General Chemistry II

De Anza College

Term: Fall 2026

Sections: 11 and 12

Instructor: Dr. Brophy

Welcome to the online syllabus for Chem 1B! This course is offered entirely in-person during the Fall 2026 quarter at De Anza College. Attendance at all scheduled labs and lectures is mandatory.

Course Description

This course is a continuation of an introduction to the principles of chemistry covering the investigations of intermolecular forces and their effects on chemical and physical properties. Also covered are investigations of reversible reactions from the standpoints of kinetics, thermodynamics, and equilibrium. Investigation and application of gas laws and kinetic molecular theory.

Class Meeting Times

Section 11	Lecture	MW 9:30 am – 10:45 am	FOR3
	Lab	MW 11:30 am – 2:20 pm	SC2204

Section 12	Lecture	MW 9:30 am – 10:45 am	FOR3
	Lab	TuTh 11:30 am – 2:20 pm	SC2204

Holidays and Important Dates

September 21	First day of classes
October 4	Last day to drop without a W
November 11	Veteran's Day holiday *No classes and college offices closed*
November 13	Last day to drop with a W
November 26–27	Thanksgiving Holiday *No classes and college offices closed*
December 7–11	Final Exams

	Classes do not meet at regular times. Please see the final exam schedule for more information.

Excused Withdrawal

If circumstances beyond your control prevent you from completing the course, you may qualify for an excused withdrawal. Please see the following website for more information.
https://www.deanza.edu/admissions/withdrawals.html

Course Webpage

The course webpage is through De Anza Canvas. You will be automatically added to the Canvas shell as a student when you enroll in the course. Students on the waitlist do not have access to Canvas. This course webpage is designed to be viewed on a web browser rather than the student app. ***Turn on Canvas notifications*** *to receive class announcements, Inbox messages, and comments/feedback on assignment submissions.*

Community Statement

Every person in this class, regardless of personal history or identity categories, is a welcome and important member of this group. Your experiences are important, and you are encouraged to share them as they become relevant. No person in this group is ever expected or believed to speak for all members of any group(s).

You have the right to determine your own identity, to be called by whatever name you wish, and to be referred to by your pronouns. You have the right to adjust these things at any point. If you find any aspects of facilitation, instruction, subject matter, or program environment that result in barriers to your inclusion, please let me know right away, privately and without fear of reprisal. We are all learning. It is my goal to continue learning and improving to support everyone in this class and, by extension, all my current and future students.

Sustainability Statement

The field of chemistry is broadly tied to many global concerns such as materials usage, environmental hazards, human health, and sustainability. This class will incorporate principles of sustainability into our general understanding of chemistry as well as apply best practices in the laboratory setting.

Artificial Intelligence Statement

The work that you submit for this class must represent the students' effort and understanding of the material. The use of generative AI to complete assignments is strictly forbidden, and its use will constitute a violation of the academic integrity policy. I urge students to use caution when using AI tools for studying chemistry.

Syllabus Statement

This course syllabus is a contract. Please read it carefully and completely in its entirety before asking me any questions regarding the course schedule, content, requirements, grading, etc. You are expected to adhere to the De Anza College Student Code of Conduct Administrative Policy 5510 at all times. This syllabus is also a living document, and it may be necessary to make minor corrections or changes during the quarter. I will not

make major changes to the syllabus except in cases of *force majeure* or following class discussion. ***All corrections and changes to this syllabus will be announced through Canvas.***

This class is divided into two separate instructional threads: a lecture portion devoted to the primary course material and a lab period for conducting lab experiments. At De Anza College, the lab and lecture may not be taken as separate courses under any circumstances

About Your Instructor

Contact Information

Instructor: Dr. Megan Brunjes Brophy
Office: SC1220
E-mail: brophymegan@fhda.edu
Phone Number: 408-864-8338 (*not preferred*)

*Please note that **Canvas Inbox** is the most reliable way to get in touch with me outside of class. I do not reply to messages on evenings and weekends. In general, you can expect a reply from me in 2 business days. If you haven't gotten a response from me in that timeframe, feel free to message me again.*

Office Hours

Office hours are an opportunity for you to come talk to your instructor outside of regular class time. Please bring your homework, notes, reading, or any other assignments. You are welcome to talk to me about the course, questions that you have about the material or practice problems, and your educational path. Each of my office hours are open to all my students; please come say hi!

Day	Location	Time
Monday	SC1220	10:50 am – 11:15 am
Tuesday	SC1220	10:00 am – 11:15 am
Wednesday	SC1220	10:50 am – 11:15 am
Thursday	SC1220	10:00 am – 11:15 am

My Teaching Philosophy

My hope is that every student who takes one of my classes gains an appreciation for the power of chemistry and the beauty of the natural world. It is important to me to design a course that is accessible to students of varying educational, cultural, and socioeconomic backgrounds while maintaining high intellectual, ethical, and academic standards. I strive to reward consistent, sustained effort throughout the quarter, and my goal is for everyone who takes this class to pass with a C so that they can move on to the next stage of their educational or career pathway.

Enrollment Requirements

Recommended Preparation

I generally expect that students enrolled in Chemistry 1B have taken Chemistry 1A in-person at De Anza College within the previous year. Chemistry 1B will utilize the quantitative skills that you developed and mastered in Chemistry 1A and apply these skills to chemical reactivity, molecular structure, and funcion. It is vital for students to proactively review prior material and reach out early and often for help. The college provides multiple spaces and services for academic support, including the MSTRC, the PST Village, and the MESA center.

