

Chemistry 1B, General Chemistry

Chem 1B - Section 01Z

Lecture MWF - **Synchronous** - 9:30AM to 10:20AM

Lab MW- **Mix Synchronous/Asynchronous – Synchronous hours** 1:30PM to 2:20PM

Chem 1B - Section 02Z

Lecture MWF - **Synchronous** - 9:30AM to 10:20AM

Lab MW- **Mix Synchronous/Asynchronous – Synchronous hours** 2:30PM to 3:20PM

Important Notes for Remote Delivery:

Lecture - All lectures will be held through Zoom during the indicated time period (**synchronous**), so please download this free application. A link to the ZOOM lecture conference room will be posted to CANVAS. The powerpoint lecture slides will be posted before the lecture on CANVAS, and a link to the recording of the lecture will be posted immediately after.

Laboratory – You will **not** be required to complete these labs during a set time period (meaning **asynchronous**). Since you will be doing these labs at your house, you are free to complete the experiment when is most convenient, as long as it is completed by the due date.

There will be live, synchronous lab meeting times (1:30 PM – 2:20 PM for section 01Z and 2:30 PM – 3:20 PM for section 02Z) each week, where I will explain the safety of the experiment and discuss the procedures, but you will NOT have a set time you will need to perform the lab.

Important Info For Starting –

1. I would like everyone to attend lecture and lab the first day (9/21). This will be to inform everyone how the class will proceed this quarter and to make sure everyone enrolled is still planning to take the classes. There are a lot of people on the waitlist, and I want to make sure those enrolled are serious about taking the class.
2. I want to individually meet with each of you through Zoom within the first 2 weeks of class. Working through the screen is very hard, so I hope that just a few minutes of conversation at the beginning of the quarter will make things better for both of us and hopefully bring some normalcy to the course. I will talk about scheduling these meeting times on the first day of lab.

Instructor: Dr. Chris Deming, email: demingchristopher@fhda.edu

Office Hours: Monday 10:30AM to 11:30AM, Wednesday 10:30AM to 11:30AM, Friday 10:30AM-12:30PM

Course Description: This class will cover the principals of chemical kinetics, intermolecular forces, chemical equilibrium, and thermodynamics.

This course is divided into two separate instructional periods, the lecture and laboratory sections. The lecture portion is primarily devoted to the material discussion while the laboratory portion gives a chance for students to practice chemical experimentation. One registration code will enroll for the lecture and lab sections. Lecture and lab sections must be taken together to pass Chem 1B and will both go towards a single grade.

Course Material:

1. Lecture Text: CHEMISTRY: The Molecular Nature of Matter and Change, Silberberg and Amateis, 9e. Other editions will be essentially the same and will work great to study, but practice problems given in this syllabus correspond to the 9th (and 8th) edition. Although there are online text options, we will NOT be using CONNECT or ALEKS this quarter. There are multiple options to obtain the text for this course depending on your specific needs.

a. **Option 1** – Hard copy text. This can be used and any edition. I will give homework and solutions from the 8/9th edition, but you will find these questions in any edition but potentially with different numbering. This is the way to go if you prefer hard copies and is a great choice if you want a quality chemistry textbook to reference in the future. If you plan to take CHEM 1C, this option may be the best, since this will be the text used (at least until fall 2021), and you will likely be able to find a cheap, used copy.

b. **Option 2** – 90 day access to an electronic text specifically for CHEM 1B. This is a great, cheap option that will give you 90 day access to an electronic text for the chapters in this class (CHEM 1B) only. This can be purchased with the ISBN: 9781307600964. This is a great option if you do not plan to take CHEM 1C.

2. Lab: This quarter, we will use Hands On Labs (HOL) to perform laboratory experiments at home. These kits contain all of the chemicals and lab equipment you will need and are integrated with an online cloud platform that will introduce you to the experiment, guide you through the procedure, and provide a post-lab assessment.

