Berkeley City College

Chemistry 1B Syllabus, Fall 2018

Instructor: Siraj Omar, Ph.D.
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I. **Meeting Time:**

Lecture:	0930 – 1220	MF	(Room 034)
Lab:	0930 – 1220	W	(Chem Lab, Room 521)
Office hours:	1400 – 1600	MW	(LRC; drop-in)
	1500 – 1550	Th	(Room 523; by appointment)

II. **Description & Objectives**

Chem 1B, the second part of college general chemistry, will cover materials under the following topics: chemical kinetics; equilibria (chemical and in aqueous solutions); acids, bases and buffer solutions; entropy and free energy; redox reactions and electrochemical processes; the chemistry of main group elements and their uses; the chemistry of transition elements and their coordination compounds; nuclear chemistry, and an introduction to organic and biological compounds.

As in Chem 1A, this course emphasizes on the understanding of basic chemical principles associated with chemical processes occurring in the laboratories and in nature, as well as their industrial significance. Problem solving and laboratory exercises are important aspects in this course. There will be weekly experiments and homework assignments that will help you acquire essential practices and skills. (Pre-requisite: obtain grade C (or better) in Chem 1A)
(Chem 1B is a pre-requisite for organic chemistry 12A. It is a transferrable course to UC and CSU; a required subject for all science majors, medical program, and degrees in dentistry and pharmacy.)

Student Learning Outcome:

Upon completing this course students will acquire the following knowledge and skills:

1. Solve quantitative chemistry problems and integrate multiple ideas, that include incorporating stoichiometric and algebraic relationships, in problem solving processes.
2. Explain qualitative trends in physical and chemical properties of elements and use molecular level concepts (physical and/or chemical) to explain macroscopic properties of matter.
3. Perform experiments according to laboratory safety procedures; collect and analyze experimental data; interpret results that include graphs construction; write organized laboratory reports.

III. **Books and Supplies:**

- Primary textbook: OpenStax Chemistry, Rice University; (required)
- Supplementary text: Zumdahl & Zumdahl, "CHEMISTRY" 8th or 9th ed., Cengage. (optional)
- Chem 1B Laboratory Manual, Siraj Omar, Science Department, Berkeley City College. (required)
- Laboratory Notebook; scientific calculators, and safety goggles. (required)
- Lab coat or apron (optional)

IV. Grading: A. Grade Distributions:

Midterms	36%
Final Exam	20%
Quizzes	16%
Laboratory	20%
Homework	8%

B. Grades:

A:	$\geq$ 90%
B:	79 - 89%
C:	65 - 78%
D:	51 - 64%
F:	$\leq$ 50%

[Note that points accumulated from homework assignments, lab reports, quizzes and tests are not equivalent. It is the percentage score from each section that is important.]

V. **Homework Assignments**

Homework will be assigned weekly through online homework provider (go to www.saplinglearning.com, and sign up under "Berkeley City College - CHEM 1B – Fall18 – OMAR". There will be 20-25 homework problems assigned for each chapter, plus about 10 practice problems that will be graded as extra credit.

VI. **Quizzes, Mid-terms and Final Exam:**

There will be 9 -10 scheduled quizzes, three (3) mid-term tests and a final exam. There will be NO make-up on quizzes, tests, or the final exam. All test/exam scores will be counted into your final grades, but only the top eight (8) of the quiz scores will be counted into your final grades; the final exam will be comprehensive. If you have any conflicts on the dates scheduled for quizzes, midterms or the final exam due to prior commitments, please let me know one week before the scheduled dates for quiz or midterm, so that an date could be arranged for you. If you require a specific accommodation for quiz or exam, such as a quieter room or extra time, please make arrangement with BCC DSPS office. (Any such arrangement that you've made at other colleges is nonbinding at this college until it is validated by our DSPS officials.)