Prerequisites

Chemistry 1A or 1AH with a grade of C or better.

Advisory

EWRT 1A or EWRT 1AH or ESL 5.
All assignments and assessments are offered and graded exclusively in English.

Late Adds and Add Codes / Drops

I will only give out add codes if space is available during the first week of class. If you are interested in joining the class, you must attend lab and lecture during the first week of the quarter. Students who miss the first lab meeting will not be permitted to enroll in the course under any circumstances. Similarly, if you are enrolled in the course and miss the first lab, you will be dropped from the course during the lab period. ***I do not give out add codes after the first week of class***, and I strongly encourage you to enroll in an open section if you are on the waitlist.

Lab Attendance

Lab attendance on the first day of class is strictly mandatory. Any student who is not present for lab safety and lab check-in will be dropped from the course. Students who miss two labs during the first two weeks of class will be dropped from the course. Missing three or more labs during the quarter may result in a failing grade, pending the development of a personal improvement plan.

Supplies and Materials: Lecture

Textbook (Required)

Chemistry: A Molecular Approach, 6th edition by Nivaldo Tro. Available through Pearson eBooks and on reserve in the library.

Textbook (Optional)

OpenStax Chemistry, 2nd edition. Available free online or on the OpenStax app. You may also purchase a printed and bound copy through Amazon.

Online Homework (Required)

MasteringChemistry, available for purchase through Canvas.

Calculator (Required)

A scientific calculator with base-10- and natural-log functionality is necessary and sufficient for this class. If you have already purchased a graphing calculator for another class, you may use it on exams and quizzes; however, *we will not use the graphing functionality.* Recommended models:

https://www.amazon.com/Texas-Instruments-MultiView-Scientific-Calculator/dp/B000PDFQ6K
https://www.amazon.com/dp/B005QXO8J0/ref=dp_cerb_3

It is your responsibility to know how to use your calculator and to bring it to all classes, quizzes, and exams.

Molecular Modeling Kit (Optional)

Many types are available. I like this kit from Duluth Labs, and many dupes are available on Amazon and temu. https://www.amazon.com/Duluth-Labs-Organic-Chemistry-Molecular/dp/B01N00GAPR?ref_=ast_sto_dp&th=1

Workbook (Optional)

Calculations in Chemistry: An Introduction, 2nd edition by Dahm and Nelson. This **optional** resource provides additional examples of common problem-solving techniques. I particularly recommend this resource if you haven't taken 1A in some time or if you would like to build confidence in quantitative chemistry. Available at many online retailers.

Supplies and Materials: Lab

Lab Manual

The lab procedures for each lab will be posted as PDFs on Canvas. You must print each lab and bring it with you to class. Personal electronic devices are not permitted while hazardous materials are in use.

Lab Notebook

You are required to have a bound composition-style notebook for this class. Notebooks with metal spiral binding or perforated pages are *not* permitted. Carbon copies are not required for this class. You may reuse or continue a lab notebook from a previous course.

Pen

You must use a non-erasable pen with dark-blue or black ink in your lab notebook. A pencil is not permitted.

Computer (and printer) access

You will require internet access and a printer throughout this course. The Library West Computer Lab is located on the lower level of Learning Center West in LCW 102. Printing can be found around campus: https://www.deanza.edu/students/printing.html

GeniusScan or CamScanner

Throughout the quarter, you will turn in handwritten assignments by creating a PDF file and uploading this file to Canvas. Recommended apps include GeniusScan and CamScanner. Do not use any Adobe apps to turn your assignments in—the files end up being too big to load properly in Canvas! If I can't open the file you upload, you will receive a zero on the assignment with the option to resubmit for partial credit.

Nitrile Gloves

You must wear nitrile gloves in lab, and you are encouraged to purchase and bring your own gloves to ensure a proper fit. Latex and vinyl gloves are discouraged.

Lab Goggles

You must wear lab goggles when chemicals or glassware are out of storage or in use. The lab goggles must

- Conform to your face with a flexible seal
- Have indirect venting
- Carry an ANSI Z87.1 shatter rating

Campus 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. I strongly recommend that you study in the MSTRC early and often. They have computers, and it is a great place to study for your STEM classes. https://www.deanza.edu/studentsuccess/mstrc/

Disability Support Programs Services

The mission of DSPS is to ensure access to the college's curriculum, facilities, and programs. In particular, DSPS can help you get extended time on examinations. Please reach out to them directly if you have questions. 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/. If you need additional resources, I can put you in touch with support services through De Anza Connect. Please give me explicit permission to share any personal information with them.

Student Help Hours

Instructor office hours are the best time to connect with your instructor. You can ask questions related to course content, work on homework and assignments, get study tips, or just hang out. This time is *for you, the student*. Please come!

I expect you to use the resources available, share high-quality resources with your classmates, and ask for help when needed.

Time Commitment

This is a five-unit course: each week consists of three scheduled lecture hours and six scheduled lab hours. In addition to in-class time, you should expect to spend an additional **20 hours a week** studying and working on class assignments to excel in this class.

Course Objectives and Learning Objectives

Course Objectives

1. Analyze the behavior of gases.
2. Evaluate how intermolecular forces influence solids, liquids, and phase changes.
3. Calculate the rate of a reaction and assess the mechanism of action.
4. Utilize the fundamental principles of equilibrium to probe reaction dynamics.
5. Differentiate between acids and bases and evaluate their reactivity.
6. Apply the principles of equilibrium in an expanded discussion of thermodynamics.

