Chemistry 1A: General Chemistry Spring 2022

Dr. Brophy

CHEM 1A Section 50Z
CHEM 1A Section 51Z

Synchronous Class Meetings
Lecture Tuesday/Thursday 2:30 pm – 3:45 pm on Zoom
Lab Tuesday 4:00 pm – 4:50 pm on Zoom (section 50Z) *or* Thursday 4:00 pm – 4:50 pm (section 51Z)
*Class meetings will **not** be recorded. It is the student's responsibility to attend scheduled class meetings and take notes.*

The first class meeting is on Thursday, April 7th at 2:30 pm. This class meeting is strictly mandatory, and I will drop any no-shows. You must arrive during the first 20 minutes of class to be counted as present.

Instructor: Dr. Megan Brunjes Brophy
*Please contact me through the **Canvas Inbox** for all course-related communications.*

Course Webpage: Canvas.
Turn on Canvas notifications to receive class announcements.

Office Hours: Tuesday and Thursday 9:30 am – 11:10 am through Canvas

Final Exam (Lecture): Thursday 1:45 pm – 3:45 pm online
Please verify the final exam time at https://www.deanza.edu/calendar/final-exams.html. Students are responsible for taking the final exam at the scheduled time. Make-up finals will not be offered under any circumstances.

Important Dates
Please refer to the De Anza College academic calendar for important dates: https://www.deanza.edu/calendar/

Add / Drop Policy
The Chemistry 1A program at De Anza College is heavily impacted. The official waitlists are typically full, and additional students are on unofficial waitlists. To keep your spot in the class, you must submit the **Unit 0 Module** assignments through Canvas in a timely manner. If *any* of these assignments have not been submitted by ***11:59 pm on April 11th,*** I will drop you from the course. Furthermore**, if you miss the first class meetings (lecture *and* lab) through Zoom, you will be dropped from the course**. For spring 2022, you must attend any scheduled class meetings on April 7th and April 12th.

In order to be added to the class from the waitlist, you must attend the first class meetings for the section that you are interested in joining. You may only be on the waitlist for one section. Each section has a strict size limit of 30 students, and additional students will not be added beyond this number. If any spots open up, students will generally be added in the order of the official waitlist on ActiveRoster. I will notify waitlisted students of any openings in the class by 5:30 pm on April 12th. Students will not be permitted to add the class after the second lecture meeting under any circumstances.

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 try to enter the zoom class later, I cannot guarantee that I will see you in the waiting room, and 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. **There are no make-up assignments for missed class meetings.** 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 excused absence. Plan ahead and submit assignments in advance. It is the student's responsibility to notes from a classmate for missed information.

Academic Integrity

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. **The first incident of academic dishonesty will result in zero points on the assignment, a grade penalty of up to 10% to be deducted from your final grade, and loss of any extra credit points for the quarter *no matter how minor the incident*.** Any subsequent instances of academic dishonesty *no matter how minor* will result in failing the class. In short, academic dishonesty will have a negative impact on your grade and may result in disciplinary probation or expulsion. 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. If you require an extension on any assignment, please reach out to me to arrange appropriate accommodations. Our class meetings are dedicated to working through practice problems, and I encourage you to bring questions and utilize the discussion boards 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*.

Required Materials: Lecture

- **Chem101** We will use Chem101 as our online homework and in-class practice problem platform this quarter. *You must sign up for a Chem101 account before the second class meeting—you will lose points if you don't have*

Chem101 during the second lecture! You will have complimentary access to Chem101 for the first two weeks of the quarter.