VI. **Laboratory**

- Laboratory is an important component in this class. You will perform 12-13 experiments, and for each experiment you will write a comprehensive lab report. During lab you may perform experiments with one or two partners and you will be sharing experimental data. However, lab reports must be written and submitted individually.
- Please DO NOT copy your partner's lab reports; (this includes the calculations). Plagiarism is an academic offence. You will be given a "zero" grade for your lab reports if it is determined that you have copied someone else's work.
- Each lab report must be turned in within one week the experiment is completed; points will be deducted from late reports. **Lab reports that are more than three (3) weeks overdue will not be graded.**

Please read and follow the instructions below for laboratory experiments.

1. Before each lab class, you must complete the pre-lab exercises and turn them in at the beginning of the class period. You have any question regarding the prelab, you may ask me at the beginning of the lab period before you begin performing the experiment.
2. You MUST have a laboratory notebook where you keep records of all experimental data and observations. No pieces of paper or pencil will be accepted.
3. Prepare your lab notebook before each laboratory period as follows:
   - Start on a fresh page for each experiment. Write the Title and Objective of the experiment. This is followed by one or more paragraphs of Overview of the experiment, the Experimental Procedure summary or outline, and Data Table(s). During the experiment, data must be entered directly into your lab notebook in INK. Writing experimental data/observation in pencil is not acceptable.
   - After the data table(s), leave enough space for calculations.
4. At the end of the experiment, please show your data and a sample calculation to your instructor for his/her initials before leaving the lab.
5. Your final lab reports must be typed (including the Data Table) and organized in the following format.
   (*i*) Title of experiment;
   (*ii*) Objective (a brief statement of purpose of the experiment – write in a complete sentence);
   (*iii*) An Overview (a brief description of the experiment and its chemical principle with relevant equations and formulas that would be used to achieve the goal of the experiment);
   (*iv*) Procedure (list the steps involved).
   (*v*) Data Table(s), Calculations, and Results of the experiment. (Organize and properly labeled.)
   (*vi*) Summary. (State briefly whether the experiment's objective is achieved and explain if not.)
6. The final lab reports must be turned in within one week after the experiment is completed. Points will be deducted from late reports (at a rate of 2 points per class meeting).
   Please note that ***lab reports that are more than three (3) weeks overdue will NOT be graded***.

VIII. **Safety in the Laboratory**

1. Safety in the laboratory is of primary importance. You must wear safety goggles at all time during laboratory classes, regardless of whether you are doing an experiment or not.
2. Eating and drinking are NOT ALLOWED in the laboratory (Bottle drink is OK).
3. You must wear close-toed shoes. Sandals or flip-flops are NOT allowed in the chemistry labs.
4. You must wear clothing that protects your body. Shorts, short skirts, and sleeveless shirts/blouse are not allowed. Avoid wearing flammable synthetic materials. Do not wear contact lenses.
5. Do experiment that is assigned by the instructor. Any kind of unauthorized experimentation with chemicals is strictly prohibited.

VII. **Reading/Studying**

- It is crucial that you read the chapter before coming to class. If you come to class without knowing what topic(s) the lecture will cover, you will not gain anything during the lecture.
- You must pay attention during lectures and study the materials outside the class periods. Studying is not the same as reading. It is an active process, which includes summarizing concepts in your own words and memorizing formulas, as well as solving problems. You must do the homework assignments to fully grasp the concept(s) covered during each lecture.
- In this class you should expect to spend 10-12 hours per week outside class periods to read and review materials, do homework assignments, and write lab reports. Additional hours may be needed to study for quizzes or examinations.

VIII. **Academic Decorum and Attendance**

- Attendance in lectures and labs are important and will be recorded. Be sure to sign the attendance sheets. Please contact me if you find yourself in a situation that might cause you to miss more than two lecture periods. You are strongly encouraged to take notes during lectures and participate during class discussions. Do Not do your homework assignments during lectures.
- Be punctual! If you arrive late, enter quietly. If you have to leave the class before the end of the period, please be seated where you can leave with the minimum disruption to the class.

PLEASE TURN OFF SMART PHONES, I-PADS, TABLETS AND LAPTOPS DURING LECTURES

Please respect the desire of others to learn. Therefore, please DO NOT TALK during lectures. If you have any questions regarding the lecture materials, please raise your hand.

