

**SYLLABUS
FOR CHEMISTRY 141
GENERAL CHEMISTRY I
Section 1125**

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Cuyamaca College
Fall 2009**

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LETTER TO STUDENTS

Welcome to Chemistry 141! I am glad that you are here and hope that you are glad to be here, too. Because you have taken chemistry before you know from previous experience that the study of chemistry is very demanding. You probably also know that chemistry provides the basis and "solutions" for understanding many of your future classes. If you assume responsibility for your role in this class, you will be very well prepared and equipped for the challenges you will meet in your future career.

Whether you are majoring in science, engineering or are simply taking chemistry for your own knowledge, you will continue to discover that chemistry is all around you! In this course, you will continue to study basic principles of chemistry, specifically, inorganic matter. We will also be working on a chemical analysis project in the area of forensic science at the end of the semester.

In order to succeed in this course, you must be willing to work. By work, I mean attending all classes, reading the assigned chapters **before** each class session and completing all homework assignments to the best of your ability before the due date. Expect to study 20-25 hours a week outside of class in addition to the 9 hours you spend in class. By doing this and coming to class prepared, you will be able to review and correct your homework, ask questions, discuss problems and participate. Being prepared for each class equals learning. Learning will help you to feel less nervous about the course material, increase your motivation to do the next assignments, encourage you to learn more and ultimately enable you to succeed.

My goal for you is to motivate you to increase your knowledge of the chemistry that is all around you. My goal for myself is to help you master the material in Chem 141 and prepare you for your future courses.

Laurie LeBlanc

My Presuppositions About You

- You are eager to learn about chemistry.
- You have completed two years of high school algebra or two semesters of college algebra (Math 90 and Math 110 at Cuyamaca).
- You have successfully completed a year of high school chemistry or a semester of Preparatory Chemistry in college (Chem 120 at Cuyamaca).
- You are able to read, write and comprehend English at the technical level found in the text for this course.
- You realize the value of good study habits and are intent on further developing your own effective study habits.
- You respect and support your peers. You recognize the importance of a supportive class and campus environment and are willing to work with your instructor and peers to create such an environment.
- You are willing to ask questions and respect the questions of others.
- You recognize the importance of setting short- and long-term academic goals.
- You understand that education is a lifetime path that one must choose to follow.
- You recognize that you are responsible for your own education.

CHEMISTRY 141: GENERAL CHEMISTRY I (Section 1125)
FALL 2009 CUYAMACA COLLEGE

Lecture	12:30 – 1:45	TTh	H204
Lab	2:00 – 4:50 pm	TTh	H204

Instructor: Laurie LeBlanc **Phone:** (619) 660-4454
Office: H209 **Email:** Laurie.LeBlanc@gcccd.edu
Office Hours: MW 12:30 – 2 Tues 10:30 – 12:30

Description

Chemistry 141 is the first semester of a year-long course in General Chemistry. It is a 5-unit class. The second semester is Chemistry 142. If your major is a physical science, a life science, premedical, pre dental or preveterinary, you are probably required to take both semesters. If you are an engineering major, you may only be required to take one semester, Chem 141, depending on the requirements of the university you plan on attending.

The course includes basic principles of chemistry and associated calculations. The laboratory is an introduction to quantitative analysis and the study of atomic and molecular structures.

Prerequisites

Prior to taking Chemistry 141, you should have successfully completed a semester of Preparatory Chemistry in college (for example, Chemistry 120). If you wish to add this class, you must show proof of successful completion of Prep Chem.

You should also have completed two years of high school algebra or the equivalent. Math 90 and Math 110 at Cuyamaca would be the equivalent.

It is expected that you are also able to read, write and comprehend English at a technical level equal to that found in the text for the course.

Required Texts and Supplies

Kotz & Treichel, Chemistry & Chemical Reactivity, 7th Edition

J. Villarreal, Chemistry 141 Supplementary Materials

Scientific Calculator (required!) Graphing or programmable calculators may not be during quizzes or exams; at NO time will you be allowed to use a cell phone for calculating or any other purpose in class. Be sure your cell phone is put away at all times.

Bound Quadrille Notebook (contains graph paper NOT lined paper)

Safety Glasses or Goggles

Combination Lock

Course Content

In General Chemistry, basic principles of chemistry are stressed. The main theme is the composition and structure of matter. The type of matter that we discuss primarily is inorganic matter, which is matter that contains no carbon. Examples of inorganic matter are salts, minerals and metals. We will cover the following topics:

1. Fundamentals of Chemistry
2. Chemical Calculations
3. Energy & Chemical Reactions
4. Atomic Structure
5. Chemical Bonding
6. Gases

The Course

Much of the course material is delivered in a lecture format. Occasionally, lectures will be delivered by student groups. As much as possible, chemical demonstrations are used in the lectures to present basic concepts. Group work will often be used as a follow up to ensure student understanding of lecture material.