The cost for the lab kit and shipping will be covered by De Anza and will be available to order 10/6/20. On Canvas, I have posted a pdf with instructions on how to order the kit. Please do this on 10/6, since the best projections predict the kits arriving in week 4 or 5, and we want to have enough time to get through all.

Although this may require a little more work on your end, the bookstore indicates that these kits can be shipped internationally. Communication is key to work through issues, so please let me know if you anticipate any issues with shipping.

3. Scientific Calculator. Logarithm and exponential functions required, NO GRAPHING CALCULATORS. You are encouraged to bring your calculator each day to work through examples as they are presented. Phones will not be allowed for calculations during tests.

4. Safety Goggles. Proper eye protection is required for every lab. Goggles must seal to the face with an elastic strap and be specifically for chemistry.

5. Camera linked to the internet – For much of your classwork, you will need to take a picture of your work and submit to CANVAS. Phones are 100% okay. Please let me know if this is an issue as soon as possible.

Class Registration. Although we are not limited by the space in the lab, the registration limit is strictly set at 30 per section since we have only purchased 60 lab kits for CHEM 1B. The class will be filled based on the official roster provided by the De Anza Admissions and Records, including an official waitlist. Students on this waitlist may come for the lecture. Since these will be through Zoom, I will make sure to create a waitlist mailing list to give invites to lecture the first two weeks.

Resources: Academic support can be found at the Learning Resources Division <https://www.deanza.edu/learningresources/>. Information about tutoring can be found at the Math Science and Technology Resource Center <https://www.deanza.edu/studentuccess/mstrc/>. Additionally, you are encouraged to email me with class questions.

Academic Integrity: By enrolling in classes at De Anza College, you are agreeing to the academic integrity policy and are held to all standards. Specifics can be found at <https://www.deanza.edu/studenthandbook/academic-integrity.html>. Cheating will not be tolerated and will result in 0 for that quiz/exam. Worse than a 0 on an exam, I am required to report such incidents which then become visible to 4 year colleges upon reviewing your transfer application. Original work must be turned in for homework credit.

For this new remote delivery, we will all need to be more honest with tests and quizzes. I am trusting all of you to adhere to this code.

Disability Service Support: De Anza is committed to providing support for students with disabilities. Please contact me as soon as possible if you require special accommodations and I will be happy to do what I can to help. For more information, visit Disability Service Support at <https://www.deanza.edu/dss/>

Grades/Evaluations:

Assignment	Points	Percent
Quiz 1	50	4.48
Quiz 2	50	4.48
Quiz 3	50	4.48
Exam 1	150	13.44
Exam 2	150	13.44
Final Exam	200	17.92
Lecture Total	650	58.24
Getting Started	10	0.90
Lab Safety	20	1.79
Boyle HOL	30	2.69
Boyle Prelab/Calc/Conclusion	22	1.97
Beers Law HOL	40	3.58
Beers Law Formal Report	60	5.38
Kinetics HOL	30	2.69
Kinetics Prelab/Calc/Conclusion	22	1.97
EQ HOL	40	3.58
EQ HOL Prelab/Calc/Conclusion	22	1.97
Research Report	50	4.48
Gas Law Exploration	10	0.90
Molecular Shapes Review	10	0.90
Lab Final	100	8.96
Lab Total	466	41.76
Class Total	1116	100.00

Grade Assignment. This rubric is subject to change throughout the quarter.

Grade Percentage

A+ >98

A 98-93

A- 93-90

B+ 90-87

B 87-83

B- 83-80

C+ 80-76

C 76-70

D 70-60

F <60

Tentative Dates. All exam dates, lecture topics/dates, lab topic/dates are listed on page 10 and 11 and are subject to change throughout the quarter. The final exam date will not change and is provided on page 10 and can be found on the De Anza finals schedule page.

Lecture

This class (Chem 1B) will cover chapters 5, 12, 16, 17, 18, and 20 from the assigned textbook. All lectures will be held through Zoom during the indicated time period (**synchronous**), so please download this free application.