IX. **Integrity**

- All work submitted for grading must be your own. Copying is cheating and is an unacceptable behavior. **Cheating during quizzes, tests, or examinations will NOT be tolerated and it will earn you an automatic zero for those quizzes or examinations**.
- Copying your partner's lab reports is also considered cheating; **your lab reports will NOT be graded if I found two or more identical reports**.
- **Be a full and active participant when you work on experiments/assignments with others**. If you just copy the groups or your partner's data, you haven't learned anything and you are wasting your time.

Academic Calendar for Fall 2018

August 20	M	Fall Semester Classes Begin
August 25	S	Saturday Classes Begin
August 26	Su	Last day to Add without Permission Number or Add Card
August 31	F	Last Day to Add regular session classes with permission Number
September 3	**M**	**Labor Day Holiday** – No Class
September 3	M	Last Day to drop regular session classes and receive a refund
September 3	M	Census Day – Census Roster due "Online"
September 7	F	Grading Option - Last Day to File for PASS/NO PASS Grading option
October 19	F	Last Day to file petitions for AA or AS Degree/Certificate
October 25	Th	Professional Flex Day – No Classes
November 12	**M**	**Veteran's Day Holiday**
November 16	F	Last Day to Withdraw from Regular Se4ssion Classes and Receive a "W"
November 16	F	Attendance Verification Day – Instructors Submit Rosters "Online"
Nov 22 – 25	**Th-Su**	**Thanksgiving Holiday**
December 8	S	Saturday Instruction Ends
December 10-14	M-F	Final Exam Week
December 14	**F**	**Fall Semester Ends**

Chem 1B Fall 2018 Tentative Schedules for Lectures, Labs, Quizzes, and Midterms

Wk	Date	Lect/Lab/Quiz	Lecture/Lab Topics
1	08/20	Lecture 1	Course Outline; Fundamental Concepts of Equilibrium (13.1 - 13.2)
	08/22	*Lab-1*	Lab Safety Video; Stoichiometry Problems Workshop; Assessment.
	08/24	Lecture 2	Le Chatelier's Principle & Equilibrium Calculations (13.3 - 13.4);
2	08/27	Lecture 3	Bronsted-Lowry Acids & Bases ; pH & Acid-Base Strength (14.1 – 14.3)
	08/29	*Lab-2*	*Expt-B2: *Le Chatelier's Principle*
	08/31	Lecture 4	Hydrolysis of Salt Solutions ; Polyprotic Acids (14.4 – 14.5) ***Quiz #1*** (Chapter 13)
3	09/03	No Class	Labor Day Holiday
	09/05	*Lab-3*	Expt-B3: *Determining Equilibrium Constant*
	09/07	Lecture 5	Buffers and Acid-Base Titrations (14.6 – 14.7)
4	09/10	Lecture 6	Solubility Products Equilibrium (15.1) ***Quiz #2*** (Chapter-14)
	09/12	*Lab-4*	*Expt-B4: *Acid-Base Equilibrium and Buffer Solutions*
	09/14	Lecture 7	Complex Ion Formation & Multiple Equilibria (15.2-15.3);
5	09/17	Lecture 8	Test Review; ***Quiz #3*** (Chapter-15)
	09/19	*Lab-5*	Expt-B5: *Acid-Base Titration pH-Curve*
	09/21	**Test #1**	(Chapters 13, 14 & 15.1; requires a scantron)
6	09/24	Lecture 9	Chemical Kinetics: Determination of Rates and Rate Laws (12.1 – 12.4)
	09/26	*Lab-6*	Expt-B6 – *Solubility Product Constant*
	09/28	Lecture 10	Reaction Mechanisms & Catalysis (12.5 – 12.7)
7	10/01	Lecture 11	Entropy & the Second Law of Thermodynamics (16.1 – 16.3)
	10/03	*Lab-7*	Expt-B1: *The Rate of an Iodine Clock Reaction*
	10/05	Lecture 12	Free Energy & Direction of Net Reaction (16.4); ***Quiz #4*** (Chapter-12)
8	10/08	Lecture 13	Electrochemistry: Redox Reactions; Galvanic Cell (17.1 – 17.2)
	10/10	*Lab-8*	Expt-B7: *Thermodynamics of the Borax Solubility*
	10/12	Lecture 14	Cell Potentials & Nernst Equation; Batteries (17.3 – 17.5) ***Quiz #5*** (Chapter 16)
9	10/15	Lecture 15	Corrosion and Electrolysis (17.6-17.7); Test Review;
	10/17	*Lab-9*	Expt-B8: *Oxidation-Reduction Reactions*
	10/19	**Test #2**	(Chapters 12, 15.2, 15.3, 16 & 17.1; requires a scantron)
10	10/22	Lecture 16	Periodicity & General Properties of Main Group Metals, Metalloids and Nonmetals (18.1 – 18.4)
	10/24	*Lab-10*	Expt-B9: *Electrochemical Cells*
	10/26	Lecture 17	Properties and Uses of Hydrogen, Carbon, Nitrogen & Phosphorus (18.5 - 18.8) ***Quiz #6*** (Chapter 17)
11	10/29	Lecture 18	Properties and Uses of Oxygen, Sulfur, Chlorine & Noble Gases (18.9 – 18.12)
	10/31	*Lab-11*	Expt-B11: *Qualitative Analysis of Cations*
	11/02	Lecture 19	Properties of Transition Metals & Their Compounds (19.1 – 19.2) ***Quiz #7*** (Section 18.1 – 8)

