

## Chemistry 30A Dr. Brophy

Winter 2022



**Instructor:** Dr. Megan Brunjes Brophy (she/her or they/them)

**E-mail:** [brophymegan@fhda.edu](mailto:brophymegan@fhda.edu)

Please note that **Canvas Messages** are the most reliable way to get in touch with me.

**Course Webpage:** Canvas. *Turn on Canvas notifications to receive class announcements. Following the welcome e-mail, all class information will be communicated through Canvas.*

### Class Meeting Times

30A.30Z (CRN 32213) Tu 11:30 am – 2:20 pm

30A.32Z (CRN 32214) Th 11:30 am – 2:20 pm

*Class meetings are mandatory, and you should not enroll in the course if you cannot attend the scheduled class meetings.*

**Virtual Office Hours:** MTuWTh 2:30 pm – 3:20 pm.

**Zoom Meeting Room:** Please see Canvas for the link to the Zoom meeting room

### Important Dates

<b>Add Day</b>	January 15, 2022	Last day to <i>add</i> .
<b>Refund Day</b>	January 16, 2022	Last day to <i>drop</i> the course and receive a refund.
<b>Drop Day</b>	January 17, 2022	Last day to <i>drop</i> the course without receiving a "W"
<b>Census Day</b>	January 18, 2022	First day to order lab kits
<b>Withdraw Day</b>	February 25, 2022	Last day to withdraw from the course.
<b>End of Term</b>	March 17, 2022	This is the last day of class. <i>No late work will be accepted after this day.</i>
<b>Final Exam</b>	March 22, 2022	Section 30Z
	March 24, 2022	Section 32Z

### Week 1 Drop Days

The Chemistry 30A program at De Anza College is heavily impacted. The official waitlists are typically full, and additional students are on unofficial waitlists. In order 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 has not been submitted by **9:45 pm January 10<sup>th</sup>**, I will drop you from the course. Furthermore, **if you miss the first class meeting through Zoom, you will be dropped from the course.**

### 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. 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 excused absence. Plan ahead and submit assignments in advance.

### 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](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 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 and a violation of the academic integrity policy. I am happy to discuss appropriate resources with you, and I encourage you to ask for permission rather than forgiveness.

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 8% to be deducted from your final grade, and loss of any extra credit points for the quarter.** 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 class-wide violations of the academic integrity policy.

## Required Materials

- **Textbook** The textbook for this class is *General, Organic, & Biological Chemistry* (any edition). You may purchase or rent the most recent version of the textbook through the De Anza College bookstore or any other online vendor. You may also use an older version of the textbook, which is likely to be the less expensive option.

McGraw-Hill provides complimentary access to the eBook for the first two weeks of the quarter. I encourage you to register for free while you investigate your purchasing options. <https://connect.mheducation.com/class/m-brophy-winter-2022-sections-30-and-32>

- **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
- **Hands-On-Labs Kit** You will be expected to order a lab kit from Hands-on-Labs from the bookstore. *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 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.

- **Calculator** A scientific calculator with 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](https://www.amazon.com/dp/B005QXO8J0/ref=dp_cerb_3)

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.

- **Computer and internet access.** This class is being conducted online, and you will require regular and reliable access to a computer and the internet.
- **Genius Scan** 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 for me to read!*

## Campus Resources

- **De Anza College Library** The library remains closed as of this writing; however, online resources can be found at <https://www.deanza.edu/library/>
- **Math, Sciences, and Technology Resource Center (MSTRC) Tutoring.** The MSTRC offers online tutoring over Zoom for the Chemistry 1 sequence.  
<https://www.deanza.edu/studentuccess/mstrc/>
- **Online Tutoring** Please visit <https://www.deanza.edu/studentuccess/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 and ask for help when needed.***

## 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.

### Course Description

This is a two-part course to be taken in sequence by students entering the allied health fields. The focus of the first part of this course is an introduction to general chemistry with a discussion of various measurement tools, followed by a discussion of energy and matter, and the discovery of an atom. The next set of topics will cover an introduction to elements, compounds, and types of bonding in compounds, followed by various types of chemical reactions and stoichiometric calculations based on chemical equations. The course will discuss the properties of gases and solutions and concludes with a discussion of acid-base chemistry and nuclear chemistry.

### Prerequisites

MATH 114 or MATH 130 or equivalent

Advisory: EWRT 211 and READ 211, or ESL 272 and 273

### Hours

The study of chemistry combines both macroscopic and microscopic views of the natural world with mathematical models to explain and predict phenomena. This is a 5-unit class, and **I expect you to spend 2–3 hours a day on reading, lecture videos, and class assignments.** Set aside a time and place that you can work on class materials every day! Cognitive and neuroscience research tells us that our brains learn better when we practice a little bit everyday rather than attempting to cram information.

### Course Objectives

- Solve chemistry problems using significant figures, dimensional analysis, and scientific notation.
- Examine the relationships between energy and matter.
- Compare atoms and elements and summarize major properties of elements based on a discussion of the periodic table of elements.
- Categorize compounds based on their chemical bonding and identify the names of chemical compounds from their formulas and vice versa.
- Calculate the amounts of products and reactants based on stoichiometric relationships in chemical equations.
- Examine the properties of gases and laws pertaining to gases.
- Examine the properties of solutions.
- Compare the properties of acids and bases.
- Inspect the concepts of nuclear radiation.