Learning Objectives

1. Evaluate the principles of molecular kinetics.
2. Apply principles of chemical equilibrium to chemical reactions.
3. Apply the second and third laws of thermodynamics to reactions.

Dr. Brophy's Summary of Learning Objectives

In Chemistry 1B, we focus on the molecular basis of chemical reactions. You will apply your understanding of chemical structure, stoichiometry, and quantitative chemistry gained from Chemistry 1A to more complex chemical systems.

Active Course Outline

You can find a copy of the active course outline of record for this class and other chemistry classes online at: https://www.deanza.edu/chemistry/courses.html

Please save a copy of the active course outline, as well as this syllabus, for your records. You never know when you might need it!

Attendance Policy

Your *punctual* attendance is expected at all class meetings. To be counted "present" and receive credit for that day's activities, you must arrive during the first 5 minutes of class. If you arrive late, you may miss important information. If you will have to miss a class session for any reason, let me know by Canvas message as soon as possible. Notifying your instructor of absences or tardiness shows that you take your responsibility towards yourself and your fellow students seriously. In the case of a documented emergency (e.g. hospitalization, court appearance, car crash), I may excuse you from that day's work. These instances will be handled and decided on a case-by-case basis. Travel does not constitute an emergency or grounds for an excused absence. It is the student's responsibility to get notes from a classmate for missed information.

Late Work Policy

Late work for *MasteringChemistry* assignments will be accepted until December 6th at 11:59 pm. In general, late labs or lecture assignments will not be accepted under any circumstances. If you know you will need to miss a dry-lab day (e.g. worksheet), please contact me ahead of time for credit requirements.

How to Learn Chemistry

Chemistry is a broad subject that has a reputation for being hard. This class will utilize many resources in concert to help you gain skills, knowledge, and understanding for you to apply chemical principles to multiple areas of study. The lectures will provide organization and context for the topics that we cover, and you should use the assigned reading to fill in the details.

1. Know where to find relevant information for the course, in particular the assigned reading for both the labs and the lectures.
2. Complete the assigned reading before coming to class. Review 1A topics that are unfamiliar. Write down any vocabulary words that you do not understand as well as their definitions *from the textbook*.
3. Practice and develop your critical reading skills.
4. Take *handwritten* notes during class and review your notes regularly. Cognitive science tells us that we learn new information better when we write rather than type.
5. Review your notes early and often. Use the assigned reading to fill in details and redraw important figures.
6. Write down any questions you have. Bring these questions with you to office hours or the drop-in tutoring center.
7. Most of the “rules” that you learn in chemistry are guidelines. There are exceptions. You will recognize these exceptions more as your chemical intuition builds.
8. Do a little bit every day. After every lecture, review the reading assignment and complete in-chapter and end-of-chapter exercises. Spend at least an hour on chemistry every day.
9. Seek conceptual understanding. Memorization will follow.
10. Join a study group. Work on problem sets together. The best way to learn the material is to teach it to somebody else.
11. Utilize the free tutoring services on campus and online through the MSTRC.
12. Turn in and finish assignments as soon as you are able. Don’t assume that you’ll have time to do it later, or immediately before the deadline. Life is unpredictable.
13. Be skeptical of general AI learning tools. There is a lot of bad and incorrect information available, and AI tools do not do a good job of curating its sources.
14. Take care of yourself! Stay well-rested and drink water. Your physical health and safety are your priority. If you need assistance with any basic needs, please reach out to me to referrals to campus resources.

Laboratory Safety

All chemistry laboratories are inherently associated with risks and hazards. Some accidents will inevitably occur during your chemistry course work. When a minor accident occurs, ***inform your instructor immediately*** and ***do not attempt to clean-up any broken glassware or spilled chemicals by yourself.*** To ensure that the lab is as safe as possible, we must (1) ***Recognize hazards***, (2) ***Assess the risks of hazards***, (3) ***Minimize the risks of hazards***, and (4) ***Prepare for emergencies***.

You have the right to advocate for yourself. If you feel a particular procedure or chemical is unsafe, or a specific accommodation will enhance your lab experience, I welcome your feedback. I may not have an answer or solution for you right away, but I will work on your behalf to ensure that you can complete the labs safely.

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:

Enrollment Limits: Due to safety concerns and space limitations, enrollment for Chem 1ABC, Chem 10, Chem 25, and Chem 30AB is limited to 30 students. Organic Chemistry (12ABC) is limited to no more than 26 students.

In case of an emergency, dial 911 from a classroom phone. If you must use a cellphone, the FHDA police emergency number is 408-924-8000.

Please see https://www.deanza.edu/collegeops/emergencies/evacuation.html for evacuation procedures and other emergency preparedness information.

The following rules must be followed at all times in the lab rooms, regardless of the activity.

1. 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
2. Shorts, cut-offs, skirts or pants exposing skin above the ankle, and sleeveless tops or tops that expose the abdomen may not be worn in the lab: ankle-length clothing must be worn at all times.
3. Eating, drinking, or applying cosmetics in the laboratory is forbidden at ALL times, including during lab lecture. Food and drink containers must be stored outside the lab.
4. Use of electronic devices requiring headphones or earbuds in the laboratory is prohibited at ALL times, including during lab lecture.

The following rules must be followed anytime students have glassware or chemicals out and in use. Note that if some students finish their experiments, they must keep their PPE on while others use chemicals and glassware.

