

Chemistry 1A: General Chemistry

Dr. Brophy

Winter 2021

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

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Please note that **Canvas Messages** are the most reliable way to get in touch with me. If you contact me through e-mail once the quarter starts, I may miss your message.

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

1A.03Z (CRN 32191) TuTh 08:30 am – 10:20 am
TuThF 10:30 am – 11:20 am *Meets concurrently with section 04Z.*

1A.04Z (CRN 32192) TuTh 12:30 pm – 2:20 pm
TuThF 10:30 am – 11:20 am *Meets concurrently with section 03Z.*

Virtual Office Hours: TuTh 4:00 pm – 5:40 pm
For the winter 2021 quarter, virtual office hours will be conducted over Canvas inbox. If you would like to meet with me over Zoom during this time, please set up an appointment through the Canvas inbox.

Zoom Meeting Room: *The link to the Zoom Meeting Room will be posted on Canvas. I do utilize a waiting room, and you will only be admitted if your display name matches the class roster. Make sure that your display name matches your registration name for the first day of class. You may use your preferred name after the first day.*

Important Dates

Add Day	January 16, 2021	Last day to <i>add</i> .
Drop Day	January 17, 2021	Last day to <i>drop</i> the course with a refund <i>and</i> without a withdraw being recorded.
Withdraw	February 26, 2021	Last day to <i>withdraw</i> from the course. A “W” will be recorded on your transcript.

Attendance Requirements

Your punctual and attendance during all synchronous class sessions is strictly required during the first two weeks of the class. You must arrive on time (within the **first 5 minutes** of class) and participate during class sessions for your attendance to be recorded. Additionally, the following assignments must be submitted by 12 pm on January 15th. *If you do not meet the attendance requirements during the first two weeks of class, you will be dropped from the course.*

Academic Integrity

Students are expected to adhere to the policy on academic integrity that is outlined in the De Anza College manual (<https://www.deanza.edu/studenthandbook/academic-integrity.html>). **I expect all submitted work to represent your own understanding of the material and to be written in your own words.** Cheating, copying, plagiarizing, etc. will not be tolerated, and the minimum consequence will be receiving a zero on that assignment and the incident will be reported to the Dean of Student Services. Cheating on a Quiz or other assessment will result in automatically failing the course. Examples of cheating include, but are not limited to:

- Looking up answers for any assignment in Chegg, Course Hero, or any similar website.
- Asking another person to take a quiz or exam for you, or taking a quiz or exam for another student.
- Using unauthorized notes during an exam or quiz.
- Copying another person’s words without quotations or footnotes.
- Using information that is not considered common knowledge without acknowledging the source.

Required Materials

- **Chem101 (\$19.95)** 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. After this period, Chem101 costs \$19.95 for the first quarter you use it, and \$15.95 for subsequent quarters.
- **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 the Winter 2021 quarter**. Some faculty in the department do 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 in numbering or content. This is likely your least expensive option for the fall 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 9781307600971 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.
 - eBook access + Connect + ALEKS for 365 days (\$90). This is a good option if you plan to take Chemistry 1C and Chemistry 1C during the 2020–2021 academic year. You should find this purchase option at <https://connect.mheducation.com/class/m-brophy-fall-2020>
 - 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-fall-2020>. ☺
- **Hands-On-Labs Kit** You will be expected to order a lab kit from Hands-on-Labs from the bookstore after the census date (January 19th) and no later than January 21st. *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 will 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 and bookstore 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
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 printer access.** All Winter 2021 classes at De Anza College are being conducted online due to the COVID-19 crisis. You will require a computer with reliable internet access and a printer throughout this course.
- **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!*

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. **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.

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

Chemistry 25 or 30A or satisfactory score on the Chemistry Placement Test; MATH 114 or equivalent. EWRT 211 and READ 211 (or LART 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.** You should expect the at-home labs (weeks 6–11) to take ~4 hours at a time. Set aside a time and place that you can work on class materials every day.

Attendance Policy

Your *punctual* attendance is expected at all lecture and laboratory sections 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, you will need to wait to be admitted until there is a natural break in the class. 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. Dr. Brophy’s 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. Note that travel is not an acceptable reason to be excused from any assignment. By signing up for a class, you are making a commitment to be present during the scheduled times.

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 ¹
> 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 ^{1,2}
CHEM101 Assignments and In-Class Activities	15%
Quizzes **Lowest 2 scores will be dropped**	25%
Lab Activities (including HOL)	25%
Lab Exam	15%
Final Exam	20%

¹ If you end the quarter with less than 60% in any assignment category, you will receive an F in the class.

² 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 oral exam will be worth a larger portion of your grade.

CHEM101 Assignments 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. The cost of Chem101 is ~\$20. 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.

In general, homework assignments will be posted on Fridays and due the following Friday morning at 10:00 am. Each homework question is worth 1 point.

Each in-class question will be worth 1 point, 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 and assignments.** If you need to leave the session or step away for any reason, send me a message in the Zoom chat with your expected return time. If you leave without contacting me or informing me *at that time*, you will receive a zero for that day's practice problems.

