Chemistry 1B Lab Syllabus
Instructor: Christy Vogel, Ph.D.
Contact Info: Rm 604A  831 479-6441

<table>
<thead>
<tr>
<th>Section</th>
<th>Days</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>65251</td>
<td>MW</td>
<td>11:10am-2:10pm</td>
</tr>
<tr>
<td>65250</td>
<td>TTh</td>
<td>8-11:00am</td>
</tr>
<tr>
<td>65252</td>
<td>TTh</td>
<td>2:30-5:30pm</td>
</tr>
</tbody>
</table>

Requirements
1.) Spring 2010 Chemistry 1B Lab Manual  Available at Printsmith, 8047 Soquel Drive, Aptos, CA (831) 688-1538  2) Laboratory notebook with carbonless copies  3) Safety glasses  3) Scientific calculator  4) USB flash drive  5) Nonerasable ink pen 6) Access and ability to print necessary report forms and formal reports.

Philosophy
Chemistry is a field of knowledge derived from experimental efforts. The information in your text is based on physical evidence compiled over centuries by a wide variety of human efforts, all reproduced by others in different settings and for a wide variety of reasons. The fundamentals of the scientific method remove some natural bias, taking ideas from beneath the laurel tree to information that can be communicated then confirmed by others.

The testing of the material world that will occur in this course is well planned and quite contrived with the biased motive of leading students to the physical evidence that confirms and reinforces the written word in their text. We make no apology for the artifice in our curriculum because confirming others work is part of all research.

Our lab activities are designed to prepare you with skills that are necessary to do original research. When you begin your research, we hope you will take some time and let us know how that works out.

Specific skills developed in this course include writing formal reports, using graphical analysis to interpret results, and the design and implementation of a variety of mini experiments.

Prior to Lab
Chem 1B students will be attending lab 6 hours per week. Before class, every student must read the entire lab prior to the lab period. The specific lab activity is listed in the Lab Schedule handed out the first day of lab. The material that must be read before lab is found in the Chem 1B lab manual. Another important element of preparation is dressing appropriately for lab. Every student must dress according to Cabrillo College Safety rules.

All report forms and other elements of graded assignments that require printing must be done using student resources. The printer in the lab is intended for publication of data (graphs, tables) and not for all the report forms or formal reports. The library and MESA (Rm714) have printers available.

During Lab
The class begins on time with a short lecture including important aspects such as safety instruction. If you have any difficulty making your scheduled lab time, call your instructor asap at her office 24 hr voicemail:  831 479-6441

Lab activities include cooperative and individual experiments. All students must work as directed, alone or as part of a partnership,

The expected participation of every student during lab includes:

- Obeying all Cabrillo College Chemistry Laboratory Safety Rules
- Turning in lab assignments within first 3 minutes of class on the due date
- Attending lab lecture, making note of adjustments and suggestions
- Completing the experiment within the allotted time
- Cooperating with your instructor, other students and stockroom personnel
- Behavior that doesn’t detract from the learning environment of anyone in the lab
Behavior Expectations (also found in lecture syllabus)

All students are expected to: 1) Respect your classmates and your instructor, no sarcasm, no put-downs, no disruptions by speaking out of turn, calling out, etc. 2) Be attentive, stay on task, participate in discussion, do not be disruptive (turn off cell phone, come to class on time, etc.). 3) Complete and turn in assignments on time.

Consequences for Disruptive Behavior: First time (not severe) – discussion and verbal warning Second time – dismissed for the remainder of the class and for the next class period. Student is required to meet me in office hours before returning to class to develop an agreement about proper classroom behavior. Third time – dropped from the class, grade of W or F will be assigned.

SEVERE CLAUSE–Severe acts of disruption, lack of respect, such as with the use of a racial slur or an issue of sexual harassment will be cause for immediate drop from the class and referral to the Dean of Student Services and other college and legal authorities.

**Tools from Chem 1A**

Your efforts in the Chem1A lab will be invaluable in Chem1B. Please ask questions as everyone’s experience will vary to some degree. Particularly useful in lab will be your mastery of dimensional analysis (unit conversion), sig figs, small scale techniques, laboratory notebook protocol, independent problem solving, concentration/dilution/stoichiometry calculations, formulation of conclusions, nomenclature, how to write an abstract and how to write an introduction.