5. Chemistry Department-approved safety goggles (NOT safety glasses) must be worn at all times once laboratory work begins. Safety goggles must include a flex seal and indirect venting, and carry ANSI Z87.1+ and CSA Z94.3 certifications. Appropriate goggles may be purchased from the De Anza College bookstore.
6. Goggles must be worn at all times after lab lecture, 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 all student drawers.
7. Nitrile gloves should be worn when handling chemicals and glassware and removed prior to handing any personal electronic devices.
8. Hair reaching the top of the shoulders must be tied back securely
9. Loose clothing must be constrained
10. Chemically-resistant and flame-retardant lab coats are strongly recommended.
11. Shoes made out of leather or polymeric leather substitute are strongly recommended.
12. Wearing "...jewelry such as rings, bracelets, and wristwatches in the laboratory..." is discouraged to prevent "...chemical seepage in between the jewelry and skin...".
13. Students with a medical condition or disability (e.g. learning, sensory, mental health, or physical condition) that may hinder their ability to participate or succeed in the class safety should contact DSPS

to coordinate accommodations. You may also communicate necessary accommodations directly to your instructor, and you are under no obligation to reveal private details.

14. If you are pregnant or experiencing a related condition, you are advised to contact the campus Title IX coordinator to arrange necessary accommodations.
15. Students are required to know the locations of the eyewash stations, emergency showers, and all exits.
16. Backpacks and other trip hazards must be stored under a desk and walkways must remain clear.
17. Students may not be in the lab without an instructor being present.
18. Students on the waitlist may not participate in lab activities until and unless enrolled in the course.
19. 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 by your instructor.
20. You may only perform experiments as instructed.
21. At the end of each experiment, all glassware should be cleaned with water and detergent prior to storage.
22. Any chemical spills or broken glassware must be cleaned up immediately. Broken glassware must go in the sharps waste and not in the regular trash.
23. 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.

Reckless behavior will not be tolerated. If your actions endanger the health and safety of yourself or another person, you will be asked to leave and you will receive a zero for the lab and related assignments. In extreme cases, you may lose your lab privileges for the remainder of the quarter and/or fail the course.

Academic Integrity Policy

The process of learning requires physical changes to occur in your brain. *Cognitive research demonstrates that consistent practice and learning to recognize mistakes are key aspects of the learning process*. As such, all students should be aware of the De Anza College policy on academic integrity outlined at https://www.deanza.edu/policies/academic_integrity.html. The following text is reproduced from the De Anza College manual:

> *the college is committed to providing academic standards that are fair and equitable to all students in an atmosphere that fosters integrity on the part of student, staff and faculty alike. The student's responsibility is to perform to the best of his or her potential in all academic endeavors. This responsibility also includes abiding by the rules and regulations set forth by individual faculty members related to preparation and completion of assignments and examinations.*

I expect that all work submitted for this class will represent your own understanding of the material and must be written in your own words. Cheating, copying, plagiarizing, etc. will not be tolerated. Due to the "online" nature of the class, students must take extra care to abide by the policies and expectations set forth for each assignment. While it is tempting to use the full weight of the internet, some sources may provide misleading or corrupt information. Students should focus on the required reading and recommended resources for the class, and any other sources must be vetted by the instructor. Tutoring resources are allowed for homework assignments; however, using a paid, static resource is forbidden. This can be particularly challenging as some websites that profess to provide tutoring services are actually destructive to the learning process. A good rule-of-thumb is that any tutoring service will help you solve a problem and arise at an answer *on your own*—this means that your brain is making new physical connections between neurons, and you are learning! If an online source professes to offer tutoring, but instead provides you with answers, this is cheating. The websites Chegg, CourseHero,

Reddit, as well as any similar site are explicitly forbidden for all class assignments. Posting class assignments on these websites is considered intent to cheat. I am happy to discuss appropriate resources with you, and I encourage you to *ask for permission.*

You may collaborate with your classmates on lecture homework assignments; however, the final work that you submit must reflect your own understanding of the material. Do not allow any other student to copy your work under any circumstance. If a student asks if they can copy your work or "just see it as an example", ask them to reach out to the instructor for help. If two students turn in the same work, both students will have participated in academic dishonesty.

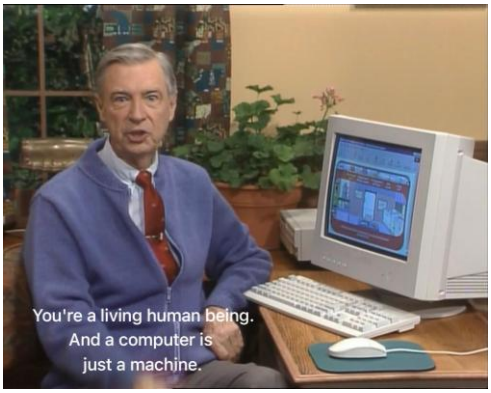
Class assessments are used to measure an individual student's mastery of the material. They are all closed resource, and you will be provided with any physical constants or additional information as necessary. A common mistake that past students have made is to Google a question and copy an answer from the internet—this behavior is forbidden, and the consequences are described below. If I suspect cheating on a quiz, you will be required to meet with me face-to-face.

Any incident of cheating or plagiarism, no matter how minor, will be reported to the Dean of Student Development and the Dean of the Physical Sciences, Mathematics, and Engineering division. Administrative consequences are summarized in the college manual. Additional consequences will be applied to your course grade. Please see the Grading Specifications Table for more information. If academic dishonesty is discovered within two-years of your completion of the course, your official grade will be changed.