This link will also be on CANVAS under “pages”. The power point lecture slides will be posted before the lecture on CANVAS under files, and a link to the recording of the lecture will be posted immediately after under “pages”. Below are four helpful tips that make learning much easier this quarter.

1. Review the material before attending the lecture. This could include reading the section in the textbook, reviewing the lecture slides, or even glancing at the homework. This will help you develop a stronger and more personal connection the topics and make the presented material much easier to understand.

2. Complete all homework problems and all of the in-chapter reviews. Extensive practice is the best way to ensure concept mastery. The more you practice, the more comfortable you will be, and the better you will perform on exams. Beyond the minimum of the assigned problems, you are encouraged to do the in-chapter problems as well as the end of the chapter problems that were not assigned. I am serious when I saw that I sometimes use problems from the book that I didn't assign as exam problems.

3. Don't fall behind. In chemistry, each new topic will build on the previous so it is essential to understand the topics as they are presented. Following a lecture when you do not understand the previous material is not an effective method for learning and will lead to further problems. To avoid falling behind.....

4. Get help. If you are having a difficult time with a topic, it is your responsibility to get help. There are plenty of resources, including myself, for aiding in material comprehension, but it all starts with you making an effort to get this help. You are also encouraged to find a study group or coming to office hours.

Lecture Exams. There will be two lecture exams to test comprehension throughout the quarter. Exams will cover material from lectures, homework, and book chapters. If you are having difficulty completing the homework questions for that chapter, you are urged to get help *before* taking the test. Questions will range from easy to difficult and may require solving problems that have not been explicitly demonstrated before.

Each exam is worth **150 points**, and the dates are given in on page 10. Please note that these dates are subject to change depending on the pace of the material. No late or early finals will be administered. If you feel the grading of any exam is incorrect, please come and talk with me. I will release a key after the exam, and I am very open to hearing what you have to say, but you must do so within **one week** of the day the exam key is released.

During remote delivery this quarter, I will post the test to CANVAS 5 minutes before the start of the lecture. You will print out the exam (if no printer, reading from the screen, and writing on any paper is okay) and will have the entire lecture period (9:30 AM – 10:20 AM) to complete the exam plus an extra 10 minutes to load the files to CANVAS. Please let me know if you think there will be any issues with this way of testing *before* the test and we can make arrangements.

Lecture Quizzes. Quizzes will be given between the exams to make sure everyone is keeping up with the material throughout the quarter. The quizzes are worth **50 points** each, will take about 25 minutes, and will be given at the beginning of class, so late attendance may result in missing time for the quiz. The day of the quizzes are given on page 10 but may change depending on how quickly we move through the material. Reminders for the quiz and any possible changes in the schedule will be announced through email and on CANVAS.

The delivery of these will be similar to the exams. I will post 5 minutes before, you will have 25 minutes to take the quiz, then 5 minutes to upload to CANVAS.

Lecture Final. The lecture final is worth **200 points** and will cover all chapters. The date and time for the final are given on page 10 and will not change. Delivery the same as the other exams.

Homework. Homework will not be turned in for credit, but will provide the practice needed for concept mastery. The list of homework problems is on page 11. These homework problems will be from the end of the each chapter and will cover calculations as well as conceptually based problems. I will also give a solution key so you can check your work.

Doing all of the listed problems is highly recommended and represents the minimum needed to practice the topics, but you are strongly encouraged to go beyond the listed problems and try other problems throughout the book. Test questions will be similar to homework questions, so it is important to practice each problem

Laboratory

Introduction to HOL

The lab for this quarter will be unlike anything else you have experienced in a chemistry class. This quarter, we will be using Hands On Labs (HOL) to perform chemistry experiments in our own homes.

Inside will be (almost) all of the chemicals and equipment needed for the experiments. The remaining materials required are simple around the house items like paper and pencils.

The best part about all of this is that De Anza has already purchased these kits, so you will not need to pay anything!!!!

