

CHEMISTRY 25 De Anza

Spring 2024

Dr. Stephanie Stepp
Lecture: TTH 12:30-2:20pm S34
Lab Sec 43: T 2:30-5:20pm SC2208
Lab Sec 44: TH 2:30-5:20pm SC2208

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Office Hours: TTH 11:00am-12:00pm

This course syllabus or "green sheet" is a contract

One purpose of this "green sheet" is to provide you with the guiding principles upon which the class runs, and another is to make sure that you have at your fingertips, answers to any questions which might arise. Please put this document in a safe place where you can easily refer to it. Make sure you read it in its entirety before you ask me any questions about the course. It is also a contract between you the student, and I, the instructor of record. Make sure that you understand its contents fully, especially the parts that pertain to testing and the computation of your grade, because so long as you remain enrolled in the course, you are implicitly agreeing to abide by these terms.

PREREQUISITES: Math 114 or equivalent

COURSE DESCRIPTION

This course is an introduction to the core theory and problem-solving techniques of chemistry as preparation for CHEM D001A and CHEM D01AH and other science-related fields, as well as gravimetric and volumetric analysis, rudimentary laboratory equipment and operations, and the preparation and maintenance of a laboratory notebook.

COURSE OBJECTIVES

- Explore the core concepts of modern atomic and molecular theory.
- Assess the importance of the mole concept in stoichiometric calculations.
- Apply fundamental mathematical concepts to the proper collection and evaluation of experimental data.
- Explore the various gas laws and understand the relationships between pressure, temperature, and volume of a gas.
- Differentiate between standard classes of chemical reactions.
- Acquire an elementary understanding of thermochemistry
- Explore the discipline of chemistry from a cultural, historical, and societal perspective.

REQUIRED MATERIALS:

Text: Introduction To Chemistry, fifth edition by Bauer, Brik and Marks (McGraw-Hill). eBook or older/other editions also ok.

Lab Manual: Preparation for General Chemistry: Chem 25, by Applegate, Neelyand Sakuta (McGraw-Hill).

This is a custom lab manual that can only be purchased at the De Anza Bookstore. Make certain to buy the version listed for Chem 25.

A scientific calculator with log and exponential functions.

No graphing calculators.

Safety Goggles, needs to meet the ANSI Z87.1 or Z87+ specification, which will generally be listed in the product description.

Visorgogs or Z87.1-2010 Rates Safety Glasses

LECTURE EXAMS (65%):

There will be two lecture lecture exams and one comprehensive final exam. All are closed book, and no notes are permitted. The exams will focus on the (1) key course concepts, (2) lecture notes, (3) online homework assignments, and (4) additional recommended practice problems. The exams will test your problem solving skills and also your conceptual understanding of the material and your ability to integrate concepts. For this reason, it is highly recommended that you discuss the key course concepts and problems with the instructor during office hours and also with your study group. **Make-up exams will NOT be generally given. All exams are required and will count towards your grade.** Exams will not be rescheduled to accommodate your personal schedule. Accommodations will be made ONLY for VERIFIED illness or VERIFIED legitimate emergencies.

YOU MUST BRING A PICTURE ID TO ALL EXAMS, INCLUDING LAB QUIZZES.

ONLINE HOMEWORK (10%):

At the end of each chapter there will be an open-ended quiz on Canvas to determine your knowledge on the material just covered. No make-ups for missed quizzes. Do not miss the due dates! The quizzes will be posted on your Chem 1B Canvas account, and you will need to finish them online before the due dates. More information will be given in lecture meetings before the due dates.

Once you submit your quiz on canvas, you cannot access it again so make sure you print a hard copy of the quiz for your reference. The quizzes will help you prepare for the exams.

(see Calendar in syllabus for deadlines.)

PRACTICE PROBLEMS:

In addition, practice problems will be suggested for you to complete at the end of the chapter in our textbook as well as others suggested by the instructor. See course website for details. Chemistry is all about practice, practice, practice! Doing these problems is invaluable experience for you to grasp the concepts presented.