Lab experiments allow you to make your own observations. If you have not already, you will learn to keep a detailed notebook which contains all of your lab work. The use of this notebook will acquaint you with the type of notebook kept in an industrial or biotech lab. In preparing lab reports, you will interpret observations using theories being discussed in the lectures.

You will be provided with a study guide for each unit at the start of each new topic. Students will be required to develop proficiency of the outcomes listed on the study guide by successfully completing assignments, quizzes, exams and laboratory activities.

Tentative Grading

(Approximate 1170 Point Total)

- | | |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 300 points | Four exams will be given each worth a maximum of 100 points. Your lowest exam score will be dropped. |
| 200 points | A comprehensive final exam will be given at the end of the semester. |
| 340 points | These points will come from laboratory work. There will be approximately 18 lab experiments. A lab report is required for each one, each worth 20 points. Only 60% of the 18 labs will be graded in detail. The rest will be checked for completeness only. Labs may not be made up; however, your lowest lab score will be dropped. |
| 100 | A special project in forensic chemistry will be done at the end of the semester. This will consist of lab and written work. |

180 points Approximately 12 quizzes will be given over the semester during weeks when no exam is scheduled. Each quiz will be worth 15 points.

50 points These points will come from miscellaneous homework or group work assignments.

Grades will be based on a scale rather than a curve. The scale will be as follows:

A	90% and above	Approximately 1170—1053 pts
B	80% - 89.9%	1052—936
C	70% - 79.9%	935—819
D	60% - 69.9%	818—702
F	59% and below	701—0

**** You must pass both the lecture and lab portions of the class to pass the course. What this means is that you must have a 60% or better cumulative percentage for all lab reports as well as a passing grade in the lecture portion of the course. It is your responsibility to keep track of your lab report percentage.**

Homework

Homework assigned and collected is due at 12:30 and **will not be accepted after the lecture has started unless I decide to take questions first.** It is extremely important that you do the assigned homework in order to master chemical principles needed in later coursework. Exams are patterned after the homework. If you can do the homework, you can do the exams. Answers to selected textbook problems are in the back of the textbook.

Lab Report Deadlines/Grading

The lab reports are due one week from the date the experiment was completed. Lab reports are to be turned in at the beginning of class (12:30). **Late lab reports will not be accepted – do not ask me to make an exception!** Your lowest lab report score will be dropped at the end of the course.

Attendance/Tardiness

Attendance will be taken at the beginning of class. Late arrival to lecture will be noted as an absence. **If you are late to lab, you will not be permitted to do the laboratory that day for safety reasons.** If a student misses six or more hours of class (either lecture, lab or both) he/she may be dropped for excessive absence.

***Drop Reminder:** It is the student's responsibility to both formally drop the course and to check out of the locker. Failure to formally drop the course may result in a grade of "F" for the semester.

Lab Fees

It is your responsibility to check out of your lab locker at the end of the semester by the time of your final exam or, if you drop the class, at that time. You will be provided a set of glassware and equipment to use during the semester. It is expected that you will return the set in the condition you found it – clean and complete. ** Failure to check out by the deadline and /or loss or breakage of your locker materials will result in your being assessed a \$10 lab fee.

Class Conduct

Undesirable class behavior will have a negative effect on a student's grade. Excessive talking during lecture is both discourteous and annoying to the instructor and students who sit nearby. Understanding lecture material may be more difficult for some students than it is for you and your distracting conversation may make it even more difficult and frustrating! Please show consideration and respect for others and refrain from talking during lecture. Cell phones and other electronic devices are to be turned off and put away during class periods. It is not permitted to take or make phone calls in class at any time – even during the break! Failure to observe these rules will result in your being asked to leave the classroom.

A high degree of integrity is expected in this class. Cheating on exams and quizzes will not be tolerated. You will fail the course if you are caught cheating. (*See Academic Honesty in the Cuyamaca College Catalog) Academic honesty is required for all assignments in this course. Plagiarism -- to take and pass off one's own work the work or ideas of another -- is a form of academic dishonesty. Penalties will be assigned for any form of dishonesty in this course. If ANY plagiarized work is discovered in an assignment, you will receive **no points** for the entire assignment. You may additionally be reported to the Assistant Dean of Student Affairs which can result in suspension or expulsion from the College. (**See Academic Honesty in the Cuyamaca College Catalog)

Academic Accommodations

Academic accommodations are available for students with disabilities. If you know or suspect that you have a learning disability or any other type of disability, contact the Office of Disabled Students Programs and Services (DSP&S). DSP&S provides services and arranges for academic accommodations for students with disabilities. Please notify me during the first week of class if you have a learning disability so that we can make the appropriate accommodations for you.