Wk	Date	Lect./Lab/Quiz	Lecture Topics & *Experiments
12	11/05	Lecture 20	Coordination Chemistry & Properties of Coord'n. Compounds (19.2 – 19.3)
	11/07	*Lab-12*	Expt-B12: *Qualitative Analysis of Anions*
	11/09	Lecture 21	Representative Elements (20.10 – 20.14)
			Quiz #8 (Section 19.1 – 19.2)
13	11/12	No Class	Veteran's Day Holiday
	11/14	*Lab-14*	Expt-B13: *Thermochemistry of Complex Ion*
	11/16	Lecture 23	Nuclear Chemistry: Nuclear Structure and Decay Mode (21.1 – 21.3)
14	11/19	**Test #3**	(Chapters 17.2 – 17.7, 18, & 19; scantron is needed)
	11/21	No Lab	
	11/23	No Class	Thanksgiving Break
15	11/26	Lecture 24	Nuclear Energy; Uses of Radioisotopes & Effects of Radiation (21.4 – 21.6)
	11/28	Lecture-25	Hydrocarbons: Structures and Nomenclature (20.1);
	11/30	Lecture 26	Organic Compounds with Functional Groups (20.2 – 20.3);
			Quiz #9 (Chapter 21)
16	12/03	Lecture 27	Organic Chemistry (20.4); ACS Exam Review
	12/05	**ACS Exam**	(in the Lab; score accounts for 15% of your final exam grade)
	12/07	Lecture 27	Final Review;
			(Last day to turn in lab reports for experiments B12 & B13.
			All other lab reports will not be accepted.)
17	12/10	**Final Exam**	(Comprehensive; main focus: chapters 12, 13, 14, 17 & 21)

All experiments, except those with asterisks (*), require formal lab write-up and must be typed (including Data Table) with 1.5 spacing. Please use font size 10, 11 or 12. However, chemical equations, calculations, and answers to post-lab questions need not be typed.