- **Textbook** *Chemistry: The Molecular Nature of Matter and Change, 9th edition by Silberberg and Amateis. There are multiple purchasing options available to you, and you should consider your future chemistry plans at De Anza College when making a decision. Please note that we will not use McGraw-Hill Connect or ALEKS this quarter, so you do not need to purchase access to these platforms for this quarter. Some faculty in the department use these platforms, and you may require access for Chemistry 1B or Chemistry 1C.*
  - *Purchase a used, old copy (any edition) from Amazon, eBay, or a former student (cost will vary). Each edition of Silberberg is more-or-less the same, although some practice problems may vary in numbering or content. This is likely your least expensive option for this quarter; however, you will not have future access to Connect or ALEKS.*
  - *eBook Access for Chemistry 1A chapters ($30). This option may be purchased using the ISBN* ***9781307600940*** *at http://create.mheducation.com/shop. This ISBN only includes the chapters that we are using for Chemistry 1A (1–4, 6–11). I encourage you to consider this option if Chemistry 1A is the only chemistry course you plan to take at De Anza College. Here are additional instructions to purchase this option: eBook_CreditCard_2015.pdf*
  - *eBook access + Connect + ALEKS for 365 days ($90). This is a good option if you plan to take Chemistry 1B and Chemistry 1C during the 2020–2021 academic year. You should find this purchase option at* https://connect.mheducation.com/class/m-brophy-50z-and-51z
  - *eBook access + Connect for 90 days ($45). This probably isn't the most useful option for this quarter as we will not have any Connect homework.*
  - *Temporary 14-day access to Connect and eBook. No matter what option you are leaning towards, you can sign-up for temporary 14-day access at* https://connect.mheducation.com/class/m-brophy-50z-and-51z

- **Hands-On-Labs Kit** You will be expected to order a lab kit from Hands-on-Labs from the bookstore in a timely manner during the third week of class. *The kit will be provided to you by De Anza College at no additional cost*. You will need to provide your mailing address to the bookstore to receive the kit. If you currently reside outside of California, you may need to arrange expedited shipping through the bookstore. If you currently reside outside of the US, you may also be responsible for any necessary customs forms.

  When your kit arrives, you are responsible for taking a complete inventory of the kit *immediately* and notifying HOL of any missing and broken components so that you can receive a replacement in a timely. You are responsible for the contents of your kit for the duration of the class.

- **Lab Goggles** Eye protection is a essential PPE. If you plan to take more chemistry classes, I encourage you to invest in a pair of department-approved eyewear such as
  https://www.amazon.com/Uvex-Stealth-Uvextreme-Anti-Fog-S3960C/dp/B0001YXFFM/ref=sr_1_2?keywords=uvex+lab+safety+goggles&qid=1649289791&sprefix=uvex+lab+%2Caps%2C171&sr=8-2
  https://www.amazon.com/Uvex-HydroShield-Anti-Fog-Headband-S3970HSF/dp/B085SRNKMQ/ref=sr_1_5?keywords=uvex+lab+safety+goggles&qid=1649289791&sprefix=uvex+lab+%2Caps%2C171&sr=8-5

- **Calculator** 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 model:
  https://www.amazon.com/Texas-Instruments-MultiView-Scientific-Calculator/dp/B000PDFQ6K
  I do not recommend using Google as a calculator. There have been recent reports of the unit conversion function "breaking", and performing the order of operations correctly is non-trivial. Similarly, calculator apps on your phone can be cumbersome to use quickly.

- **Computer and printer access.** This is an online course with extensive technological requirements. Is it strongly recommended that you have regular and consistent access to a computer with a camera and microphone. You will often need to have multiple pages open during the synchronous Zoom sessions. You will also need to be proactive in reaching out to technical and support services for the many platforms that we use. *Start your work early so that you do not fall behind or lose points.*

- **Genius Scan** Throughout the quarter, you will turn in handwritten assignments by creating a PDF filed 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 for me to read! If I can't open the file you send me, you will receive a zero on the assignment.

Campus Resources

- **De Anza College Library** https://www.deanza.edu/library/
- **Online Tutoring** Please visit https://www.deanza.edu/studentsuccess/onlinetutoring/ for more information.
- **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. https://www.deanza.edu/dsps/
- **Resources for Students** Additional resources may be found at https://www.deanza.edu/services/

I expect you to use the resources available to you, share reputable resources with your classmates, and ask for help when needed. Please reach out to your instructor if you are unable to vet a resource you are using for the class.

