

## General Chemistry 1B Course Syllabus Spring 2013

Instructor Dr. Eileen Clifford

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Class Meetings Lecture: T/Th 6:00-8:50 PM; Room 110 in 860 Atlantic

Lab: Wednesday 6:00 – 8:50 PM; Room 150 in 860 Atlantic

Office Hours: Tuesday 4-6 PM Room 189 in 860 Atlantic

Possible online at class moodle site using chat tool, TBA

Prerequisites MATH 203 or 211D, Intermediate Algebra, Chem1A

### Course Description

Chemistry 1B is a five-unit course in general chemistry, which completes college level first year general chemistry. Topics include equilibrium, weak acids and bases, buffer solutions, radiochemistry, thermodynamics, electrochemistry, coordination compounds, atmospheric chemistry. Assumed knowledge from first semester includes nomenclature, stoichiometry, aqueous ionic reactions, thermochemistry, ideal gas laws, chemical bonding and Lewis structures.

### Required Materials

1. Chemistry, 11th Edition, Theodore Brown, Eugene LeMay, Bruce, Bursten. This can be the printed copy or the ebook. Copies on reserve at the LRC, College of Alameda. Used copies available for sale online at [www.amazon.com](http://www.amazon.com), <http://www.alibris.com/books/textbooks>, or other booksellers.
2. Chemistry 1B Laboratory Manual from the COA Bookstore.
3. Registration for online homework through Sapling Learning. [www.saplinglearning.com](http://www.saplinglearning.com)
4. A scientific calculator that has at least log and exponential functions is required. Graphing capabilities are not necessary.
5. 8.5 by 11 permanently bound laboratory notebook with carbon copies, available at COA Bookstore.
6. OSHA approved laboratory safety goggles. Other types of goggles will not be permitted.
7. 3 by 5 inch note-cards.
8. Access to email at your peralta email address where quiz questions and reminders will be sent.
9. Access to public or private computer with internet capability for moodle (course materials will be posted) and online homework program from Sapling Learning.

### Course Objectives

1. Solve quantitative chemistry problems demonstrating clear reasoning, integrating multiple ideas in the problem solving process, and checking results to make sure they are physically reasonable.
2. Describe and explain chemical concepts plus trends qualitatively. Use molecular scale models/descriptions to qualitatively explain laboratory scale physical and chemical properties.
3. Safely carry out chemistry experiments in the lab, learning common lab techniques, accurately recording observations and data in a laboratory notebook. Clearly report interpretations, analysis of results in laboratory reports.

### Homework (Required)

Homework will be assigned in class and done online. The homework program is designed to be compatible with the textbook, and hints are available to help solve questions. The homework must be

finished within one week in order to receive credit. Homework is graded on completion and correct answers. Any issues with the program or questions can be addressed directly to the Sapling representative or to the instructor. The importance of working problems cannot be overemphasized!

### Testing

#### Exams

The exams will be based on the material covered in the course and the homework, but will be different in content or style from what has been demonstrated. Students will be tested on their understanding of the general concepts of chemistry and will be required to apply these concepts to problems that chemists may need to solve.

Students will be permitted to bring one double-sided 3 by 5 inch note-card per chapter covered for the quizzes and midterm exams. The note-card may contain any information (eg. formulas, constants, definitions) deemed relevant by the student and will be collected with the test at the conclusion of each exam. Bring a calculator for exams.

There are two in-semester exams and the final. The American Chemical Society Exam will be offered on the last day of class and the grade can substitute for the lowest of the other three exams.

The final exam covers all of the material covered in the class, and students are allowed to use a double-sided 8.5 x 11 inch sheet of paper for the necessary formulas and constants or one index card per chapter.

There will be no make-up exams. A missed exam will be excused for verified medical reasons (reported in advance if possible), and the course grade will be based on the remaining course work.

The American Chemical Society exam for first year chemistry will be given and can replace the score on one of the other exams.

#### In Class Quizzes

Quizzes will be given approximately every week at the beginning of the lecture, and no additional time is given for late arrivals. Students who solve and understand the homework problems will be well prepared for the quizzes.

#### Laboratory experiments

Each lab assignment will be shown in the lab prior to performing the experiment. All the assignments are described in the Chemistry 1B Laboratory Manual (available at the College of Alameda Bookstore).

#### Pre-lab Entries

Students should bring their lab notebooks to lab with a purpose and a brief written summary of the lab procedure (pre-lab) along with the answers to the questions posed in the lab manual. The prelab will be required to start each experiment.