Formal Lab Reports MUST BE ORGANIZED in the following format:

1. Title of experiment;
2. Objective(s)
3. Overview
4. Procedure
5. Data Table(s)
6. Calculations (including error analysis if applicable)
7. Results Summary
8. Answers to post-lab questions

Laboratory Notebooks and Laboratory Reports

Laboratory Notebook

Science is not a list of facts that you have to memorize. It is a process that involves gathering information and collecting data, analyzing those data, providing critically thinking and discussion what all those data and information mean, and then arriving at some conclusion based on the information and data collected. Whatever conclusion that one has arrived based on data collected in one study or set of studies will be tested and verified by another set of studies (similar or otherwise). Therefore, scientists must keep records of the methodology and results of their experiments so that they can be repeated, checked and verified by others. Their experiments and experimental results, as well as the conclusions, are compiled in a dedicated **laboratory notebook.** Like those scientists, you are required to keep a laboratory notebook that is dedicated for the laboratory component of this class. You will record all experimental data, observations and results (including calculations) in this lab notebook. Your laboratory instructor will inform you the type of notebooks that may be used for this class. In general, your laboratory notebook must have a carbon copy, so that as you turn a set of experimental data and results for grading, you still have a copy of the data. You must keep your laboratory notebook ***neat*** and ***organized***. Your laboratory notebook should only be used for this purpose; it should NOT be used as a lecture notebook or for working on homework assignment problems.

The following is a guideline how you will be expected to organize and maintain your laboratory notebook:

1. Your laboratory notebook MUST be permanent bound notebooks; loose or spiral bound notebooks are not acceptable.
2. Leave the first 2-3 leaves of the notebook for table of contents. As you begin an experiment, you should enter the number and title of the experiment and the pages it is located in the notebook.
3. Start on a fresh page for each experiment:
    a. **Title**: At the top of this page, write the Number and Title of the experiment, and the date the experiment is carried out;
    b. **Objective:** Write the Objective statement of the experiment in a complete sentence;
    c. **Overview:** Write the experimental overview. (If you don't have time to do this, leave the rest of the first page and the next one for you to write the Overview later.) If you are planning to type your final lab report, skip this Overview section in the Lab Notebook, but you will write the Overview in the final lab report;
4. **Procedure**: On the third page (if you are not going to type your report) OR after the Objective (if you are going to type your report for this experiment), write the Procedure: list all the steps involve in the experiment in chronological order that is easy for you to follow during the experiment – numbering the experimental steps would make sense. You will refer only to your laboratory notebook to perform the experiment, and not to the lab manual;
5. **Data Tables:** After the Procedure section, prepare one or more Data Tables as necessary. <u>All experimental data must be presented in a table format and each item properly labeled</u>; leave enough spaces for data entry, possible errors and corrections. DO NOT cramp your data or make the data entry all over the place. (You MUST make sure that your laboratory instructor is able to find your entry within seconds.)
6. **Data Entry**: All data and observation MUST be entered directly into your laboratory notebook in non-erasable INK; scratch papers and pencils will NOT be permitted in the laboratory. Data values must contain significant figures consistent with the precision of the measuring devices. For examples, masses obtained on a centigram balances must contain two (2) digits after the decimal point, but masses obtained on an analytical balance must have four (4) digits after the decimal point. Volumes obtained using graduated cylinders must contain only one (1) digit after the decimal point, but those obtained using burets or pipets must have two (2) digits after the decimal points.
7. **Calculations**: Show all calculations wherever and whenever required. Organize and properly label each calculation. Round off the final answers to the correct number of significant figures.
8. **Result Summary**: Briefly state what you have discovered/determined in this experiment and whether the objective of the experiment is achieved. Give reason(s) if it is not – provide possible source(s) of errors. (<u>Note</u>: You are not required to write this section in the laboratory notebook if you type your final lab report.)

Laboratory Reports

Lab reports must be typed (including Data Table) with 1.5 spacing; please use fonts size 10, 11 or 12. Chemical equations, calculations and answers to post-lab questions need not be typed. Each lab report must be organized in the following format:

1. **Your Name**:_____ **Partner(s)**:_____

   Date: _____
2. **Experiment-# and Title**
3. **Objective:**
4. **Overview:**
5. **Procedure Summary:**
6. **Data Table:**
7. **Calculations:**
8. **Error Analysis** (if applicable)
9. **Result Summary**

Overview:

An "Overview" is a brief summary that explains the chemical concept/principle of the experiment. If the experiment involves one or more chemical reactions, you must write the balance equations for those reactions and provide explanations that will link the outcome of those reactions to the objective. Mention what data will be collected during the experiment and what calculations will be carried; provide the mathematical formulas or equations that will be used in the calculations.

