Instructor: Dr. Karen Long  
Office: PS 243  
Phone: 925-685-1230, Ext. 2272  
Office Hours: T and Th 11-11:30 AM, 1:15-1:45 PM, 4:45-5:15 PM or by arrangement  
(Hours subject to change. Any necessary schedule changes will be posted on the office door)  
E-mail: klong@dvc.edu  
Websites:  
- course main website: http://voyager.dvc.edu/~kLong/120  
- course WebCT (go to link from our course website or sign in at http://webct.dvc.edu/)  

Prerequisites:  
- CHEM 108 or equivalent college level course or appropriate chemistry skill level demonstrated through Chemistry Diagnostic Test. (Warning: If you have satisfied the prerequisite via the Diagnostic Test but you have not passed Chem 108 or equivalent chemistry course with laboratory, you should talk with me right away and plan for spending more time than otherwise expected for this course. This course assumes knowledge of chemistry and chemistry lab experience equivalent to Chem 108.)  
- MATH 120 or appropriate placement through MATH assessment process.  
- Eligibility for ENGL 122 or equivalent is recommended.  
- Note: Calculators and computers are used in this course.  

Course Materials:  
Required:  
- DVC Chemistry 120 Experiments.  
- scientific calculator (one that does exponential notation and logarithms)  
- duplicate page laboratory notebook (carbon or carbonless) in which you will record lab data  
- safety goggles or safety glasses with side shields  

Recommended:  
- Student Solutions Manual to Zumdahl and Zumdahl’s Chemistry. (this contains the solutions to half of the end of chapter problems – the ones with the answers in the back)  
- OWL Online Web-based Learning system for Zumdahl and Zumdahl 8th edition (http://www.cengage.com/owl). Cost is $33.49 online for a six month access.  
- lab coat or apron  
- loose leaf notebook for course handouts, lab handouts, etc.  
- a flash drive/memory stick to transfer data from lab computers to your computer  

What is Chem 120 about?  
Chemistry 120 is an introduction to the fundamentals of chemistry including the topics: atomic theory, chemical reactions, bonding, structure, stoichiometry, gases, liquids, solutions, oxidation-reduction, thermochemistry, equilibrium, and acid-base chemistry.  
The purpose of this course is to develop a basic understanding of chemical vocabulary and principles and to develop auxiliary skills for future work in chemistry and other sciences. Such skills include solving mathematical word problems, carefully performing laboratory techniques, properly documenting laboratory work, and effectively using computers for analysis and chemistry learning.  
Examples of specifics from the course SLO’s (Student Learning Outcomes) are below:  
SLO#1. develop and demonstrate appropriate chemical laboratory techniques. Perform a titration to determine the concentration of an unknown component.  
SLO#2. develop chemical problem solving skills as applied to chemical equilibrium.  
SLO#3. explain and illustrate bonding in various compounds  

Textbook coverage: Your textbook will be for both Chem 120 and Chem 121. This semester the expected coverage is the following chapters, more or less in this order: 1 - 6, 13, 14, 15 (Section 1 only), 7, 8, 9 (Section 1 only), 10, and 11. Follow the daily schedule.  

Lecture:  
Attendance is expected at all lectures. You make your work much harder by not coming. If you think you don’t usually get much out of lectures, try reading the assigned section before lecture, or at least skimming the section (see Schedule 1 for the first
few weeks). Then you can solidify your knowledge, gain perspective, and ask questions. I have been told by students whose first language is not English that reading the text before lecture is especially helpful.

You are responsible for all material covered, whether or not it is also in the book, and for all worksheets and handouts distributed, changes in schedule announced, etc. Early in the semester it would be a good idea to identify a responsible buddy or two in the class so you can find out what you missed in case of an emergency. I place all excess handouts in the top bin outside my office usually shortly after class. Some are put on WebCT. You may be dropped if you are absent for two weeks (four classes).

Laboratory:

The laboratory is a substantial portion of this course. Read the day’s experiment and do prelab preparation before coming to lab. You will have a much more successful and happy time if you do. Because lab is so important in chemistry, passing the lab is a requirement for passing the course. You may be dropped if you miss four labs.

The laboratory work will be assigned 300 points of the course total (mathematically adjusted to 300 if the total of the assignments doesn't happen to be 300). The grade will include evaluation of such things as prelab work, lab record keeping, lab reports, answers to questions, accuracy and precision of results, lab quizzes, completion of all experiments, and behavior and participation in the laboratory. Passing a safety quiz and following safe considerate lab procedures are requirements for staying in the course. Details on what to include in prelabs and lab reports will be provided. Experiments not done or reports not turned in will receive a grade of zero. Zero grades on labs can really affect your overall grade. No labs will be dropped.