I recognize that these consequences may sound scary. Unfortunately, I have had students who did not pass this class as a direct result of academic dishonesty. I *am* committed to supporting you and your learning process, and I expect you to display high ethical standards. I encourage you to bring questions to class and utilize the class discussions for additional feedback. If you are not sure if a resource is allowed, or if something feels "off" to you, alert your instructor right away. *I do reserve the right to make major changes to the class structure—including requiring an oral exam / exit interview—if there are widespread violations of the academic integrity policy*.

AI Use Policy

The use of generative AI platforms (such as but not limited to ChatGPT and OpenAI) for any student-submitted work is strictly forbidden. You may use AI-based algorithms (e.g. GoogleTranslate, Grammerly) for minor edits, formatting suggestions, and clarification.



Grading Policies and Assignment Types

To succeed in this course, you need to exhibit ***consistent and sustained effort*** throughout the quarter. This will be demonstrated through in-class participation, laboratory preparation and data analysis, and examinations. Assignment types are assigned a weight; not all points are created equally!

Weighted Grading Scheme

Lecture	**60% of total grade**
MasteringChemistry Homework and other assignments	5%
Quizzes (top 5 scores)	15%
Exams (top 3 scores)	40%
Lab	**40% of total grade**
Lab tickets	5%
Lab assignments	20%
Lab final	15%

Grade Scale

Final %	Grade[1,2]
>100.00	A+
>90.00	A
88.00 – 89.90	A–
85.00 – 88.90	B+
80.00 – 84.90	B
78.00 – 79.90	B–
75.00 – 77.90	C+
68.00 – 74.90	C
63.00 – 67.90	D+

55.00 – 62.90	D
<55%	F

[1] If your average in either the lab *or* lecture portion of the course is less than 55%, you will receive an F as a final grade.

[2] A+ grades will be given at the instructor's discretion to students who demonstrate excellence in the following three areas: lecture, lab *and* class participation.

Note that grades for individual assignments will be entered in Canvas; however, the gradebook and assignment types may not be finalized until the end of the quarter. I encourage you to make your own spreadsheet to keep track of your letter grade throughout the quarter. The student-facing gradebook in Canvas is limited and may not be an accurate representation of your grade throughout the quarter. Please come talk to Dr. B during office hours if you have questions about your grade.

I do not round grades at the end of the quarter. Because your lowest assignment scores in several categories are dropped from your final grade calculation, your grade at the end of the quarter is your final grade.

Assignment Types (Lecture)

Your attendance and active participation are expected at every lecture period. If you know that you will not be able to attend lecture for any reason, let me know by email right away (even if only 5 minutes before class or 5 minutes after the start of class). You are responsible for communicating with a classmate to get any notes or missed information. Late arrivals and early departures are distracting for the whole class (and me!), so arrive on time and stay for the whole class period. I strongly encourage taking your own notes in lecture. We will sometimes use computers or other electronic devices; however, do not use your computers for non-course related activities during lecture. Put your phone on silent or Do Not Disturb while you are in class. If you must take a phone call in case of emergency, quietly leave the room before answering the phone.

Lecture Assignments

Most lecture assignments will be offered through *MasteringChemistry*, an online homework platform offered through Pearson. The *MasteringChemistry* assignments are designed to help you practice concepts and problem-solving introduced in the lecture and through the assigned reading. In general, there will be one homework assignment for each lecture.

In some cases, homework assignments will be offered through Canvas. Examples include the Megacognition assignment and the Video Survey due during the first week of class.

Your lowest three assignment scores from this category will be dropped from your final grade calculation.

Quizzes and Exams

Quizzes will be administered during lecture. There will be a total of 6 quizzes. Quizzes are *closed note* but you will be provided with a periodic table and list of equations. Your top 5 quiz scores will be used to calculate your final grade. There will be three midterm exams and one comprehensive final offered this quarter; however, only your top 3 scores will be used to calculate your final grade. Please see the Weekly Schedule for specific dates and content information.

Early and late exams and quizzes will not be administered, and missing an exam or quiz will result in a zero. You should arrive to class on time for the exams and quizzes. I do ***not*** guarantee that you will be able to take the exam if you arrive late. I am unable to accommodate make-up exams or quizzes under any circumstances.

If you require any accommodations for exams, you must be approved by DSPS. For extended-time or reduced-distraction exams, please schedule your exam in the DSPS office.

Midterm exams will consist of both multiple-choice questions and short answer questions. **For multiple-choice questions, you must circle your answer to receive credit for correct responses.** You must show your work to receive credit for any calculation. Detailing mathematical steps clearly communicates your understanding of the material. You will be asked to demonstrate your conceptual understanding of the material and apply those concepts in an algebraic context and solve quantitative problems. The quizzes and the final exam will be entirely multiple choice questions.

You should bring a scientific or graphing calculator with you to each exam. ***Phones, smart watches, intelligent eyewear, and other computers are not permitted in any circumstances***. If I see you on your phone or other electronic device (besides a regular calculator), you will receive a zero on the exam, and I will file an academic dishonesty report.

The final exam will be administered during the designated final exam time on the **Monday of finals week from 9:15 am – 11:15 am in Forum 3**. This date and time are determined by De Anza College and cannot be moved under any circumstances. If you cannot take the exam at this time, you will receive a zero. You may verify the designated final exam on the De Anza College website, and please notify me immediately of any errors on this syllabus.

Assignments Types (Lab)

Chemistry is an experimental science, and the laboratory is a major component of the course. De Anza College does not offer make-up labs, and ***you must attend the laboratory section that you are registered fo****r* to complete the required labs. Everyone gets one excused absence with no grade penalty. A second absence, regardless of the circumstances of your first absence, will result in a zero for the lab and all associated assignments. After a third lab absence, you will be required to meet with your instructor to develop a personal improvement plan and you may fail the class. If you are unable to fullfill the lab attendance requirements, you may withdraw from the class prior to the college deadline.

