (TA) in charge of your laboratory section who you will meet at the first laboratory period. This is "your TA", and you should know that person's full name. This TA will be a great resource to you including soon-to-be scheduled office hours. Each Teaching Assistant who is part of Chem 31 will have one office hour per lab that they teach. All Chem 31 TAs have open office hours, so you will have over 40 (non-overlapping) office hours times throughout the week that you can get help from people who know the material.

The Chem 31 TA table is in room Cook A-302. During these office hours, TAs will answer questions not only about the lab, but also about the lecture material. You may utilize ANY of the TA's for help with lab or lecture questions - don't rely on just your lab TA. The schedule of TA office hours will be finalized soon and posted on both Blackboard and Sapling. These office hours will start the week of September 14th, the same week that labs start.

University Policy Statements and Links: All of the university's academic policies also apply in the laboratory setting. Even though while in the lab you will work through the experiments in pairs, you are each individually responsible for your own work. We encourage students to work together and in groups, but the work that you hand in must be uniquely your own.

Academic Integrity: As UVM students, you are expected to conduct yourself in accordance with the Codes of Academic Integrity and Student Rights and Responsibilities. Offenses against these codes are deemed serious and insult the integrity of the entire academic community. Any suspected violations of these codes are taken very seriously and will be forwarded to the Center for Student Ethics & Standards for further intervention

Code of Academic Integrity: <http://www.uvm.edu/~uvmppg/ppg/student/acadintegrity.pdf>

Code of Student Rights and Responsibilities: www.uvm.edu/~uvmppg/ppg/student/studentcode.pdf

Student Learning Accommodations: In keeping with university policy, any student with a documented disability interested in utilizing accommodations should contact ACCESS, the office of Disability Services on campus. ACCESS works with students and faculty in an interactive process to explore reasonable and appropriate accommodations via an accommodation letter to faculty with recommended accommodations as early as possible each semester.

If you require accommodations for the recitation/laboratory portion of the course you should contact the laboratory coordinator, Christine Cardillo (Christine.Cardillo@uvm.edu) as soon as possible to make arrangements.

Disability Certification and Support: www.uvm.edu/~uvmppg/ppg/student/disability.pdf
ACCESS: A170 Living/Learning Center; 802-656-7753; access@uvm.edu; www.uvm.edu/access

Religious Holidays: Students have the right to practice the religion of their choice. If you need to miss lab to observe a religious holiday, please submit the date(s) of your absence to the laboratory coordinator, Christine Cardillo (Christine.Cardillo@uvm.edu) in writing by the end of the second full week of classes. You will be permitted to make up the work within a mutually agreed-upon time.

Sapling Learning Log In Instructions:

1. Go to saplinglearning.com and click on the Higher Ed option for your country at the top right.
2. Log in with your existing account or click Create an Account.
 - a. If you have a Facebook account, you can use it to quickly create a Sapling Learning account. Click Create my account through Facebook. You will be prompted to log into Facebook if you aren't already. Choose a username and password, then click Link Account.
 - b. Otherwise, supply the requested information and click Create My Account. Check your email (and spam filter) for a message from Sapling Learning and click on the link provided in that email. If you don't get the email within 30 minutes, contact support@saplinglearning.com.
 - c. For students who are in a lecture that also uses Sapling (lecture sections A, C, D) you must use the multi-course pricing option when initially enrolling in the lecture to receive the multi-course discount.
3. Look for the gray bar entitled Enroll in a new course.
4. Click on your subject to expand the menu.
5. Click on the term to expand the menu further (note that Semester 1 refers to the first course in a sequence and not necessarily the first term of the school year).
6. Once the menus are fully expanded, you'll see a link to a specific course. If this is indeed the course you'd like to register for, click the link. Otherwise, continue expanding the other menus until you locate the correct link and click it.
7. You will be asked to enter a Key Code, which is not the same thing as an Access Card Code from a scratch-off card. The key code is your lab section number, so if your lab section is L99 then your key code is L99. You can find your lab section on your schedule in myUVM, where the lab will be listed as CHEM 031-L99. Again in this example case the lab section number and therefore key code would be L99.
8. Pay if necessary. Most courses require payment using a credit card, a PayPal account, or an Access Card Code (<http://www2.saplinglearning.com/help/how-do-i-enter-code-my-scratch-card>) from a scratch-off card purchased at your bookstore. In some cases, you may have additional options to enter the course for free until the add/drop date has passed (September 4th, 2015) or to use your Sapling Learning credit.
9. When you return from paying, you will be enrolled in your course. If your credit card is not accepted or you have other difficulties with the payment process, contact PayPal customer service (they handle all of our payments, including credit cards).
10. Once you have registered and enrolled, you can log in at any time to complete or review your assignments. If you have any problems, send an email to support@saplinglearning.com explaining your issue.