Course Syllabus and Schedule

The syllabus and schedule are subject to change based upon the specific needs of the class and the discretion of the instructor. Changes will be announced in class.

***This course adheres to the policies outlined in the Cuyamaca College catalog. For further information, see Academic Policies stated in the catalog.*

HELPFUL HINTS FOR SUCCESS IN THIS CLASS

1. Refer to your class schedule and read the material **BEFORE** coming to lecture. Even a very quick skimming of the text will make the material easier to understand and you will remember it longer. You may want to refer to the learning objectives so that you know what to look for as you read.
2. **Review lecture material as soon as possible!** Go over your lecture notes, read the text and fill in or rewrite your lecture notes. Rewriting the material *in your own words* will help you to learn it and remember it. Studies have shown that the longer you wait to review the material, the less you remember and retain. After a 24-hour period, 50% of the lecture material is lost.
3. Have a **regularly scheduled time** each day **to study chemistry**. Plan at least **20-30 hours** per week outside of classroom time. Remember! This is a 5-unit class and as such requires much time and attention. Use a calendar and set up a regular time for learning concepts, doing homework problems, interpreting lab and writing laboratory reports and studying for exams. **Ask questions** of your classmates or the instructor when you need clarification.
4. Do your assigned homework problems on a regular basis. **KEEP UP** with your homework and lab reports. Complete lab reports immediately! It takes much more time if you complete the lab several days later because it is more difficult to remember what you did! Students often finish lab early. This is an excellent time to attempt the post-lab questions and problems and get the instructor's help. Take advantage of lab time!
5. Study groups are very helpful to most students. **Initially, study the material on your own** and make a list of your own questions. Then discuss the material and your questions with your study group. How do you know if you understand the material? Can you explain it clearly to someone else? If so, you know it! The best way to learn is to teach! (While it is helpful to study with others, remember that you will be tested individually so make sure you thoroughly understand comprehend the material for yourself.)
6. Invest in time with a tutor if you feel you need extra help. Tutors should be available from the second week of the semester in the Tutoring Center (in the LRC). Studies have shown that working with a tutor on a regular basis usually results in better comprehension and a higher grade!
7. Refer to the learning objectives and review for each unit. The exams are based on the objectives so be sure you understand and can explain each objective. Sample exams for each topic will be available to you. Use them as practice exams and review all your quizzes.
8. Know your learning style. Be aware of what works best for you and do it! Is it listening in class? Recording lecture so that you can hear it again? Taking extensive notes and reviewing them later? Rewriting notes? Using the lab component of the class to understand principles being taught in lecture?

CHEMISTRY 141 LABORATORY GUIDELINES

Laboratory Notebook

Purpose of a Notebook

Whether you are working for yourself or for a company, records must be kept of all laboratory activities. These records may be used in court to (a) prove rights to patents or (b) defend or prosecute individuals/companies where evidence is presented that was gained through laboratory work. In the case of companies engaged in research, these records (a) may be critical to making management decisions involving millions of dollars or (b) in case of your death or departure for other reasons, are the means for your replacement to pick up the research where you left off. In all cases, the notebook belongs to the agency funding the laboratory work and is kept under their lock and key.

Key Elements in a Proper Notebook

- It must be **complete**. Every detail of your laboratory procedures, results, analysis and conclusions must be recorded so that any individual could repeat the work as you did it.
- It must be **honest**. The details must be recorded immediately after carrying out the procedure, as you first carry out the analysis of the data and as you make observations. Mistakes must be recorded and explained. Bad data must be included along with the good and included in the analysis and conclusions.
- It must be **readable**. Most records are read at one time or another by other individuals. Your notebook may never be neat, but your handwriting and your general organization must be good enough so that other people can interpret exactly what you did.
- Every activity must be **dated**. These activities include mental, as well as physical time spent on the project. Examples include ideas proposed to modify or improve the procedures, design of a follow-up experiment, as well as all thoughts pertaining to the interpretation of the results. Whenever a date is logged into the notebook, all entries that follow that date pagewise up until the next logged in date must have occurred on that first date. Within any given day's pages, the information is generally entered sequentially as it occurs.

Keeping a Notebook

A separate laboratory notebook is required for recording the observations that you make during lab experiments. A bound notebook with graph paper is **mandatory**. Loose pieces of paper for recording data are not acceptable. The notebook that you use for lecture notes may not be used for the lab. You record all Observations and Data from experiments in this bound notebook.

Before you leave lab, you must have the Observation and Data section in your notebook initialed. The original lab notebook section for each experiment is to be photocopied and turned in with a cover page as a lab report. Data is not to be rewritten. If you make a recording error or if the data is "no good", draw a line through the data and initial it. Continue recording on the same page, ignoring data that has been lined out.