COURSE GRADE:

Your course grade will be determined according to the following percentages:

| | |
|-----|------------------------------|
| 40% | Two midterm exams (20% each) |
| 25% | Final exam |
| 10% | Online Homework |
| 10% | Laboratory report |
| 5% | Laboratory prelabs |
| 10% | Laboratory quizzes |

IF your WEIGHTED AVERAGE in class EXAM PERCENTAGE, including the three lecture exams and the final exam, IS LOWER THAN 50% YOU WILL NOT EARN A PASSING GRADE IN THIS COURSE.

If you FAIL THE LABORATORY PORTION of this course, you will NOT EARN A PASSING GRADE.

At the end of the semester you will receive a single grade for the course. The following grade scale is for the full course, including lab.

| | | | | | |
|---------------|----|---------------|----|---------------|----|
| above 97.0 % | A+ | 79.9 - 77.0 % | B- | 56.9 - 54.0 % | D |
| 96.9 - 92.0 % | A | 76.9 - 72.0 % | C+ | 52.9 - 50.0 % | D- |
| 91.9 - 89.0 % | A- | 71.9 - 61.0 % | C | Below 50.0% | F |
| 88.9 - 85.0 % | B+ | 60.9 - 57.0 % | D+ | | |
| 84.9 - 80.0 % | B | | | | |

Attendance and Incomplete Grades:

Attending the class regularly will help you to understand the material and pass the class. You are responsible for all the material covered in this course, and it is expected that you attend and participate in all of the lecture and laboratory sessions. *If you must be absent, then it is in your best interest to contact the instructor.* You should also exchange phone numbers with a few classmates who you can contact regarding material missed if you must be absent. Since this is an experimental course, your presence in the laboratory is essential for the understanding of the materials covered. Excessive, unexcused lab absences are cause for dismissal from the course. Allowances may be made, at the instructor's discretion, for emergencies and other complications in life.

It is entirely YOUR responsibility to drop this course in a timely manner. Any student that has TWO (or more) unexcused lab absences prior to the end of the 8th week will be advised to drop. Absences after the week of the 8th may result in a non-passing course grade.

Incomplete grades* are only given for extenuating circumstances; for example, VERIFIED illness or legitimate emergencies. If an incomplete is given all exams and lab work prior to the incomplete are still counted in your grade, only material that has not yet been completed can be made-up in the future. **YOU MUST BE PASSING THE COURSE TO RECEIVE AN INCOMPLETE GRADE.*

ACADEMIC DISHONESTY:

Academic dishonesty includes:

- Plagiarism (copying or allowing someone to copy) lab exercises or reports.
- During an exam, communicating or transferring information to another student, receiving information from someone else, looking at another person's exam, and/or using unauthorized materials such as text books, notes, etc.
- Having another person complete and submit work in your name.
- Lying to an instructor to improve your grade.
- Altering a graded work after it has been returned and then submitting the work for regarding.

Consequences of academic dishonesty may include:

- A report of the violation to the Dean of Student Affairs and Activities; this office keeps a record of students who have engaged in academic dishonesty. Repeated violations may result in administrative action including probation, suspension or expulsion from the college.

- You may receive an F grade on the work involved; this may also result in an “F” in the course.
- Verified cheating on the online homework will result in a score of 0% being given for the homework grade.
- For incidences of lab exercise or report plagiarism, all parties involved will receive a reduced grade or grade of zero for the exercise or report.

CLASS RULES AND REGULATIONS-Professional behavior is expected.