Your timely attendance is expected at every lab. The beginning of each lab period is reserved for lab lecture. The lab lecture is a required component of the laboratory section and will include essential safety information. ***If you miss lab lecture, you will not be permitted to complete that lab and you will receive a zero for all related assignments***.

You must clean up your work area before leaving each lab. Failure to do so will result in a loss of points for that lab. Before you leave lab, ***check-out with me***. You will not receive credit for the lab unless I have (i) reviewed your data and analysis and (ii) confirmed that the lab is in a good state of cleanliness.

Lab assignments may consist of pre-labs, completion of laboratory experiments and mindful data collection, and analysis of data.

Lab Safety Quiz

The lab safety quiz must be completed with 100% accuracy before you can complete any lab experiments. You will receive a zero for any lab experiments that miss for this reason. The quiz will be available on Canvas. If you

do not complete and pass the lab safety quiz by **Friday, September 25th at 4 pm, you will be dropped from the course**.

Lab Tickets

Lab tickets, or pre-lab assignments, will vary by lab; however, they will generally include assigned reading, safety preparation, and an introduction to the lab experiment. **All lab procedures for this quarter are posted on Canvas.** I expect you to come to lab prepared to complete each experiment with minimal delays. Pre-lab assignments should be completed in your lab notebook and will be checked by your instructor at the beginning of your lab.

Pre-labs will generally be graded out of 3 points. As a rough rubric, scoring 3/3 points on a pre-lab means that you have completed the lab to a high standard (e.g. detailed and unambiguous schematic of the procedure, answer all questions in full sentences, reagents/supplies/and amounts are listed); 2/3 indicates the pre-lab is good but there is room for improvement; 1/3 indicates that the pre-lab is incomplete or lacks detail.

Lab Assignments

Lab assignments are graded as a single assignment type, and will generally consist of lab notebook scores (including participation, completion, data recording, and

Lab Participation and Completion

You will receive credit for coming to lab and completing the experiment with your lab group, and Dr. B will verify your data before you leave lab for the day. ***Data collected during the lab period must be recorded directly in your laboratory notebook in pen***. You will not receive credit for any data written on a worksheet or separate piece of paper. Before you leave lab for the day, have me check off on your data in your lab notebook for the available points.

The entire class is responsible for the lab housekeeping. If the lab or balance room are left messy, or the equipment is not correctly stored, the entire class will lose points.

Arrive on time	1 point
Complete the lab safely	3 point
Record data in your lab notebook	4 point
Clean up your station and equipment before the end of class	2 points
total	**10 points**

Analysis Worksheets

Data analysis worksheets will be posted on the course webpage. The precise nature of the assignment and the number of points available will vary. Analysis worksheets should generally be printed or completed on a tablet. The analysis worksheet should be the final version of what you turn in—I recommended doing at least one set of calculations in your lab notebook for later reference.

Lab Assessments

There will be one lab exam in this course. The final will cover safety material, background theory, experimental techniques, calculations, and analysis related to your laboratory experiments. Please see the lab schedule for the scheduled date of your lab final.

The lab assessments are “open lab notebook”– you may use any notes that you have *handwritten* in your lab notebook. Lab manuals, worksheets, and additional printouts are not permitted. I will do a lab notebook check before we begin assessments, and any printed pages will be removed.

Lecture Schedule

Lecture Schedule and Assigned Readings

Chemistry 1C will cover material presented in chapters 6, 12, 15, 16, 17, and 19 in Tro's *Chemistry: A Molecular Approach*. We will also review Chemistry 1A topics throughout the quarter.

I will make every effort to keep to the lecture schedule below; however, quiz and exam dates may change due to unforeseen circumstances. Any changes will be announced in class or through Canvas.

Week	Date	Day	Lecture Topic ***Textbook chapters.*** *Detailed reading will be available on Canvas.*
1	9/21	M	States of Matter Kinetic Molecular Theory Matter Measurables: Pressure, volume, amount, and temperature *Tro Chapter 6, Silberberg Chapter 5, OpenStax Chapter 9*
	9/23	W	Gas Laws and Applications *Tro Chapter 6, Silberberg Chapter 5, OpenStax Chapter 9*
2	9/28	M	**Quiz 1** **9:30 am – 9:45 am** Kinetic Properties of Gases Deviations from Ideal Behavior *Tro Chapters 6 and 12, Silberberg Chapters 5 and 12, OpenStax Chapters 9 and 10*
	9/30	W	Intermolecular Forces Properties of Water Green Chemistry Connections: Structure of greenhouse gases *Tro Chapter 12, Silberberg Chapter 12, OpenStax Chapter 10*
3	10/5	M	**Quiz 2** **9:30 am – 9:45 am** Phase Changes and Review of Enthalpy *Tro Chapter 12, Silberberg Chapter 12, OpenStax Chapter 10*
	10/7	W	Phase Changes and Review of Enthalpy *Tro Chapter 12, Silberberg Chapter 12, OpenStax Chapter 10*
4	10/12	M	**Midterm Exam 1** **9:30 am – 10:45 am**
	10/14	W	Chemical Kinetics Reaction Rates Green Chemistry Connections: Photochemical smog *Tro Chapter 15, Silberberg Chapter 16, OpenStax Chapter 12*
5	10/19	M	The Rate Law *Tro Chapter 15, Silberberg Chapter 16, OpenStax Chapter 12*