When written prelab information is assigned, it will be due at the beginning of the lab period. Due dates will be specified for all lab reports, usually one week after completion of the experiment. Normally grades on late lab reports will be lowered 5% for each day the report is late, usually to a maximum of 40% off. Late lab reports turned in after the reports of other students have been returned may be assessed a 40% penalty even if 8 days has not elapsed since the due date. The instructor reserves the right to not accept any lab reports turned in more than two weeks after the due date. Maximum points for each lab project relate to the number of lab days and amount of outside of lab work involved in it (roughly 10 pts/ lab day).

If you are sick or need time beyond your usual lab period, you are responsible for speaking with me and arranging promptly for more time to complete the project so that you can turn in the report on the normal due date. Making up labs may be difficult since I have only one lab section this semester. For some labs, involving discussion or group work, there may not be a way to make up the complete lab. If you need to go to another instructor’s section, be sure to ask that instructor ahead of time whether you may make up work in their lab. That instructor must be scheduled in our lab room, not a different room. Chemicals will probably be available for on the day of the lab. If you are sick or need to go to another instructor’s section, be sure to ask that instructor ahead of time whether you may make up work in their lab. That instructor must be scheduled in our lab room, not a different room. Chemicals will probably be available for on the day of the lab.

Exams:

Four 100 point exams will be given. Notes will not be allowed on Exams. You may be using special provided calculators on exams, rather than your own calculators. Exams may cover both lecture and lab material (coverage is announced). Mobile phones and other electronic gadgets must be turned off and be placed inside backpacks or other container out of your sight and reach before exams and quizzes.

The Final Exam (150 points) will cover the entire course. If the percent score on the Final Exam is better than the average of the percent grades of the regular exams, the lowest of the regular exams will be dropped and the percent score on the Final Exam substituted for it.

There will be no make up exams except under unusual circumstances. In those rare cases, the exam must be taken promptly (normally in less than 2 days) without having contact with other members of the class. Not having had enough time to study is not an adequate reason for being allowed to take a makeup. A zero will be entered for any exam not taken. If on the Final Exam you beat your four exam average including the zero, that zero will be replaced with the percentage score of the Final Exam as described above.

Projected Exam Dates for the four exams (subject to change): Wed. 9/9, Mon. 10/12, Mon. 11/9, M 12/7

Homework, Quizzes, Worksheets

The total of all the homework, worksheets, and quizzes will be 100 points. The initial procedures for each are listed below although the instructor has the option of changing these at any time.

Homework: Daily assigned homework is laid out on the schedule and is a MINIMUM expectation. Doing homework conscientiously, thoroughly, and promptly is extremely important for understanding the material, especially since each new section builds upon the previous ones. You should SHOW ALL REASONING AND SET-UPS and WRITE OUT ALL ESSAYS in your own words. Writing down your work will help you organize your thoughts and develop the ability to think and write clearly. Answers to the blue numbered problems are in the back of the book. Solutions to those problems are in the
recommended “Student Solutions Manual”, available in the bookstore. Check your solutions and get help when needed from the Physical Science Tutoring Center (in PS110), instructor’s office hours, or your study group. If you don’t understand how the problem is done, the concepts involved in the problem, and how to do similar problems, ask. The OWL Online Learning System has interactive tutorials and videos that may also help. Then practice on a similar problem (often the book puts similar problems just after each other). A small amount of time will be allotted in the following class period for questions on these problems. The homework will not be collected and graded except as explained under Quizzes below.

Online homework: To encourage you to keep up and do homework daily, a short (usually 1-4 questions) problem set will be available on WebCT for you to complete by the night before the next class period. Each set of completely correct answers (including correct significant figures) earns you 1.5 points. At the end of the semester, the two lowest (or missing) online homework scores will be dropped.

Quizzes: Short quizzes on the homework topics will be given. Most questions will be similar to the homework problems. There will be no makeup quizzes, whether for absence, lateness, not being prepared, or whatever. If you miss one quiz, you may turn in your completed homework up to two calendar days late for up to full credit on that quiz. People who take all the quizzes will be allowed to drop one and replace it with the average of what is left. If you have an officially scheduled absence for such things as a track meet or field trip on the day of a quiz or worksheet due date, you must see me sufficiently ahead of time to make arrangements. You may not use any notes of your own on a quiz.