However, if the primary objectives of the experiment are to observe chemical reactions and to write balanced equations of those reactions, then you do not have to write any equations in the *Overview*. Do not write the detail of the experimental procedure in the Overview section.

Error Analysis (only if applicable)

Mean and standard deviation are calculated using the following formulas:

$$Mean\ (\overline{X}) = \frac{\sum X_i}{n}; \qquad Standard\ deviation = \sqrt{\frac{(X_i - \overline{X})^2}{(n-1)}}$$

where X_i are individual data values and $\overline{X}$ is the mean of the sum of X_i

If the true or acceptable value of the quantity determined in the experiment is known, express the accuracy of your result in term of percentage error, such that:

$$\%\ \text{Error} = \frac{(\text{Experimental Value} - \text{True Value})}{\text{True Value}} \times 100$$

Sometimes, for limited data the precision of experimental results maybe expressed in the form of *Percent Relative Deviation* (PRD), where

$$\text{PRD} = \frac{\text{Average Deviation}}{\text{Mean Value}} \times 100$$

[Note: not every experiment will require an error analysis. Your laboratory instructor will inform you which experiments require error analyses.]

An Example of Laboratory Report:

Title: Chemical Kinetic – Iodine-Clock Experiment

Objective

In this experiment we will determine the rate law and the activation energy of an iodine-clock reaction between peroxodisulfate and iodide ions. The effect of catalyst on reaction rate will also be observed.

Overview/Concept of Experiment

The rate law for the following reaction will be studied:

$$S_2O_8^{2-} + 3\,I^- \rightarrow 2\,SO_4^{2-} + I_3^-; \qquad \text{(Eqn-1)}$$

For which the rate law is: Rate = $k[S_2O_8^{2-}]^x[I^-]^y$

where k is the rate constant and x and y are the rate order with respect to each reactant. To obtain the rate law for the reaction, we need to determine the rate constant k and the rate orders x and y. The rate order x will be determined by varying $[S_2O_8^{2-}]$, while keeping $[I^-]$ constant. Similarly, the rate order y will be determined by varying $[I^-]$ while keeping $[S_2O_8^{2-}]$ constant.

*(Provide all the equations that allow you to derive the values of the rate orders x and y.)

The kinetic study in this experiment also requires the determination of the initial rate of Eqn-1. To accomplish this, Eqn-1 is coupled with Eqn-2 below:

$$I_3^- + 2\,S_2O_3^{2-} \rightarrow 3\,I^- + S_4O_6^{2-}; \qquad \text{(Eqn-2)}$$

Adding Eqn-1 and Eqn-2 yields the net equation (Eqn-3):

$$S_2O_8^{2-} + 2\,S_2O_3^{2-} \rightarrow 2\,SO_4^{2-} + S_4O_6^{2-}; \qquad \text{(Eqn-3)}$$

Eqn-2 indicates that as long as $S_2O_3^{2-}$ is present, I_3^- will not accumulate and the dark-blue I_2-starch complex will not form. Since the initial concentration of $S_2O_3^{2-}$ is much lower than that of $S_2O_8^{2-}$, the former is quickly used up, which than allows I_3^- to accumulate and resulting in the appearance of dark-blue solution due to I_2-starch complex. Using the reaction stoichiometry of Eqn-3 we can the initial rate of this reaction (Eqn-1) as follows:

$$\text{Initial Rate} = \frac{\Delta[S_2O_8^{2-}]}{\Delta t} = \frac{\frac{1}{2}\Delta[S_2O_3^{2-}]}{t} = \frac{\frac{1}{2}[S_2O_3^{2-}]_i}{t}$$

Where t and $[S_2O_3^{2-}]_i$ is the initial concentration of $S_2O_3^{2-}$ in the reaction mixture and t is the elapsed time between the mixing of solutions and the appearance of dark blue I_2-starch complex.