	10/21	W	**Quiz 3** **9:30 am – 9:45 am** Integrated Rate Laws *Tro Chapter 15, Silberberg Chapter 16, OpenStax Chapter 12*
6	10/26	M	Energetics of Chemical Reactions Green Chemistry Connections: Catalysis *Tro Chapter 15, Silberberg Chapter 16, OpenStax Chapter 12*
	10/28	W	**Quiz 4** **9:30 am – 9:45 am** Chemical Equilibrium *Tro Chapter 16, Silberberg Chapter 17, OpenStax Chapter 13*
7	11/02	M	Solving Quantitative Equilibrium Problems: RICE Table Method *Tro Chapter 16, Silberberg Chapter 17, OpenStax Chapter 13*
	11/04	W	Equilibrium: Le Chatelier's Principle Green Chemistry Connections: Nitrogen Fixation *Tro Chapter 16, Silberberg Chapter 17, OpenStax Chapter 13*
8	11/09	M	**Midterm Exam 2** **9:30 am – 10:45 am**
	11/11	W	**Veteran's Day Holiday** *No classes and college offices are closed.*
9	11/16	M	Proton Transfer and Polyprotic Acids Weak Acids and Bases *Tro Chapter 17, Silberberg Chapter 18, OpenStax Chapter 14*
	11/18	W	Acid-base Properties of Salts *Tro Chapter 17, Silberberg Chapter 18, OpenStax Chapter 14*
10	11/23	M	**Quiz 5** **9:30 am – 9:45 am** Thermodynamics: Reaction Entropy *Tro Chapter 19, Silberberg Chapter 20, OpenStax Chapter 16, OpenStax Physics 15.7*
	11/25	W	Thermodynamics: Gibbs' Free Energy Thermodynamics: Spontaneous Reactions *Tro Chapter 19, Silberberg Chapter 20, OpenStax Chapter 16*
11	11/30	M	**Quiz 6** **9:30 am – 9:45 am** Quarter Wrap-up
	12/02	W	**Midterm Exam 3** **9:30 am – 10:45 am**

			All MasteringChemistry homework due December 6th at 11:59 pm Pacific Time. This is a hard deadline, and no extensions will be granted.
12	12/07	M	**Final Exam** **9:15 am – 11:15 am** *The final exam will be cumulative and cover all the topics from the course outline. This exam will be about the same length as the previous exams, and it is weighted the same. It will be dropped if it is your lowest score.*

Final grades will be available through MyPortal by the second Sunday after finals week. For more information, please see https://www.deanza.edu/apply-and-register/register/grades.html. If there is a problem with your final grade, please see me at the beginning of the following quarter.

Lab Schedule Combined

Lab Schedule

This is the lab schedule for Chemistry 1B. Labs meet twice weekly on either Mondays and Wednesdays or Tuesdays and Thursdays. You must attend your scheduled lab section. The expected laboratory schedule for Fall 2026 is given below. Pre-lab and post-lab assignments will be available on Canvas and are typically due in class.

Week	Monday	Tuesday	Wednesday	Thursday
1	**Check-In** 🧪 Lab safety 🌿 Introduction to sustainability in chemistry labs **Pre-lab for Molar Volume of a Gas** Pre-lab lecture Lab ticket due at end of class	**Check-In** 🧪 Lab safety 🌿 Introduction to sustainability in chemistry labs **Pre-lab for Molar Volume of a Gas** Pre-lab lecture Lab ticket due at end of class	**Molar Volume of a Gas** Collect data for 3 trials Perform calculations at home *Worksheet due at the beginning of the next lab.*	**Molar Volume of a Gas** Collect data for 3 trials Perform calculations at home *Worksheet due at the beginning of the next lab.*
2	**Molecular Structure Review** *Dry lab worksheet due at the end of class*	**Molecular Structure Review** *Dry lab worksheet due at the end of class*	**Heat of Vaporization Day 1** Collect data for 3 trials	**Heat of Vaporization Day 1** Collect data for 3 trials
3	**Heat of Vaporization Day 2** Excel analysis due at the end of class	**Heat of Vaporization Day 2** Excel analysis due at the end of class	**Green Salt Day 1** Synthesis of iron oxalate Start recrystallization	**Green Salt Day 1** Synthesis of iron oxalate Start recrystallization
4	**Green Salt Day 2** Filter recrystallized product Micropipette practice	**Green Salt Day 2** Filter recrystallized product Micropipette practice	**Green Salt Day 3** Introduction to UV-Vis spectroscopy Oxalate quantification by redox titration *Worksheet due at the beginning of the next lab*	**Green Salt Day 3** Introduction to UV-Vis spectroscopy Oxalate quantification by redox titration *Worksheet due at the beginning of the next lab*
5	**Green Salt Day 4** Iron quantification by UV-Vis *Worksheet to be completed at home*	**Green Salt Day 4** Iron quantification by UV-Vis *Worksheet to be completed at home*	**Green Salt Day 5** Hydrate quantification by gravimetric analysis *Worksheet due at the end of class*	**Green Salt Day 5** Hydrate quantification by gravimetric analysis *Worksheet due at the end of class*