Worksheets: Worksheets are special homework assignments that will be turned in for grading. These are written by the instructor to give you practice with the more challenging problems, similar to the more challenging problems you may find on exams. They generally will take longer to do than a regular homework set, so start early. They are good sets to work on and discuss in a study group. But DO NOT JUST COPY SOMEONE ELSE’S WORK. No worksheet grades will be dropped. For some worksheets no credit will be given for late papers. For some worksheets, late papers will be accepted one class day late but the grade will be lowered by 25%. After that no credit will be given.

MyChem:
A portion of the course points are assigned to a group of activities we’ll call the MyChem section of the course. These activities include things which may not normally be part of a chemistry course but which are more flexible to allow you to build on your interests and to encourage a broader view of the field of chemistry. Each student does not have to do every activity to accumulate the 15 points designated for this part of the course. If additional work is done, bonus points may be accumulated to help the course grade. Note that the MyChem section is not just extra credit. If you do nothing from this section, you will be losing 15 points out of the total points for the course. Activities and due dates will be mentioned throughout the semester. You may propose similar activities to those presented by the instructor for possible inclusion in MyChem. Approval of the activity prior to doing it is necessary for credit.

Academic Integrity:
Academic dishonesty diminishes the quality of scholarship at Diablo Valley College and hurts the majority of students who conduct themselves honestly. Academic dishonesty is a violation of the DVC ‘Student Code of Conduct’ and will not be tolerated. Cheating will most likely lead to assignment of a grade of ZERO on the work, not allowing that score to be dropped, and submission of that information to the college Dean of Student Life to be kept on file. It could also result in dismissal from the class with an F grade, and/or other action. Attempting to obtain unauthorized information or any form of presenting work as your own, which is not your own, is considered to be cheating whether it be on exams or other assignments. You are encouraged to ask questions, use other books, and discuss many assignments with your friends, study group, tutors, and your instructor to help you learn. You are not, however, to have someone else write your assignment or dictate what to write, to borrow their paper and copy it, to use someone else's lab data when you were supposed to get your own, to fake data, to get information from another person or an unauthorized source during an exam, etc. People who participate in lending material for this purpose will also be penalized. For further detail see the DVC Student Code of Conduct and the Academic Integrity policies at http://www.dvc.edu/org/info/policies/academic-dishonesty.htm

Free drop-in help for Chemistry 120 – Physical Science Tutoring Center (in PS110 and the hallway outside that room)
Do not expect the tutors to do your homework for you, but they will try to help you build your critical thinking and problem solving skills as you work through the problem or question of interest. In this course everything builds on what was done before. Get help right away if something is confusing, so that you don’t build a mountain of problems to keep you from achieving what you want. Some people think that “good” students don’t go to the Tutor Center. Wrong. The “good” students are the ones who go. The “bad” students are the ones who stay away and pretend they know more than they do and then do poorly on exams. Talking through a problem with a tutor or fellow student can strengthen understanding even when you already got to an answer but don’t feel secure yet. There can also be good camaraderie in the Tutor Center. Work with friends there. To get the most of your experience at DVC, take advantage of this free service available to you. The schedule is posted outside PS110.
Other Help (in addition to Physical Science Tutoring Center):
1. Instructor Office Hours - see front of this Info Sheet (I don’t bite and I like to help you understand.)
2. OWL Online Learning System for our textbook (interactive tutorials, videos, problems – all material is there for you to practice, no grades will be collected).
3. Videos made by your illustrious instructor and other website references on our course website.
4. If you are an EOPS student, free personal tutors may be available through that program if needed.
5. The Learning Center on campus provides free short classes on reading, test taking skills, and study skills.
6. Disability Support Services (DSS) can provide support services related to physical, psychological, and learning disability problems. If you are not in their program and think you need help, make an appointment right away with a DSS counselor at the Counseling Center at DVC.
7. Personal mental health/crisis counseling is available with special counselors through the Counseling Center

Dropping:
If you wish to drop the course, you must fill out the forms at the Admissions Office. Do not expect the instructor to have taken care of it for you. However, it is possible that you might get dropped by the instructor when you had not intended to drop if you have been absent for some time. You should keep the instructor informed and get assignments if you are detained by illness or other personal necessary.
If you drop, remember to check out of the lab to avoid check-out charges at the end of the semester. And come back again next semester when you have things straightened out. We want you to ultimately succeed!