- **Arrive on time.** The classroom is an academic environment where students come to focus and learn. Those students who arrive on time, ready to learn, should not be disturbed by students coming in late. If you arrive late to lecture, enter quietly from the back of the classroom, sit in the back and look guilty. Students who are habitually late or arrive more than 5 minutes late may be asked to leave instead of being allowed to join the class. The instructor may resort to locking the doors after the start of class if habitual lateness becomes an issue. **Students who are more than 10 minutes late for lab lecture will not be allowed to do the experiment.**
- **Be polite** to your instructor and fellow students. Any type of vulgar or rude language toward the instructor or another student may result in dismissal from the course. This rule applies to emails and phone messages as well as face-to-face exchanges!
- **Remain quiet during lecture.** Talking to fellow students during lecture is disruptive to other students. Raise your hand if you have a comment or question.
- **Turn off or turn to silent mode all cell phones and electronic messaging devices. DO NOT talk on the phone or receive/transmit text messages during lecture or lab.** If you receive a *truly* urgent call or message, quietly leave the classroom to respond to it.
- **Lap top computers** may be used during class **ONLY** for class business. For instance, you may use your lap top computer to view and/or take class notes, but please do not disrupt/distract your fellow classmates by using your lap top during class for other business and/or activities that do not pertain to the class.
- **Clean up your mess in lab.** This includes cleaning and organizing your immediate lab bench area, as well as shared areas such as hoods, balances, the bench tops around the balances, etc.
- **Follow** all written and **VERBAL** instructions.
Any student who, in my judgment, is habitually disruptive or rude may be dismissed from the class.

Resources

- **Math, Sciences, and Technology Resource Center (MSTRC) Tutoring.** The MSTRC offers tutoring for the Chemistry 1 sequence and is located in room S43 in the S-quad.
<https://www.deanza.edu/studentuccess/mstrc/>
- **Disability Support Programs Services** The mission of DSPPS is to ensure access to the college’s curriculum, facilities, and programs. In particular, DSPPS can help you get extended time on examinations.
<https://www.deanza.edu/dsps/>
- **De Anza College Library** The library houses the Library West Computer Lab and group study rooms that may be reserved online.
<https://www.deanza.edu/library/index.html>
- **Resources for Students** Additional resources may be found at
<https://www.deanza.edu/services/>

- **Office Hours** Instructor office hours are the best time to ask questions related to course content in-person. This time is for you, the student.

STUDY STRATEGIES:

1. Read (or skim) the corresponding chapter in the text BEFORE lecture. Jot down any questions you have and talk with your peers and the instructor to get them answered as you work through the material.
2. Don't fall behind! Keep up with the reading and the recommended textbook problems!
3. Ask questions! Come to office hours, tutoring, or form a study group to get them answered! It's YOUR responsibility to take charge of your learning; there are many resources to help you succeed!

Chem 25: Fundamentals of Chemistry Laboratory Syllabus Spring 2024 Room 4812

LABORATORY LECTURE:

The beginning of each laboratory session is used to review the background, procedure, safety and waste disposal information for each experiment. ***You must arrive on time in order to perform the scheduled experiment.*** ***In addition,*** you are also required to:

- **Read both the background information and procedure**
- **Complete the online prelab assignment by Sunday night**
- **Write a hand-written outline of the experimental procedure which is due at the beginning of lab.**

The instructor will use the lecture period to outline important details of the procedure, overview the theory and calculations, and emphasize safety hazards and proper chemical disposal.

LABORATORY EXPERIMENTS:

The laboratory schedule for this course is on the overall course schedule. Scheduled experiments are conducted in Lab 4814 following the laboratory lecture. Note: Some labs are done out of order.

LABORATORY DRAWER CHECK-IN/OUT:

Students will be assigned a specific laboratory equipment drawer and will be responsible for completing a satisfactory inventory of the contents at the beginning (drawer check-in) and end (check-out) of the quarter. Failure to maintain the laboratory equipment in satisfactory condition will impact the overall laboratory grade.

LABORATORY SAFETY AND PREPARATION:

Laboratory safety will be discussed in the **mandatory** first lab session. It is expected that you put safety first in the laboratory, and if you deliberately neglect the directed safety rules, then you will be dropped from this course. ***Any student who is absent and does not make arrangements to attend another lab session the first week will be dropped from the class.*** A safety exam will be given the second lab session, which must be passed with a grade of 85% or higher to remain in the class.