Temperature is kept constant throughout the determination of rate law. Once the rate orders x and y are known, the rate constant k can be calculated from the measured rates and the initial concentration of each reactant (in Eqn-1). The effect of temperature on rates will be determined by measuring reaction rates at different temperatures using the same set of concentrations. While the effect of catalyst will be done by comparing rates of reaction at constant temperature in the present and absent of a catalyst. The detail of the calculations to determine x, y and k is given in the lab manual: General Chemistry 1B laboratory Manual.

(This is then followed by Procedure, Data Table, Calculations, and Results Summary.)

Five Major Reasons Why Students Fail Chemistry

1. **Insufficient Math Preparation**

   Math, especially algebra, is an essential tool in chemistry. To be able to solve chemistry problems requires that you understand basic algebra and you must have the ability to transform word problems into mathematical expression. If you think that your math is a bit rusty, get help immediately. Don't wait until you're halfway through the semester.

2. **Not Getting of Reading the Text.**

   Textbook and lab manual are NOT optional items in the chemistry class. Even if the lectures are fantastic, you'll need the text to do the homework assignments. The best way to understand the lectures is to read the chapter before coming to each lecture. Some or many of you may come to the lab without reading the experiment that you've been assigned to do. That will be a big mistake because you'll be doing the experiment without actually understanding it and you'll missed the entire concept of the experiment.

3. **Procrastination**

   If you intend to pass and do well in chemistry you MUST study the lecture materials and do the homework promptly. NEVER put off studying and doing the homework assignment until you are halfway through the semester. It will be too late and you will never catch up. If you miss the basics, you'll get yourself into trouble. To master chemistry you must understand the concept. This requires that you study and do the homework on a daily basis. Build the concept a little at a time. Set aside a small segment of time each day for chemistry. It will help you gain a long-term mastery. Do not cram at the last minute.

4. **Not Doing Your Own Work**

   Homework assignments are helpful if you do the exercises yourself. Study guides and solution manuals are useful only if you use them for help or for checking your work, but not as an easy way to get your homework done. Don't let a book or someone else do your work for you. They won't be available during the tests, which will account for a big portion of your grade.

5. **Psyching Yourself Out**

   You must have a positive attitude toward chemistry. If you truly believe you will fail you may be setting yourself up for a self-fulfilling prophecy. If you have prepared yourself for the class, you must feel confident (but not over confident) that you will succeed.

Berkeley City College
Chem 1B, Fall 2018
Student's Academic Survey

Name: _____

Phone No. _____ *Email:_____
(write clearly)

1. When and where did you take Chemistry 1A? What grade did you get?
   (Please note that you cannot stay in this class if you did not pass Chem 1A or its equivalent.)

2. What is your academic major or career goal?

3. What is your academic load this semester (in term of units)? _____units

4. What is your workload (nonacademic) in hours per week? _____hrs/wk

5. Which learning styles apply to you? (You may select all that apply to you.)

   (a) Visual
   (b) Auditory or Verbal
   (c) Visual and Verbal
   (d) Tactile/Kinestatic (or hands on)

6. Rank the following topics (covered in Chem 1A) from 1 to 5 (1 = very easy and 5 = most difficult).

   (a) Atomic Structure and Periodic Properties; (1 2 3 4 5)
   (b) Bonding Theories and Molecular Structures; (1 2 3 4 5)
   (c) Properties of Gases, Liquids, and Solids; (1 2 3 4 5)
   (d) Mole Relationships and Stoichiometry; (1 2 3 4 5)
   (e) Solution Properties and Compositions; (1 2 3 4 5)
   (f) Thermochemistry and Enthalpy of Reaction; (1 2 3 4 5)

7. What are you major concerns in this class?

*8. Is there anything about you that I should know, such as special learning needs & accommodation?
   (Any personal information given to me on this matter will be treated as confidential.)