Once census day has passed, and there can be no more adds or drops, you will order these HOL lab kits. The kits will be available to order 10/6/20 when I will provide you with a special code to order the kits free of charge. On Canvas, I have posted a pdf with instructions on how to order the kit. Please make sure to do this on 10/6, since the best projections predict the kits arriving in week 4 or 5, and we want to have enough time to get through all the experiments.

If you don't think you will have a space to do this in your current house, please let me know as soon as possible, and we can figure out a solution.

Although this may require a little more work on your end, the bookstore indicates that these kits can be shipped internationally. Communication is key to work through any issues, so please let me know if you anticipate any issues with shipping. In any case, I am committed to working with you to find the best solution.

How Lab Will Proceed

I will use the synchronous lab hours to discuss the background information for the experiment, as well as how to complete the procedural steps safely. You will be required to view this before starting the experiment.

Since we only have 4 labs, we will not likely need all the scheduled time, so the remaining lab time will be used as extra office hours for lab help and to get ahead in lecture. One page 11 of the syllabus, you can find a tentative schedule for the required lab days and the optional office hour lab days as well as the topic for each day.

Since there will be a bit of time before the kits arrive, we will spend the first few weeks of lab going over safety, exploring the HOL cloud, and completing review worksheets.

Lab Assignments

HOL Getting Started – This module will help get you familiarized with the HOL cloud platform and will be due Friday 10/2 by 11:59 PM. **10 points.**

HOL Laboratory Safety – This module will help reinforce safe laboratory techniques, which are especially important now when experimenting in the household. Completing this module is required to start any experiments and is due Friday 10/2 by 11:59 PM. **20 points.**

Gas Law Exploration Worksheet – We will use a free simulation by PhET to explore how gases respond to changes in pressure, temperature, volume, or amount. Complete the worksheet involved for **10 points**, due 10/7 by 11:59 PM.

Molecular Shapes Review Worksheet – Much of chapter 12 material relies on knowing molecular shapes and polarity. This worksheet will be passed out and completed in class on 10/5 or 10/7 and is worth **10 points**.

HOL EXPERIMENTS - After watching my presentation, for each HOL experiment, you will then need to complete the following items by the due dates listed on page 11:

1. HOL Cloud Exploration and Questions
2. Read the lab procedure and write a prelab
3. Perform the experiment/Record data
4. Perform associated calculations
5. HOL Cloud Exercise Questions
6. HOL Cloud Evaluation Questions
7. Write a conclusion.

HOL Cloud Exploration and Questions – On the HOL cloud, once you click on an experiment, you will get a dropdown menu, and one of the sections is “Exploration”. The goal of this section is to familiarize students with the concepts and equations used in that experiment. Look through all sections under “Exploration” and answer all associated questions. These questions are worth points with the amount varying for each lab.

Read Procedure/Prelabs. Select the tab “Experimentation” and read through *the entire lab procedure* before experimenting. Also read through the materials section to make sure you have everything needed.

To ensure each student has read the experiment and can perform the experiment safely, a prelab must be completed before every laboratory experiment, ideally in a specifically designated lab notebook. This is not a cloud HOL assignment, but rather an additional assignment to complement and enhance the lab experience.

Before each experiment is performed, you will need to complete the prelab and submit to CANVAS. This includes the title/date, abstract, and hazards. Each prelab is worth **8 points** and must be completed and submitted before the laboratory experiment is performed.

Title/date should be at the top of the page and serve as a way to easily determine what experiment has been conducted and when you took the data.

The abstract is essentially your description of the experiment as a whole. It should include the main purpose of the experiment, the laboratory procedures you will use, and the relevant mathematical equations. This should be more than a restatement of the objectives from the lab manual, and should show you have read the entire lab and understand what you are trying to achieve and how you will be doing this.

You will also need to read the hazards for the chemicals required for each lab. Write the chemical, the associated hazards, and any special steps needed for all of the chemicals you will use for the experiment. The first line of defense against lab accidents is not a lab coat or goggles, it your brain. Understanding how to properly use chemicals is the best way to stay safe and is essential when not in a real laboratory.

