Chemistry lB, General Chemistry

De Anza College Fall 2022 (9/26 - 12/16/2022)

Chem 1B- Section 01
Lecture MW 12:30PM-1:45, MLC-105
Lab MW 8:30AM-11:20, SC2204 (Leclerc)

Chem 1B-Section 02
Lecture MW 12:30 PM-1:45, MLC-105
Lab MW 2:30PM-5:20, SC2204 (Lane)

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Dr. Michael Lane, email: lanemichael@fhda.edu

Course Description:

This class is a continuation of an introduction to the principles of chemistry. It covers principles and investigation of intermolecular forces and their effects on chemical and physical properties, reversible reactions from the standpoints of kinetics, thermodynamics, and equilibrium and application of gas laws and kinetic molecular theory. This course is divided into two separate instructional periods, the lecture and laboratorysections. 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.

Prerequisites:

Prerequisite: CHEM 1A or CHEM 1AH with a grade of C or better.

Required 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. You can also get an ebook of this textbook. I will not use the Connect or ALEKS platform, so you can safely get a used book.
2. **Chem101 subscription for homework and quizzes.** We will use Chem101 as our online homework (12% of your final grade) and in-class practice problem platform this quarter. You must sign up for a Chem101 account before the end of the first week. You will have complimentary access to Chem101 for the first two weeks of the quarter. After this period, Chem101 costs $22.95.
3. **Lab Manual:** https://www.deanza.edu/chemistry/Chem1B.html Lab manuals must be read BEFORE performing each lab. Further instructions in lab section below.
4. **Lab Notebook:** Permanently bound, 8 ½ X 11 notebook. NO SPIRAL NOTEBOOK.
5. **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 so be sure to bring a calculator those days.
6. **Canvas course shell:** Turn on Canvas notifications to receive class announcements.
7. **Optional course material:** Student Solutions Manual, Silberberg. Lab Coat for lab.

Registration details:

Class Registration. This class is a lecture and laboratory-based course, so the registration limit is strictly set at 30 students per section based on the number of people able to safely conduct experiments in the space provided.

Dropping the Course. Students that choose to drop this course are responsible for requesting a withdrawal through the admissions and records department **before** the deadline. Students who drop the class are to be also required to officially check-out of the lab locker. Failure to check out by the scheduled check-out date will result in fees and a block placed on future registrations.

Resources: Academic support can be found at the Learning Resources Division https://www.deanza.edu/leamingresources/ . Information about tutoring can be found at the Math Science and Technology Resource Center https://www.deanza.edu/studentsuccess/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 O for that quiz/exam. Working in groups for homework is encouraged but copying is not allowed. Original work must be turned in for homework credit. For laboratory work you will have to write your own lab report and show your own data analysis even when the data was collected together with a lab partner.

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 accommodationsand I will be happy to do what I can to help. For more information, visit Disability Service Support at https://www.deanza.edu/dss/

Missing class: If you miss a lab or lecture on the first day of class, you will be dropped from the course unless previous arrangements have been made with the instructor. Lab class is in-person and mandatory for this course. More than one unexcused absence from lab may result in an automatic "F" for the course.

Grades/Evaluations:

Approximate points and %

Item	Overall%
Chem 101 Homework (10)	12
Chem 101 in class assignments	3
Lecture Exams, 3 total (100 points each)	35
Lecture Final	20
Lecture Total	**70**
Lab Assignments Total	**30**
Course total	**100**

Grade Assignment. Grade cut offs are as follows:
A+ (97), A (93), A- (90), B+ (87), B (83), B- (80), C+ (76), C (72), C- (69), D+ (65), D (60), F (59-0)

Assignments fall into the following categories. **NOTE:** You must receive at least 55% on the lab assignments **and** homework **and** exams for a passing grade.

Homework through Chem 101. Weekly practice is essential to master chemistry concepts. Before attempting the Chem 101 homework you need to have practiced solving questions as assigned on canvas. The homework on the Chem 101 platform is graded homework and you should use the homework to assess your learning. You will have 2 attempts on the homework. However, make sure that you can solve a majority of homework problems (at least 70%!) without any assistance of notes, the internet, a friend, etc. in order to pass the Midterms and final. If you have difficulty completing the homework questions without assistance, you need to seek out support and/or practice more examples. Take advantage of all learning resources.

In class assignments: There will be occasional Aktiv Chemistry assignments during class or other assignments throughout the course.

Lecture Exams. There will be three lecture exams to test comprehension throughout the quarter, the dates are indicated in the lecture schedule below. Exams will cover material from lectures, homework, and book chapters. Questions will range from easy to difficult and may require solving problems that have not been explicitly demonstrated before. Each midterm exam is worth **100 points** and the dates are given in the schedule section. There are no make-up exams. Missing a midterm will result in 0 credit without written proof for an excused absence such as a police report, an official doctors note, etc.

Lecture Final. A comprehensive final will be worth 170 pts and will cover all material from the course. The time is set by the final schedule. Please do not sign up for this class if you can't make the final time.