**Laboratory Notebook Protocol**

Your laboratory notebook is a daily log that contains experiment titles, introductory paragraphs, measurements, observations and conclusions. Raw and original is the key to the quality of data recorded here; this is to be your constant companion in the lab, NOT perfectly recopied transfers of data but the data written down during the experiment. Do not write data elsewhere and then transfer. Scraps of paper containing data may be confiscated and summarily eaten by your instructor.

Required features of the Chem1B Lab Notebook:

- Dated by you and initialed by your instructor for each day of data gathering (always bring to lab)
- Table of Contents at beginning of lab notebook, containing title and page number
- Legible data entries (use tables as much as possible), **INK ONLY**
- If you make an error in writing do not use scribbles or white out to indicate error—use straight edge to strike through errors. Mistakes will happen, actually if they don't, doubt rises . . .
- Short paragraphs at beginning and end of each experiment: Introduction (written before lab, including highlights of what you read to be prepared for lab), Conclusion (written after lab, what the data you recorded revealed, big picture interpretation here—not rep eating raw data)
- Any deviations from experimental procedure, important precautions or additions given by instructor should be entered after the introductory notes (VERY IMPORTANT, deviations aren’t an issue, they won’t hurt your score, if you record them in your notebook and your formal reports!)

**Signs of a Serious, on the way to, Successful Chem 1B Student**

- Prepares for lab by dressing appropriately, reading lab materials before lab, prelab quiz and/or other assignments are ready to be turned in. Brings a laboratory notebook, pen, calculator and necessary experimental pages to every lab. Attends all labs and is on time (only works in registered section) Hands in work that is due before lab lecture.
- Works effectively alone or in groups, according to instruction (makes good use of time and is not obstructive to others’ learning). Obeys all of the safety rules of Cabrillo College and as directed by your instructor or stockroom personnel. Respects the needs and concerns of other students, the instructor and stockroom personnel.
- Thinks about the underlying significance of collected data before answering questions or writing conclusions—pondering questions such as “What chemical principles are involved? What are the trends present in this series of
data points? What changes did I observe and what do they indicate about the molecular world?” Moving from filling in the blanks to thoughtfully mining for meaningful interpretation is a true mark of success in Chem 1B lab.

**Graded Material**

Diligence in the lab will help you to succeed in Chem1B. Each day in lab is worth a minimum of 10 pts. More points will be earned when more writing is required.

**Brief Laboratory Reports**

Many of your lab assignments will be turned in *brief report* form. This consists of a title page that includes an abstract, a completed report form (found ONLINE) for that specific experiment and copies of original data -- the duplicate pages from your laboratory notebook. Any graphs or spreadsheets should be included between the report form and data pages. A brief laboratory report (BLR) for a one day lab is worth 15 pts and a BLR for a two day lab is worth 25 pts.

The abstract is a brief summary of the entire experiment. An abstract must be:

- in the past tense
- a brief but complete overview of the purpose, data and results
- without experimental detail or emotional reflection
- typed or in incontrovertibly legible handwriting

The report forms are found in your Supplemental Lab Information (SLI). These report forms are not optional and need to be filled in neatly and correctly to receive a maximum amount of credit for your work in the lab. *Pencil can be used in the report forms but not in the lab notebook.* Neatness and content rule here.

The laboratory notebook you buy in the bookstore has a secondary page for each white one with the same page number. The secondary is a copy (and a good one if you use the hard surface included). *The pages corresponding to the data for the experiment due will be attached at the end of all reports in this course.*

**Formal Reports**

Two experiments will require *formal reports.* These are to be *typed* reports that must be easy to read and to the point. These formal reports will include the following sections: Abstract, Introduction, Procedure (or Materials & Methods), Data and Calculations, Discussion and Conclusion sections. They will include *answers to questions from the experimental writeup,* either appropriately included as background information in the Introduction or listed in the Discussion section (not both).

**ABSTRACT** This is a summary of the entire experiment in five or less sentences. One sentence for purpose of lab, one to three sentences describing what was done in order to accomplish the purpose and one or two sentences summarizing the outcomes (include actual results). You should not include details, quantitative or otherwise here. (E.g., don’t include concentrations of solutions or specific steps of the procedures.)

**INTRODUCTION** The introduction should engage the reader by introducing the topic and its significance and then explaining any necessary background information needed to understand the data section. Background could consist of molecular formulas, abbreviations to be used in data collection, chemical reactions, or basic principles or calculations that will be used in the experiment. Some questions asked in lab manual could be answered here as part of the necessary background information.