The purpose of the pre-lab is to ensure that students understand the experiment and all related safety procedures. Students who do not turn in the pre-lab at the beginning of the lab period will not be allowed to attend lab until the pre-lab is completed and must complete the experiment in the remaining time. The lab period will not be extended. Guidelines for maintaining your laboratory notebook and the grading of your procedures will be given by your laboratory instructor.

During the lab period, in addition to carrying out the assigned experiments, it is strongly suggested that students use the time to complete the calculations as the instructor is available to provide help and clarification. At the end of lab, your notebook must be signed by the instructor or TA, and the carbon copies of the experiment turned in.

### Post-lab Report

A lab report for each experiment (written separately and individually by each student) is due the following lab session and will include answers to the post-lab questions posed in the lab.

Students are expected to do all lab experiments, and the lowest grade will be dropped. Any additional missed experiments result in a zero then a failed grade for the course.

### Code of Conduct

This course will be conducted according to the Peralta District Policies and Procedures set forth in the current College of Alameda Catalog. Both the lecture and lab are active learning environments. No disruptive behavior or inattentive activities will be tolerated either in class or lab, including CD players, iPods, MP3 players, cell phones, pagers or any other electronic devices that may disrupt the lecture or lab period. Students should make every effort not to be late for class; if you must arrive late or leave early, please take the nearest seat to the entrance of the classroom.

### Student Responsibilities

Students are responsible for understanding the Academic Regulations, Policies and Standards found in the current College of Alameda catalog. In addition, students are responsible for understanding the procedures for add/drops, academic renewal, withdrawal, etc. found in the Academic Regulations, Policies and Standards current College of Alameda catalog.

### Academic Integrity

The student's own commitment to learning, as evidenced by their enrollment at College of Alameda, and the District Policies and Procedures requires each student to be honest in all their academic course work. Actions and consequences are delineated in the Student Code of Conduct, and all Code violations will be reported to the Vice President of Student Services. The policy on academic integrity can be found in the College of Alameda catalog.

Plagiarism or cheating in any context, tests or labs, will result in disciplinary action according to the College of Alameda policy.

### Special Arrangements

Students, who need course adaptations or accommodations because of a disability or need special arrangements in case the building must be evacuated, should make an appointment or see me during office hours as soon as possible. College regulations require that students with disabilities requesting accommodations must register with the Program and Services for Students with Disabilities (DSPS) to establish a record of their disability. Information on the DSPS program may be obtained by calling (510) 748-2328 or visiting the DSPS office in Room D-117.

### Grading

The final course grade will be based on the performance of each student on the following items:

- |   |                                    |
|---|------------------------------------|
| 1. Two midterm exams (200 points each),           | 400 points                         |
| 2. One comprehensive final exam (200 points),     | 200 points                         |
| 3. Thirteen lab assignments (15 points each lab). | 195 points                         |
| 4. Five in class quizzes (20 points each).        | 100 points                         |
| 5. Homework                                       | 100 points                         |
| 5. Extra credit for additional assigned work      | <u>35 points</u>                   |
|   | 1030 points or 103 points, scaled. |

One quiz and one lab report score may be dropped or missed—there are 5 quizzes and 14 lab assignments. If any other quiz or lab is not turned in, the student will receive a zero for that assignment. Any additional misses will cause the student to fail the class.

Final letter grades will be assigned according to the percentage points that each student accumulates during the semester. Estimated scale: A =100-90% B = 89-80% C =79-70% D = 69-60%  
Final exam is Tuesday May 21 from 6-8 PM.

### STUDENT LEARNING OUTCOMES ADDENDUM

Course Level Student Learning Outcomes	Assessment Methods
<b>1. Solve quantitative chemistry problems demonstrating clear reasoning, integrating multiple ideas in the problem solving process, and checking results to make sure they are physically reasonable.</b>	<b>Biweekly tests, a mid-term exam and a final exam will be given to assess typical Chem 1B level quantitative reasoning ability including including equilibrium, thermodynamics, kinetics, electrochemistry and nuclear chemistry problems, etc.</b>
<b>2. Describe and explain chemical concepts plus trends qualitatively. Use molecular scale models/descriptions to qualitatively explain laboratory scale physical and chemical properties.</b>	<b>Biweekly tests, a mid-term exam and a final exam will be given to assess typical Chem 1B level explanation ability including questions on microscopic interpretation of thermodynamic properties and their connection with whether a process (like a chemical reaction) is spontaneous or not.</b>
<b>3. Safely carry out chemistry experiments in the lab, accurately recording observations and data in a laboratory notebook. Clearly report interpretations, analysis of results, and conclusions in laboratory reports.</b>	<b>Weekly experiments will be carried out in the lab, for which laboratory reports will be collected and graded the following week. 50% of the lab-report grade will address hands-on lab performance. 50% of the lab-report grade will address quality of lab report.</b>