Record all data in **ink** in a legible, organized fashion. Include all relevant information. For example, in recording numbers you should include both the units and the meaning of the numbers.

The lab notebook will be organized in the following order:

1. Exterior Title (Cover)

Your name, course title and semester should go on the cover. In the work arena, this would commonly be a project name or code and might be placed on the spine for quick identification on the shelf.

2. Title Page

Name, course title, number and section number, the name of the school, the semester and the name of your lab instructor. Also include either your address, phone or email address (in case your notebook is misplaced)

****Number the front of each page in the upper right hand corner from this point on.**

3. Table of Contents

One page should be set aside to list expt number, expt title, page number. This is useful for quickly finding specific topics in the notebook and must be kept up to date.

4. Lab write-up for each of the experiments:

**The first page of a new experiment should include the date, experiment name and number. The experiment name or number should then be repeated at the top of each page relating to that experiment.

Purpose

Three to four sentences introducing and explaining the purpose of the experiment to be performed. Be sure to include the **experimental technique(s)** to be used during the experiment and any **determination of unknowns**, if applicable. This section should be written in your own words. Copying from the lab manual is plagiarism.

Procedure

A detailed summary of each step in the experiment. Indicate all chemicals used along with the amount if each used. Also include any safety information important to the experiment. The important thing to remember here is that you should theoretically be able to use the instructions in your procedure rather than the lab manual to perform the experiment. This section should also be written in your own words. Use any format you prefer: paragraph, a list of procedures or numbered steps, inclusion of diagrams – whatever is easiest for you. Any change to the experiment on the day of the lab should be noted here as well, along with the name of your lab partner if you work in pairs.

**** NOTE ****

The above two sections (Purpose and Procedure) must be completed in your lab notebook at the start of the lab period in which the experiment is to be done or it will be assumed you are not prepared to do the lab and you will be asked to leave the lab.

Data & Observations

A legible and complete record of all observations and data collected during the course of the lab period in which the experiment is performed. These notes will lead you to accept or abandon a hypothesis and help you decide the course of future experiments. You must be as objective and honest in recording your observations as you are in making them. Most of the observations and data section can be a narrative description, a story telling what you did and what you saw. Use the first person to make it clear that you did the work. If someone else did the work, be sure that point is obvious. If you work in pairs, be sure to note that as well. Write in reasonably brief, declarative sentences as the work progresses. The instructor will initial this section when you have completed your lab work for the day.

If, when you finish your Data & Observations section for a given lab, there is a blank space on the notebook page, line through the space diagonally to cover the entire blank and initial above the line.

Lab Reports

(Each is worth 20 points)

A lab report is required for each experiment performed. Lab reports must be typed or written in ink in a legible, organized fashion. Each lab report will be organized in the following way:

Title Page—should contain Experiment Title, Name, Chemistry Course number

Next, the following three sections should be photocopied from your lab notebook. Be sure to copy the entire page including dates and page numbers for credit:

Purpose Procedure Data & Observations

Analysis—this section contains your calculations used to obtain results, if applicable, and answers to all questions posed in the experiment's post-lab questions. **This section is NOT to be done in the notebook but on a separate, clean sheet of paper (front side only).** It is the **final draft** of your answered questions and calculations, and should be done in pen.

Computer Printout, if applicable. (We'll discuss this in class when it applies)

Conclusion—three to four paragraphs in which your results are presented and discussed. (1) What you learned from the experiment should be discussed, (2) results of the experiment (identification of an unknown, etc.) and (3) sources of error in the experiment – at least three – should be discussed here, along with their implications or effects to the experiment. This discussion should be done in some detail. Also include here any questions that may have come up as a result of your experimental work.

The lab report must be turned in at the beginning of the lab period a week after completion of the experiment to receive credit. Labs turned in once the lab period has begun will not be accepted. Some experiments are done in pairs. Questions and calculations are to be done independently even though the experiment itself may have been done in pairs. If identical work is found on more than one lab report, all will receive no points for the report.

Missed Labs

You are expected to do all the labs. A lab is a hands-on experience and there is no substitute. None of the labs may be made up due to the difficulty in scheduling make-up labs.

Late arrival to lab will be noted as a missed lab and you will not be permitted to do the lab experiment. Since the explanations given at the beginning of lab period are crucial to safety in the lab and performance of an experiment, it is unsafe and unfair to the class to be late to a lab period

Safety

Remember that the lab contains hazardous materials. As a result there is no eating, drinking or horseplay in the lab. It is also required that you always wear safety glasses and close-toed shoes at all times in the lab.

You will be given safety instructions for the laboratory on the first day of class and will be asked to agree to abide by them by signing the safety sheet.

APPENDIX