### Attendance Policy

Your *punctual* attendance is expected at all class meetings of the course. In order 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 after that 5-minute window, I cannot guarantee that I will see you in the waiting room. If you will have to miss a meeting for any reason, let me know by e-mail or phone as soon as possible. Notifying your instructor of absences or tardiness shows that you take your responsibility towards yourself and your fellow students seriously. Class meetings will **not** be recorded—if you miss a class it is your responsibility to check-in with the instructor to find out what you missed.

Late work will not be accepted under any circumstances. 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.

### Grading Essentials

To succeed in this course, you will need to exhibit consistent and sustained effort throughout the quarter. Your final grade will be based on your final percentage out of the total points available.

Percentage in Class	Grade <sup>1</sup>
---------------------	--------------------

> 93%	A
90 – 92.9%	A–
87 – 89.9 %	B+
83 – 86.7%	B
80 – 82.9%	B–
77 – 79.8%	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.

The points are broken down into weighted categories—note that not all points are equal weight! Each category is described below.

Assignment Category	Percentage of Final Grade <sup>1,2</sup>
Homework (points will vary)	25%
Science Interactive Labs and other Lab Activities	25%
Weekly Quizzes	30%
Final Exam (100 points)	20%

### Late Work Policy

Late submissions on assignment will be accepted through Canvas with an automatic deduction of 10% per day. No late work will be accepted after **March 17<sup>th</sup>**. 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 include a **submission comment**. I will consider your request with grading.

### Regrade Policy

Grades for all assignments 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.

### Problem Sets

In general, homework assignments will be posted by in Chem101 on Tuesday and due the following Monday.

### MUD Cards

Mud cards are due every Friday and should be completed after you have completed the assigned reading and watched any assigned videos for the week. MUD cards are opportunity for you to tell what the *muddiest* or most confusing topic of the week was for you. I will review the MUD cards and address any common misconceptions. Each MUD card is worth 1 point.

### Lab Activities and Discussions

The chemistry department has adopted Hands-On Labs (Science Interactive) lab kits as our lab program for the Winter 2022 quarter. Hands-on Labs provides small-scale laboratory experiments that students will be able to perform at home, and we have selected labs to supplement the on-campus laboratory experience. As with an in-person class, the Hands-on Labs assignments are mandatory, and you must complete each experiment to pass the class. If you feel you will be unable to complete the labs for any reason, you should consider if this is the best time for you to take Chemistry 30A. Please reach out to your instructor via the Canvas inbox with any concerns that you may have regarding the lab program.

You will be able to order kits from the De Anza College bookstore in the third week of class, and more information about ordering will be provided to you at that time. We have developed custom laboratory kits, and you cannot order kits directly from HOL. Kits will ship after the census date. The bookstore has committed to shipping packages internationally regardless of your country of residence. Students who are local to the San Jose area should expect to receive their kits within a week; whereas, it may take 2–3 weeks for international kits to arrive. ***If you are experiencing any delays in shipping that will***

***affect your ability to complete the labs in a timely manner, you should reach out to your instructor with any tracking information that you have. Do not delay!***

While all chemicals and glassware are provided by Hands-on Labs, there are some supplies that you will need to provide in order to complete the labs. The lab assignments are listed below.

	Title
Week 1	Introduction to Science Interactive
Week 2	The Poison Squad
Week 3	Order lab kits
Week 4	SI: Getting Started SI: Laboratory Safety
Week 5	SI: Laboratory Techniques and Measurements
Week 6	SI: Observations of Chemical Changes
Week 7	SI: Limiting Reactants
Week 8	SI: Introduction to Chemical Compounds
Week 9	SI: Solutions and Dilutions
Week 10	<i>No lab assignment</i>
Week 11	Asynchronous lab exam

### Quizzes and Final Exam

This quarter we will have weekly quizzes. The quizzes will review the previous week's reading and homework and will be available on Chem101 from Tuesday at 3 pm until Thursday at 11 am. You may take the quiz at any point during this time period. A comprehensive final exam (2 hours) will be administered on Chem101 during final week.

Week	Lecture Content
1	Welcome and Introduction Chapter 1
2	<i>Chapter 1 quiz asynchronous</i> Chapter 2
3	<i>Chapter 2 quiz asynchronous</i> Chapter 3
4	<i>Chapter 3 quiz asynchronous</i> Chapter 4
5	<i>Chapter 4 quiz asynchronous</i> Chapter 5
6	<i>Chapter 5 quiz asynchronous</i> Chapter 6
7	<i>Chapter 6 quiz asynchronous</i> Chapter 7
8	<i>Chapter 7 quiz asynchronous</i> Chapter 8
9	<i>Chapter 8 quiz asynchronous</i> Chapter 9
10	<i>Chapter 9 quiz asynchronous</i> Chapter 10
11	<i>Review</i>
<i>Finals</i>	<i>Comprehensive Final Exam</i> <i>11:30 am – 1:30 pm</i>

**Student Learning Outcome(s):**

\*Solve stoichiometric problems by applying appropriate molar relationships.

\*Identify the differences between elements and compounds and describe the chemical bonding in compounds- ionics vs. covalent.