Perform the Experiment – Follow the instructions to safely and efficiently complete the experimental procedures. While performing the experiments, you will **record the data** in the provided table on the HOL cloud platform. Entering data into these tables will earn you points with the amount depending on the complexity of the table.

Calculations - You will also need to show the calculations you performed to fill out these tables. One handwritten example for each type of calculation should be submitted to CANVAS. I understand that for multiple trials, you may just enter the data straight into your calculator or even use a computer program, so I do not need to see every single calculation. Please give all the data from all the calculations, but I only need to see one handwritten example of each type of calculation. Calculations are worth **4 points** and are an assignment separate from HOL cloud work.

HOL Cloud Exercise Questions – After the experiment is complete, there are follow up questions to help with content retention. These are worth points with the amount varying for each lab.

HOL Cloud Evaluation Questions – The last section is the evaluation section where you are tested on the knowledge you have gained from this lab. Once the evaluation is started, it cannot be restarted or paused, so be sure you are ready to take this when you start.

Conclusion. This section is the most important and often the most difficult because it requires deep consideration of the experiment as a whole. The conclusion should contain at least these three sections.

The first is a summary of the experiment, including the main goal and the methods used to collect/analyze data. This should not be more than two sentences and should be specific to each experiment.

For the next section, **present the key values**. Many of the experiments require numerous tables and measurements, and including all of these values is not the point of this section. Only include the values or conclusions that directly relate to the experimental goal. Additionally, compare one trial to the next and/or compare the average value to literature values if possible.

Finally, provide a source of error that may have resulted in discrepancies between trials or accepted values. This should go beyond simple factors like human error and should connect an experimental design or procedural step to an error in your value. That is, explain how such an error could have affected your result by following this error through the calculation process.

The conclusion will be submitted through canvas and will be worth **10 points**. Handwritten or typed is accepted.

The dues dates for each prelab, calculations, and conclusion are listed below the table on page 11.

Formal Laboratory Report. For the Beer Law lab, you will be required to do a formal, typed report worth **60 points**. In scientific research, conveying what you have discovered in a clear, concise manner is essential to making your new ideas accessible to others and allowing your contributions to help the world.

This may feel like something completely new if you have not done a scientific report, and that is okay. We will not be doing everything that a manuscript would require, but rather looking to gain familiarity with presenting an experiment starting from the established scientific ideas that prompt such experimentation to the analysis and conclusion of the collected data. I will talk about this more once we get the schedule for labs determined, and I will provide an instructions sheet to help with the sections of the report.

The due date is 11/30 by 11:59 PM, so there is plenty of time to get help. Please make sure start some of the calculations earlier and make sure to not leave it all for the end.

Lab Final. The lab final will test your understanding of the theories utilized in lab sections this quarter as well as the practices implemented to yield meaningful data. This exam is worth **100 points** and is administered the last week of instruction. You will be allowed to use any notes during this test, so it is beneficial to efficiently organize your work. The lab final date is 12/2 during the synchronous lab hours. No early or late exams will be allowed. The testing format will be the same as the lecture exams. No working with chemicals required.

Research Project - You will also do a research report worth **50 points** on an important chemical process, element, or chemist relating to topics in this course. A guide for this report will be available on CANVAS. Topics must be approved since there can be no one topic for two students. The due date is Sunday, November 1, by 11:59 PM.

Lecture Schedule

All dates, including exams and quizzes, are subject to change throughout the quarter. The final exam date will not change. Lecture topics are in black, labs are in blue, holidays are in green, quizzes are in orange, and exams are in red.