**PROCEDURE/Materials & Methods** Normally this is the shortest part of your formal report as you will not repeat anything given in your lab manual but simply provide a reference to your lab manual with specifics such as the lab manual name and page numbers. Other very important information to appear here is any deviations from the lab manual procedure or designed experiments. *Changes, mistakes, creativity—these things happen. It is very important to note exactly what changes were made, either by accident or by instruction.*

**DATA AND CALCULATIONS/RESULTS** - the physical results of the experiment, including observations, measurements and calculations. Whenever possible, presenting data using tables or graphs is required. After
learning how to use MS Excel in the introductory labs you are expected to use spreadsheets whenever you have results involving repeated calculations of raw data. Calculations can be interspersed or placed at the end of this section. Make sure your tables, Excel spreadsheets and graphs are appropriately titled. Graphs will also include appropriate labels and should be optimized for clarity.

**DISCUSSION**  This is where you try to explain what might have gone wrong, discuss other questions that arose from your results, and/or answer remaining questions asked in the experiment. Not all formal reports include a discussion section.

**CONCLUSION**  This will be your chance to explain specifically how the data shows the success or failure of your efforts. It is important that you recognize when you accomplished what you set out to do. Likewise, it is important that you recognize a failed experiment when the data tells you something went wrong. Your ability to interpret your data is what should be revealed in this section. What do you now know that you didn't know before the experiment? Did you accomplish the purpose?  Don't miss this opportunity for thinking.

**Report Forms**

The assignment of “report form” is simply the brief lab report without the title page/abstract, i.e., a completed report form, along with any added pages such as graphs and/or spreadsheets and the copied data pages from your laboratory notebook, in that order. The forms are found ONLINE.

**FAQs**

*What do I do if I can’t make it to lab?*  You must contact your instructor as soon as you are aware of a possible conflict or problem so that your instructor can help you.  *Call 831 479-6441 and leave a message giving your name, lab section, describing your difficulty--day or night.*  The next best method is to email:  
*chvogel@cabrillo.edu*

*Can I attend another lab section if it fits my schedule?*  No, you are only allowed to attend the section you are registered in.  If you notify your instructor immediately of your issue, there may be a solution.  Again, the sooner you contact your instructor, the more likely some accommodation can be made.

*I prefer working with others on experiments. Can I do this in Chem 1B?*  Most experiments in Chem 1B are individual activities with some groups or partnerships sprinkled throughout.  You are expected to work independently as directed by your instructor or work cooperatively when partnerships and groups are allowed.  An inability to work independently will affect your grade.  If you have anxiety about working alone, remember your instructor is your partner for every lab--- seriously, a ready resource.

*Are there make up labs?*  Technically no, but if you have called in advance and let your instructor know that you cannot attend your lab because of unavoidable circumstances, there may be some way to help you get the lab done.  Only your instructor can assess your individual.  *Unauthorized experiments are never allowed.*  Since you can endanger not only yourself but others as well, any violation of this rule constitutes grounds for immediate dismissal from the course.  *Students not employed by the department are not allowed in the chemistry stockroom for any reason.*

*What if I don’t get my lab assignments done in time to turn in?*  Again, any problems should be communicated to your instructor as soon as possible so she can determine if there is any way she can help.  Your prelab quizzes cannot be late.  Your late brief and formal reports will have the same penalty, 20% of points possible for each class day missed.  If a 10 pt assignment was due on Tuesday morning and you turned it in after the beginning of lab or Tuesday afternoon, the maximum points for a perfect but late paper would be 8/10.  That would be true if it were turned in on Wednesday or Thursday.  If that same assignment is turned one week late exactly, the maximum pts would be 6/10 for a perfect but one week late paper.
Can I get into our lab room, Rm 606, at times other than my lab? Room 606 is a lab used by a variety of classes and cannot be used except with supervision. The reagents you need are not readily available and cannot be accessed without your instructor’s supervision. Unauthorized experiments are never allowed. Since you can endanger not only yourself but others as well, any violation of this rule constitutes grounds for immediate dismissal from the course. If you need to use a computer, you can go to the library to access the internet. MESA also has computers and printers available. Do not disrupt another class by entering Rm 606.

I have a disability which may affect my results in lab. What do I do? See your instructor immediately and she will do her best to make accommodations. Colorblindness, epilepsy, tremors, impaired vision, medication side effects and anxiety attacks are good examples of situations that need to be disclosed to your instructor. Any concern regarding your ability to perform the experiments must be shared with your instructor so that she can help you and also so she can make sure the lab classroom is a safe learning environment.