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 a living document, and ***all corrections and changes to this syllabus will be announced through Canvas.***

This class is divided into two separate instructional periods: a lecture period devoted to the primary course material and a lab period for conducting lab experiments. Everyone will have the same lecture period, but a different lab period depending on which section you are enrolled in. At De Anza College, the lab and lecture may not be taken as separate courses under any circumstances.

Official Course Description

An introduction to the structure and reactivity of matter at the molecular level. Application of critical reasoning to modern chemical theory and structured numerical problem solving. Development of molecular structure from rudimentary quantum mechanics, including an introduction to ionic and covalent bonding. Chemical problem solving involving both formula and reaction stoichiometry employing the unit analysis method. An introduction to thermochemistry and a discussion of the first law of thermodynamics.

Prerequisites

CHEM 25 or CHEM 30A or satisfactory score on Chemistry Placement Test; MATH 114 or equivalent.

Hours

This class will meet synchronously for ~ 4 hours per week. In addition to these synchronous hours, you should ***expect to spend an additional 30–40 hours a week studying and working on class assignments in order to master the material***.

Course Objectives

A. Examine contributions by investigators of diverse cultures and time to the body of chemical knowledge, with an emphasis on physical and chemical conceptual frameworks.
B. Investigate critical aspects of measurement.
C. Explore the historical development of understanding the structure of the atom.
D. Assess the development of the periodic table of elements in light of modern atomic theory.
E. Differentiate the causes and types of chemical bonding.
F. Appraise the effect of quantum mechanics on formulation of molecular structure.
G. Employ systematic nomenclature to the identification of molecules.
H. Utilize the principles of stoichiometry to analyze compounds, chemical mixtures, and reactions.
I. Examine the prominent characteristics of solutions.
J. Classify the major types of chemical reactions.
K. Apply the essential principles of thermodynamics to chemical systems.

Active Course Outline

The active course outline for this class may be found online at https://www.deanza.edu/catalog/courses/outline.html?cid=CHEM1A . Please save a copy of the active course outline for your records.

Grading Breakdown and Expected Grade Scale

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

Assignment Category	Percentage of Final Grade[1,2,3]
CHEM101 Homework and Questions	5%
Canvas Assignments	15%
Science Interactive Lab Assignments	25%
Unit Exams (5 total)	25%
Lab Final	15%
Lecture Final	15%

[1] If you end the quarter with less than 50% in any assignment category, including the lab or lecture, you may receive a D or F in the class.
[2] You must complete *all* of the science interactive lab assignments in order to pass the class.
[3] The weights of these assignment categories may change. For example, if there are repeat violations of the academic integrity policy, this scale will be adjusted such that the final will be worth a larger portion of your grade or you may be required to complete an oral examination over Zoom.

The grade scale is as follows. A minimum grade of 70% is required to pass the class, and your final grade must be at least 93% in order to receive an A. A grade of C indicates that you have sufficiently mastered the skills and material necessary to take Chemistry 1B. *My goal is for everyone who takes and completes Chemistry 1A to pass the class with a C or higher*.

Percentage in Class	Grade[1]
≥ 93%	A
90 – 92.9%	A–
87 – 89.9 %	B+
83 – 86.9%	B
80 – 82.9%	B–
77 – 79.9%	C+
70 – 76.9%	C
65 – 69.9%	D+
60 – 64.9%	D
<60%	F

NOTE: Dr. Brophy reserves the right to alter the grade scale at any point in the quarter. Any changes will be announced through Canvas.

Late Work / Extension Policy

Late submissions on assignment will be accepted for partial credit up to 1 week after the initial due date. There will be an automatic 5% deduction from the score for each day (or fraction thereof). No late work will be accepted under any circumstances after June 9th. While I will make every effort to grade your work in a timely manner, late work may not be graded until the end of the quarter. If you believe you have compelling reason to reduce the late penalty for a given assignment, please add a **submission comment**. I will consider your request when I grade your assignment. Please do not message or email requests for extensions.