Week Of	Week #	Monday	Wednesday	Friday
9/20/20	1	Chapter 5 (Gases)	Chapter 5 (Gases)	Chapter 5 (Gases)
9/27/20	2	Chapter 5 (Gases)	Quiz 1 Chapter 12 (IMFs)	Chapter 12 (IMFs)
10/4/20		Chapter 12 (IMFs)	Chapter 12 (IMFs)	Chapter 16 (Kinetics)
10/11/20	4	Chapter 16 (Kinetics) Review for Exam 1	EXAM 1	Chapter 16 (Kinetics)
10/18/20	5	Chapter 16 (Kinetics)	Chapter 17 (Equilibrium)	Chapter 17 (Equilibrium)
10/25/20	6	Quiz 2 Chapter 17 (Equilibrium)	Chapter 17 (Equilibrium)	Chapter 17 (Equilibrium)
11/1/20	7	Chapter 17 (Equilibrium)	Chapter 18 (Acids/Bases)	EXAM 2
11/8/20	8	Chapter 18 (Acids/Bases)	VETERENS DAY, No Lecture	Chapter 18 (Acids/Bases)
11/15/20	9	Chapter 18 (Acids/Bases)	Chapter 20 (Thermodynamics)	Chapter 20 (Thermodynamics)
11/22/20	10	Quiz 3	Chapter 20 (Thermodynamics)	THANKSGIVING, No Lecture
11/29/20	11	Chapter 20 (Thermodynamics)	Chapter 20 (Thermodynamics)	Review/Catch-Up

LECTURE FINAL EXAM

MONDAY December 7, 9:15 AM-11:15 AM

Tentative lab schedule

Week Of	Week #	Monday	Wednesday
9/20/20	1	Mandatory – Introduction/Syllabus	Mandatory - Check-In/HOL Start and Lab Safety
9/27/20	2	Mandatory - Gas Law Exploration 1	Mandatory - Gas Law Exploration 1
10/4/20	3	Mandatory - Shapes Review Worksheet 1	Mandatory - Shapes Review Worksheet 2
10/11/20	4	Optional – Office Hours	Optional – Office Hours
10/18/20	5	Mandatory - Kinetics Lab Intro 1	Mandatory - Kinetics Lab Intro 2
10/25/20	6	Mandatory – Equilibrium Lab Intro 1	Mandatory – Equilibrium Lab Intro 2
11/1/20	7	Optional – Office Hours	Optional – Office Hours
11/8/20	8	Mandatory – Beers Law Intro 1	Mandatory – Beers Law Intro 2
11/15/20	9	Mandatory – Boyles Law Intro	Optional – Office Hours
11/22/20	10	Optional – Office Hours	Optional – Office Hours
11/29/20	11	Optional – Office Hours	Lab Final

Kinetics Lab – Due 10/30 by 11:59 PM

Equilibrium Lab – Due 11/9 by 11:59 PM

Beer Law Formal Report – Due 11/30 by 11:59 PM

Boyles Law Lab – Due 11/25 by 11:59 PM

Homework

Homework will **NOT** be turned in for credit, but doing all of these is highly recommended for practice and overall concept mastery. These problems are chosen as the minimum needed to practice the topics, but you are strongly encouraged to go beyond the listed problems and try other problems throughout the book. Test questions will be similar to homework questions, so it is important to practice each problem and get help when you need it. I will release an answer key for the problems, but it will correspond to the 8/9th edition only.

Chapter	Problems
5	2, 7, 8, 9, 11, 14, 20, 23, 24, 27, 30, 33, 37, 45, 49, 55, 73, 74, 77, 82, 84, 87, 92, 98, 116
12	1, 4, 10, 11, 13, 15, 18, 24, 32, 38, 39, 40, 42, 49, 52, 63, 70, 72, 81, 88, 89, 96
16	1, 3, 8, 10, 15, 20, 25, 26, 35, 44, 48, 49, 51, 56, 61, 70, 73, 74, 78, 79, 85, 90, 94, 112
17	2, 3, 4, 7, 12, 13, 18, 22, 29, 31, 35, 42, 45, 50, 51, 57, 59, 67, 68, 72
18	3, 5, 10, 13, 22, 24, 25, 30, 43, 44, 48, 49, 60, 63, 70, 72, 84, 99, 111
20	2, 4, 5, 9, 13, 14, 17, 22, 23, 33, 38, 44, 49, 52, 54, 58, 63, 68, 75, 89, 104

Lab Safety/Preparedness

Maintaining safety when performing experiments is a primary concern. There are many hazards associated with chemistry labs, especially now that you will be experimenting in your

house. It is essential to recognize these hazards and understand that with proper techniques, the risk drops significantly. There are a few very simple steps students should take to execute safe lab techniques.