Lab assignments. They consist of Prelabs, Lab experimentation which included data acquisition and calculations, and written conclusions, Postlab questions and Lab quizzes. More details are given in the lab section module.

Class Lecture

This class (Chem 1B) will cover chapters 5, 12, 16, 17, 18, and 20 from the assigned textbook. The lecture will serve to cover the most important aspects of the chapter. However, students are still responsible **for all material** in the indicated book chapters. More details will be given in the respective Chapter modules on Canvas. Below are four helpful tips that make learning much easier this quarter.

1. **Prepare for lecture by reading the textbook chapter *before* attending lecture.** This will make the presented material much easier to understand and you will be able to engage in exercises and discussion about the material. Pre-reading the textbook before class will allow you to sort the presented information more effectively and therefore will help retain the concepts.

2. **Attend lecture.** Attending lecture will clarify material and will also include additional active learning activities that will help you make deep connections with the material. In lecture additional information may be presented that is not in your textbook. Also, Chemistry concepts are build on previous concepts and foundational knowledge. If you miss too many lecture classes, you will increase the likelihood that you may fail the class.

3. **Review the lecture material and complete practice problems in each sub-chapter we covered as you review material.** By engaging with the material through problem solving, you actively learn the material! There is not enough time to go over every concept in detail in lecture, so re-reading the textbook in connection with problem solving is essential to master the concepts. Don't wait until the midterm exam is approaching: Review the material promptly such as within 1 day of the lecture!

4. **Each week work out the chapter problems.** Plan on spending at least 2-3 hours studying outside of class for each lecture hour (including lab lectures). That's at least 7-10 hours weekly! Extensive practice is the best way to ensure mastering the chem1B material. It is essential to practice the material promptly, so do the Chapter problems **in the same week as the material is covered**. Relevant Chapter problems are posted in the modules for the chapter. There are plenty of additional problems in the textbook throughout the chapters as well as at the end of each chapter, which will prepare you for midterms and final. I also post practice questions on Chem101.

5. **Complete the HW as your self-assessment, treat is as a quiz/exam question.** The homework should inform you if you have mastered the concepts of the chapter and uncover gaps you need to work on closing. Ultimately, you will need to be able to solve the questions without assistance of your notes, the textbooks, friends, the internet etc to score high on the exams.

6. **Don't fall behind.** Make sure to set aside time to complete your assignments weekly by the due date. Cramming before exams without studying the material during the weeks leading up to an exam does not usually work. Also, in chemistry, each new topic will build on the previous, so it is essential to understand the topics as they are presented (hence do the practice problems). 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…

7. **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 encouraged to find a study group, working with peers is extremely helpful for mastering material. Also come to office hours to get any follow up questions answered.

Lecture and Laboratory Schedule

Tentative schedule subject to change which is announced on Canvas. All dates, including exams are subject to change throughout the quarter. The final exam date will not change.

Week Of	Week#	Monday	Wednesday
9/25/2022	1	Intro and Chapter 5 (Gases)	Chapter 5 (Gases)
10/2/2022	2	Chapter 5 (Gases)	Chapter 9/12 (IMFs)
10/9/2022	3	Chapter 12 (IMFs)	Chapter 12 (IMFs)
10/16/2022	4	EXAM 1	Chapter 16 (Kinetics)
10/23/2022	5	Chapter 16 (Kinetics)	Chapter 16 (Kinetics)
10/30/2022	6	Chapter 17 (Equilibrium)	Chapter 17 (Equilibrium)
11/6/2022	7	Chapter 17 (Equilibrium)	Chapter 17/18 (Acid/bases or Equilibrium)
11/13/2022	8	EXAM 2	Chapter 18 (Acids/Bases)
11/20/2022	9	Chapter 18 (Acids/Bases)	Chapter 18/20 (Thermodynamics or Acids/Bases)
11/27/2022	10	Chapter 20 (Thermodynamics)	Chapter 20 (Thermodynamics)
12/4/2022	11	EXAM 3	Final Review
12/11/2022	LECTURE FINAL EXAM Monday 12/12: 1-3 pm		

WEEK OF	WEEK	MONDAY	WEDNESDAY
9/25/2022	1	Syllabus, safety, Lab notebook	B1 molar volume 1
10/2/2022	2	B1 molar volume 2	B2 vaporization 1
10/9/2022	3	B2 vaporization 2	B7 green crystal 1
10/16/2022	4	B7 green crystal 2	B7 green crystal 3
10/23/2022	5	B7 green crystal 4	B3 iodine clock 1
10/30/2022	6	B3 iodine clock 2	B3 iodine clock 3
11/6/2022	7	B3 iodine clock 4	B4 Kc by spect. 1
11/13/2022	8	B4 Kc by spect. 2	B5 Ka/Kb 1
11/20/2022	9	B6 pKa 1	B6 pKa 2
11/27/2022	10	B8 CaOH 1	B8 CaOH 2
12/4/2022	11	B8 CaOH 3	Checkout
12/11/2022	12	Finals Week	Finals Week

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.

Office Hours:

In-Person	SC1200	M,W	11:50 AM	12:20 PM
In-Person	SC1200	M,W	02:00 PM	02:30 PM