6	**Iodine Clock Reaction Day 1** Experimental design Collect data for parts I and II	**Iodine Clock Reaction Day 1** Experimental design Collect data for parts I and II	**Iodine Clock Reaction Day 2** Finish collecting data for parts I and II	**Iodine Clock Reaction Day 2** Finish collecting data for parts I and II
7	**Iodine Clock Reaction Day 3** Collect data for parts III and IV	**Iodine Clock Reaction Day 3** Collect data for parts III and IV	**Iodine Clock Reaction Day 4** *Analysis worksheet due at the end of class*	**Iodine Clock Reaction Day 4** *Analysis worksheet due at the end of class*
8	**K_c by Spectroscopy Day 1** Collect Part I data and prepare graph	**K_c by Spectroscopy Day 1** Collect Part I data and prepare graph	**Veteran's Day** *No classes and college offices are closed.*	**K_c by Spectroscopy Day 2** Collect Part II data *Worksheet due at the beginning of the next class*
9	**K_c by Spectroscopy Day 2** Collect Part II data *Worksheet due at the beginning of the next class*	**K_A of a Weak Acid** Collect data *Analysis due at the end of class*	**K_A of a Weak Acid** Collect data *Analysis due at the end of class*	**Calcium Hydroxide Day 1** Collect data
10	**Calcium Hydroxide Day 1** Collect data	**Calcium Hydroxide Day 2** *Analysis worksheet due at the end of class*	**Calcium Hydroxide Day 2** *Analysis worksheet due at the end of class*	**Thanksgiving Holiday** *No classes and college offices are closed.*
11	**Lab Final**	**Lab Final**	**Check-Out**	**Check-Out**
12	*Finals Week: No Labs*			

MW (section 11)

Week	Monday		Wednesday	
1	**Check-In** 🧪 Lab safety 🌿 Introduction to sustainability in chemistry labs **Pre-lab for Molar Volume of a Gas** Pre-lab lecture Lab ticket due at end of class		**Molar Volume of a Gas** Collect data for 3 trials Perform calculations at home *Worksheet due at the beginning of the next lab.*	
2	**Molecular Structure Review** *Dry lab worksheet due at the end of class*		**Heat of Vaporization Day 1** Collect data for 3 trials	
3	**Heat of Vaporization Day 2** Excel analysis due at the end of class		**Green Salt Day 1** Synthesis of iron oxalate Start recrystallization	
4	**Green Salt Day 2** Filter recrystallized product Micropipette practice		**Green Salt Day 3** Introduction to UV-Vis spectroscopy Oxalate quantification by redox titration *Worksheet due at the beginning of the next lab*	
5	**Green Salt Day 4** Iron quantification by UV-Vis *Worksheet to be completed at home*		**Green Salt Day 5** Hydrate quantification by gravimetric analysis *Worksheet due at the end of class*	
6	**Iodine Clock Reaction Day 1** Experimental design Collect data for parts I and II		**Iodine Clock Reaction Day 2** Finish collecting data for parts I and II	

7	**Iodine Clock Reaction Day 3** Collect data for parts III and IV		**Iodine Clock Reaction Day 4** *Analysis worksheet due at the end of class*	
8	**K_c by Spectroscopy Day 1** Collect Part I data and prepare graph		**Veteran's Day** *No classes and college offices are closed.*	
9	**K_c by Spectroscopy Day 2** Collect Part II data *Worksheet due at the beginning of the next class*		**K_A of a Weak Acid** Collect data *Analysis due at the end of class*	
10	**Calcium Hydroxide Day 1** Collect data		**Calcium Hydroxide Day 2** *Analysis worksheet due at the end of class*	
11	**Lab Final**		**Check-Out**	
12	*Finals Week: No Labs*			

TuTh (section 12)

Week	Monday	Tuesday	Wednesday	Thursday
1		**Check-In** 🧪 Lab safety 🌿 Introduction to sustainability in chemistry labs **Pre-lab for Molar Volume of a Gas** Pre-lab lecture Lab ticket due at end of class		**Molar Volume of a Gas** Collect data for 3 trials Perform calculations at home *Worksheet due at the beginning of the next lab.*
2		**Molecular Structure Review** *Dry lab worksheet due at the end of class*		**Heat of Vaporization Day 1** Collect data for 3 trials
3		**Heat of Vaporization Day 2** Excel analysis due at the end of class		**Green Salt Day 1** Synthesis of iron oxalate Start recrystallization
4		**Green Salt Day 2** Filter recrystallized product Micropipette practice		**Green Salt Day 3** Introduction to UV-Vis spectroscopy Oxalate quantification by redox titration *Worksheet due at the beginning of the next lab*
5		**Green Salt Day 4** Iron quantification by UV-Vis *Worksheet to be completed at home*		**Green Salt Day 5** Hydrate quantification by gravimetric analysis *Worksheet due at the end of class*
6		**Iodine Clock Reaction Day 1** Experimental design Collect data for parts I and II		**Iodine Clock Reaction Day 2** Finish collecting data for parts I and II

7		**Iodine Clock Reaction Day 3** Collect data for parts III and IV		**Iodine Clock Reaction Day 4** *Analysis worksheet due at the end of class*
8		**K_c by Spectroscopy Day 1** Collect Part I data and prepare graph		**K_c by Spectroscopy Day 2** Collect Part II data *Worksheet due at the beginning of the next class*
9		**K_A of a Weak Acid** Collect data *Analysis due at the end of class*		**Calcium Hydroxide Day 1** Collect data
10		**Calcium Hydroxide Day 2** *Analysis worksheet due at the end of class*		**Thanksgiving Holiday** *No classes and college offices are closed.*
11		**Lab Final**		**Check-Out**
12	*Finals Week: No Labs*			

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:

10:50 AM - 11:15 AM	SC1120,Zoom	M,W
10:00 AM - 11:15 AM	SC1220,Zoom	T,TH