First, always wear personal protective equipment (PPE) when performing lab experiments. Such items include, but are not limited to, safety goggles, long pants, sleeved shirts, and closed-toe shoes. **All of this safety equipment must remain on until you complete the experiment, including cleanup.** A detailed list containing safe lab procedures and general practices is given on the next and must be reviewed and signed before starting experiments.

Second, read the lab procedure BEFORE executing the lab procedure. Notes, facts, or some recognition of the hazards is required for the prelab to ensure the section on safety has been read. Reading the procedure ahead of time and knowing what tasks are at hand will also help the experiment go smoothly.

Finally, listen carefully to the directions provided by the instructor. Many techniques can be performed safely and easily with the proper technique but become a safety hazard when performed improperly

What follows is a list from the American Chemical Society Safety In Academic Laboratories Guidelines, 7th Ed., the following mandatory minimum safety requirements must be followed by all students and be rigorously enforced by all Chemistry faculty:

From the American Chemical Society Safety In Academic Laboratories Guidelines, 7th Ed., the following mandatory minimum safety requirements must be followed by all students and be rigorously enforced by all Chemistry faculty:

- 1)** Chemistry Department-approved safety goggles purchased from the De Anza College bookstore (NOT safety glasses) must be worn at all times once laboratory work begins, including when obtaining equipment from the stockroom or removing equipment from student drawers, and may not be removed until all laboratory work has ended and all glassware has been returned to student drawers.
- 2)** Shoes that completely enclose the foot are to be worn at all times; NO sandals, open-toed, or open-topped shoes, or slippers, even with socks on, are to be worn in the lab
- 3)** Shorts, cut-offs, skirts or pants exposing skin above the ankle, and sleeveless tops may not be worn in the lab: ankle-length clothing must be worn at all times
- 4)** Hair reaching the top of the shoulders must be tied back securely
- 5)** Loose clothing must be constrained
- 6)** Wearing "...jewelry such as rings, bracelets, and wristwatches in the laboratory..." should be discouraged to prevent "...chemical seepage in between the jewelry and skin...".
- 7)** Eating, drinking, or applying cosmetics in the laboratory is forbidden at ALL times, including during lab lecture
- 8)** Use of electronic devices requiring headphones in the laboratory is prohibited at ALL times, including during lab lecture
- 9)** Students are advised to inform their instructor about any pre-existing medical conditions, such as pregnancy, epilepsy, or diabetes, that they have that might affect their performance.
- 10)** Students are required to know the locations of the eyewash stations, emergency shower, and all exits
- 11)** Students may not be in the lab without an instructor being present
- 12)** Students not enrolled in the laboratory class may not be in the lab at any time after the first lab period of each quarter.
- 13)** Except for soapy or clear rinse water from washing glassware, NO CHEMICALS MAY BE Poured INTO THE SINKS; all remaining chemicals from an experiment must be poured into the waste bottle provided.
- 14)** Students are required to follow the De Anza College Code of Conduct at all times while in lab: "horseplay", yelling, offensive language, or any behavior that could startle or frighten another student is not allowed during lab;
- 15)** Strongly recommended: Wear Nitrile gloves while performing lab work; wear a chemically resistant lab coat or lab apron; wear shoes made of leather or polymeric leather substitute.

By signing below, I, _____,
First Name
Family Name

acknowledge that I fully understand and agree to abide by the laboratory safety rules listed above. Further, I acknowledge that my failure to abide by these rules will result in my being dropped from this chemistry class immediately.

 Signature

 Date

Student Learning Outcome(s):

*Evaluate the principles of molecular kinetics.

*Apply principles of chemical equilibrium to chemical reactions.

*Apply the second and third laws of thermodynamics to chemical reactions.