“You can’t climb the ladder of success with your hands in your pockets”
It is your responsibility to spend the required time outside of class doing reading, studying, homework, and lab reports. Some people feel that if they are doing half the assigned work they are doing fine and should get at least a C. Experience has shown this to be a false assumption. Almost always this leads to failure. Cutting lab or class for any reason is also an early warning sign of ultimate disaster. The average student should expect to spend **15 hours per week outside of class and lab**, preferably spread out over the week.

**Hints:** Because we are trying to work with the material at a higher cognitive level than in intro chemistry, you may have to use study techniques other than those that were successful for you before. Don’t resist trying new approaches. Reading the book several times and memorizing examples will not be sufficient for success in this class. You will need to practice problem solving. Any group work we do will hopefully help you develop some useful ideas. This is an opportunity to open yourself to learning techniques that can help you the rest of your college career!
You can increase what you learn from lectures by at least scanning the chapter or reading “Summary” sections in your text before lecture or looking at available videos. This provides some familiarity with the concepts so that you are better able to follow and participate in the class. Some of this material you probably already know. Refamiliarize yourself with it, and build upon it.

<table>
<thead>
<tr>
<th>Summary of</th>
<th>Grading Scheme:</th>
<th>Grading Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 points</td>
<td>Exams</td>
<td>bottom of A</td>
</tr>
<tr>
<td>150 points</td>
<td>Final Exam</td>
<td>bottom of B</td>
</tr>
<tr>
<td>300 points*</td>
<td>Laboratory</td>
<td>bottom of C</td>
</tr>
<tr>
<td>100 points*</td>
<td>Homework, Worksheets, and Quizzes</td>
<td>bottom of D</td>
</tr>
<tr>
<td>15 points</td>
<td>MyChem (bonus if you do more</td>
<td></td>
</tr>
<tr>
<td>965 points</td>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

*(If the point value of assignments in the laboratory or homework/quiz/worksheet categories do not add up to the course amount given above, the assigned points will be mathematically adjusted to equal those amounts.)

A grade of ‘C’ or better is required to fulfill the prerequisite for Chem 121, the spring semester half of the General Chemistry course

Important College Dates:
Friday, September 10, 2010: Last day to drop without a W showing on transcript.
Friday, November 19, 2010: Last day to drop with a W
Thursday, December 16, 2010 – Final Exam
Tentative List of Lab Experiments for the Semester in Expected Order
(There may be some changes as the semester proceeds.)

<table>
<thead>
<tr>
<th>Name of Experiment</th>
<th>Computer use?</th>
<th>Type of report</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Penny Lab</td>
<td>other</td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Nomenclature workshop (handout)</td>
<td>other</td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Introduction to Chemical Experimentation - Coke Lab</td>
<td>Use of Excel</td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Potassium Acid Phthalate Determination</td>
<td>other</td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Electrolytes and Ionic Reactions</td>
<td>other</td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Relative strengths of Oxidizing and Reducing Agents</td>
<td>other</td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Percent Magnesium in a Mixture</td>
<td></td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Thermochemistry-Hess' Law</td>
<td></td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Alcoholic Beverage Analysis</td>
<td></td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Le Chatelier's Principle</td>
<td></td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Equilibrium Problem Workshop (handout)</td>
<td></td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Finding an Equilibrium Constant, Kc</td>
<td>X (colorimeter)</td>
<td>other</td>
</tr>
<tr>
<td>pH of Lots of Stuff</td>
<td></td>
<td>other</td>
</tr>
<tr>
<td>Atomic Spectroscopy</td>
<td></td>
<td>other</td>
</tr>
<tr>
<td>Spectroscopic Determination of Nickel (II)</td>
<td></td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Lewis Structures and Molecular Geometries</td>
<td></td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Evaporation and Intermolecular Forces of Attraction</td>
<td>X (temp. probe)</td>
<td>other</td>
</tr>
<tr>
<td>Measuring Freezing Point Depression in Lauric Acid</td>
<td>X (temp. probe)</td>
<td>COMPLETE</td>
</tr>
</tbody>
</table>

- All experiments are from “DV C Chemistry 120 Experiments” unless otherwise indicated.
- Some experiments take more than one lab period (see detailed schedule for dates).
- Where the Computer Use column is marked with an X, we will use computers with probes to acquire measurements from the chemicals. Some data analysis will be done by computer. For those experiments you will want to either email your data to yourself or bring a floppy disk or a USB port storage device.
- Type of report: COMPLETE means that the written report is to be typed (except that calculations may be neatly handwritten instead of being typed) and that the report should contain all the sections outlined in the handout “Lab Notebooks and Reports”. “Other” types of lab reports may be a shortened written report with only specified sections, a fill-in sheet, a quiz, or other method of evaluation.