For your protection, safety **goggles** or **Visorgogs** must be worn AT ALL TIMES in the laboratory. These can be purchased in the bookstore. Appropriate clothing and shoes are also required.

LABORATORY GRADE COMPONENTS:

Your lab grade is composed of scores from the online prelab assignments, procedure outlines, laboratory assignments and lab quizzes.

- The prelab is **due at the beginning of lab lecture.**
- In-Lab Assignments: The nature and due date of each laboratory assignment will be specified during the lab lecture. In general, the experiment and discussion questions will be evaluated for proper conduct, appropriate data and correct calculations prior to the end of the lab session by the lab instructor and a score will recorded. For many experiments, you will be collecting data with a partner, however you must do your own calculations and formulate your own conclusions for each experiment. There will be NO MAKE-UP EXPERIMENTS. Students who complete all labs successfully will receive 2 bonus points.
- LAB QUIZZES: There will be a lab quiz every other week (see schedule). Laboratory quizzes that will focus on the laboratory assignments. If you miss a laboratory quiz, then you will receive a zero. There will be no make-up quizzes.
- SUBJECTIVE EVALUATION COMPONENTS: The subjective evaluation assessed by the instructor is also used to reward your preparedness for lecture and laboratory sessions, your ability to follow both written and verbal instructions, your adherence to the safety rules, your cleanliness practices, and your overall respect for the laboratory through the proper care and use of all equipment.
- **You must pass the lab portion of the class ($\geq 68\%$) in order to receive an overall passing grade.**
- **If you miss more than 3 lab periods, you will receive an F for your course grade.**

| Week # | Tuesday | Thursday | Lab | |
|---------------|---|--|---|--------------------------------|
| 1: April 7th | Introduction/ Ch1: Classifying Matter | Ch 1 Chemical and Physical Changes and Temperature Changes | CHECK-IN | |
| 2: April 14th | Ch 1: Significant Figures and Problem Solving and Unit Conversion | Ch 2: Structure of an Atom | <i>MEASUREMENTS</i> | |
| 3: April 21st | Ch 2: Ions, Isotopes and Atomic Mass | Ch 3: Ionic and Molecular Compounds | DENSITY & GRAVITY | |
| 4: April 28th | Ch 3: Nomenclature and Writing Chemical Formulas | Ch 4: Moles | ATOMIC STRUCTURE & PERIODIC TABLE. Lab Quiz 1 | |
| 5: May 5th | Review | Exam #1 | IONIC COMPOUNDS | |
| 6: May 12th | Ch 4: Grams to Moles to Molecules | Ch 4: Mass Percent Calculations/Ch 5: Balancing Equations | EMPIRICAL FORMULAS Lab Quiz 2 | |
| 7: May 19th | Ch 5: Types Chemical Reactions | Ch 5: Net Ionic Equations/ Review | CHEMICAL REACTIONS | |
| 8: May 26th | Ch 11: Solutions and Molarity | Ch 11: Solutions and Molarity/ Review | <i>MOLAR VOLUME</i> Lab Quiz 3 | 5/31 last day to drop with a W |
| 9: June 2nd | Exam #2 | Ch 8: Mole-to-Mole | COVALENT COMPOUNDS | |
| 10: June 9th | Ch 8: Mass-to-Mass Conversions | Ch 8: Theoretical, actual and percent yields | VINEGAR ANALYSIS | |
| 11: June 16th | Ch 9: Gases | Review | CHECK-OUT Lab Quiz 4 | |
| 11: June 23th | Final 6/27 10:30-12:30pm | | | |

Student Learning Outcome(s):

- Assess the fundamental concepts of modern atomic and molecular theory.
- Evaluate the standard classes of chemical reactions.
- Demonstrate a fundamental understanding of mathematical concepts pertaining to chemical experimentation and calculations.

Office Hours:

In-Person second floor sc2200 T,TH 11:00 AM 12:00 PM