Regrade Policy
Grades for all assignments, including exams, are ***final*** once they have been posted to the class gradebook. If you believe I made a clear and obvious error in grading your assignment, please notify me through the Canvas Submission Comments. I will review these submission comments through the quarter and prior to submitting final grades for the class.

Study Tips
1. Complete the assigned reading before coming to class. Write down any vocabulary words that you do not understand as well as their definitions.
2. Take *handwritten* notes during class and review your notes regularly. Write down any questions you have and bring them to office hours or e-mail your instructor.
3. *Do a little bit every day*. After every lecture, review the reading assignment and complete in-chapter and end-of-chapter exercises.
4. Join a study group. Work on problem sets together. The best way to learn the material is to teach it to somebody else.
5. If you feel that you are a poor test-taken, *complete and turn in all assignments on time* in order to pass the class.
6. Take care of yourself! Stay well-rested and drink water.

Assignment Descriptions
Your attendance and active participation is expected at every lecture period. ***Due to the high number of students wishing to enroll in the course, any unjustified absences during the first two weeks of class will result in you being dropped from the course.*** Absences may be excused in case of a verified emergency (e.g. doctor's note or police report). 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). 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. Put your phone on silent or Do Not Disturb while you are in class.

CHEM101 Homework and In-Class Activities
We will use Chem101 as our online homework and "clicker" system during the summer quarter. You must sign up for a Chem101 account on the first day of class. Once you sign up for an account, there is a two-week grace period before you must purchase access for the remainder of the quarter.

Each in-class questions will be worth a total of 50 points for the quarter, and the number of questions will vary each day. ***Make sure you attend every class session to receive credit***. If at any point during the Zoom sessions, you leave or do not participate, I reserve the right to eject you from class for the day and you will receive zero points for all of the day's activities. If you need to leave or step away for any reason, send me a message in the Zoom chat with your expected return time.

Science Interactive Lab Assignments
Labs must be completed in order through the HOL platform. Lab kits are provided to you by De Anza College *at no additional cost*. You must order your kit through bookstore during week 3 of the class. If you don't order your kit in time, you won't be able to complete the lab curriculum, and you won't pass the class. If you order your kit late, you will not be able to access the assignments in time and it will affect your grade in the course. You must demonstrate consistent, sustained effort and complete all of the lab assignments in a timely manner in order to pass the class.

Unit Exams
Unit exams will be offered on Chem101 during our synchronous lecture time. Each assessment will be worth a total of 100 points. ***You must start each exam between 2:30 pm and 2:40 pm***, and you will have a total of 50 minutes to work on the exam. "Late starts" to the exam will not be permitted after 2:40 pm. *Plan ahead and make sure you in a place where you can focus with stable internet for the exam.* Additional time (approved through the De Anza DSPS office) will be added on to the end of the exam time.

You must write all of your work for any calculations down on a piece of scratch. You must upload this scratch paper by 3:45 pm (extensions will be permitted for students with extra time to receive credit for the exam. ***If you do not upload your scratch paper, you will receive a zero for the exam***. I will spot-check your scratch paper. Note that access to homework and other Chem101 assignments is disabled during the duration of the exam. You may only use resources that are explicitly

allowed for each exam. If you use any other resources, you will receive a zero on the exam and an additional grade penalty may apply.

Lab Final

The lab portion of the class will evaluate experimental design, critical thinking, and data analysis. The lab final will take place during your class session in Week 11.

Lecture Final

A final exam covering the lecture material presented during the entire course will take place at our designated final exam time as determined by the college. Please see https://www.deanza.edu/calendar/final-exams.html for the final exam calendar. The final exam will be timed, and you should not take the class if you cannot take the final exam at the determined time.

Student Learning Outcome(s):

*Identify and explain trends in the periodic table.
*Construct balanced reaction equations and illustrate principles of stoichiometry.
*Apply the first law of thermodynamics to chemical reactions.