HOL Assignments

This quarter we will distribute kits from Hands-On-Labs for students to perform select laboratory experiments at home. You must order your kit on the census day (January 19th) from the De Anza College Bookstore. Students who are not registered for the class (i.e. waitlisted students or instructor drops) will not be permitted to receive kits. The bookstore is able to ship internationally, and there will not be local pick-up available. We plan to start HOL experiments in week 4 or 5 of the quarter. **You must complete all HOL labs to pass the class.**

For HOL assignment submissions, you must submit (1) the PDF of the report generated by HOL once you have finished the lab and (2) a selfie including a portion of your lab set-up. The precise picture required will be indicated for each assignment.

HOL 1: Getting Started

HOL 2: Laboratory Safety

HOL 3: Laboratory Techniques and Measurements

HOL 4: The Mole Conversions, Mass Determination, and Hydrates

HOL 5: Stoichiometry of a Precipitation Reaction

HOL 6: Hess's Law

HOL 7: Titration for Acetic Acid in Vinegar

Lab Exam

The lab exam will take place during the final class meeting on **March 19th from 10:30 am – 11:20 am**. Additional details will be announced through Canvas at a later date.

Quizzes

There will be six Canvas quizzes this quarter on the following dates.

- January 15
- January 22
- February 5
- February 19
- February 26
- March 5
- March 12

Your two lowest scores will be dropped from your final grade. Make-up quizzes will not be permitted under any circumstances. Quizzes will open at 10:30 am and close at 10:55 am. *Incomplete quizzes will be manually submitted by your instructor at 10:55 am.* You must have verified DSPS accommodations to receive extra time. Your extra time will be added on to the class start time (e.g. if you have 1.5x time, your quiz will be open from 11:30 am – 12:03 pm; 2x time quizzes will be available from 10:30 am – 11:20 am).

Your personal notes and the assigned textbook are the only resources you may use during quizzes. Write all of your work for calculations on a piece of paper and upload your work to Canvas. **You must submit your work in order to receive credit for the quiz.** If you do not upload your work, your quiz score will be set to zero.

Final Exam

This class will include a final exam on **Thursday March 25th from 9:15 am to 11:15 am**. Additional details will be announced through Canvas at a later date. The date and time of the final exam are set by the college and cannot be moved under any circumstances. If you cannot take the final exam, you should not sign up for the class.

Study Tips

1. Complete the assigned reading before coming to class. Review topics from Chemistry 25 and Chemistry 30A that are unfamiliar. 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-taker, **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.

Lecture Schedule

Chemistry 1A will cover material presented in chapters 1, 2, 3, 4, 6, 7, 8, 9, 10, and 11 of Silberberg.

Every effort will be made to keep to the lecture schedule below. Quiz and exam dates will not be modified except in cases of *force majeure*.

Week	Date	Day	Lecture Topic or Activity	Assignments Assignments marked with an asterisk (*) are mandatory for attendance and must be completed on time or you will be dropped from the course.
1	1/5	Tu	Syllabus and Introductions	
	1/7	Th	Chem101 Practice Problems <i>Silberberg Chapter 1–2</i>	<i>Synchronous lab assignment due at the end of your lab time.</i> Section 03.Z 10:20 am Section 04.Z 2:20 am
	1/8	F	Chem101 Practice Problems <i>Silberberg Chapter 1–2</i>	
2	1/12	Tu	Chem101 Practice Problems <i>Silberberg Chapters 1–2</i>	<i>Synchronous lab assignment due at the end of your lab time.</i> Section 03.Z 10:20 am Section 04.Z 2:20 am
	1/14	Th	Chem101 Practice Problems <i>Silberberg Chapter 3</i>	
	1/15	F	Quiz 1 <i>Silberberg Chapters 1 and 2</i>	Chem101 Homework 1 Due 10 am *Safety Contract Due 12 pm *Introduction Assignment Due 12 pm
3	1/19	Tu	Chem101 Practice Problems <i>Silberberg Chapter 3</i>	Density Lab Due 8 am
	1/21	Th	Chem101 Practice Problems <i>Silberberg Chapter 3</i>	Order your HOL kit from the bookstore by 5 pm. Upload verification to Canvas to receive credit.
	1/22	F	Quiz 2 <i>Silberberg Chapter 3</i>	Chem101 Homework 2 Due 10 am
4	1/26	Tu	<i>Silberberg Chapter 4</i>	
	1/28	Th	<i>Silberberg Chapter 4</i>	Getting Started Due 8 am
	1/29	F	<i>Silberberg Chapter 4</i>	
5	2/2	Tu	<i>Silberberg Chapter 6</i>	
	2/4	Th	<i>Silberberg Chapter 6</i>	Laboratory Safety Due 8 am
	2/5	F	Quiz 3 Content TBA	Chem101 Homework 3 Due 10 am
6	2/9	Tu	<i>Silberberg Chapter 6</i>	
	2/11	Th	<i>Silberberg Chapter 7</i>	Laboratory Techniques and Measurements Due 8 am
	2/12	F	No class: President's Day Holiday	
7	2/16	Tu	<i>Silberberg Chapter 7</i>	
	2/18	Th	<i>Silberberg Chapter 7</i>	Mole Lab Due at 8 am
	2/19	F	Quiz 4 Content TBA	Chem101 Homework 4 Due 10 am
8	2/23	Tu	<i>Silberberg Chapter 8</i>	
	2/25	Th	<i>Silberberg Chapter 8</i>	Stoichiometry of a Precipitation Reaction Lab Due 8 am
	2/26	F	Quiz 5 Content TBA	Chem101 Homework 5 Due 10 am
9	3/2	Tu	<i>Silberberg Chapter 9</i>	
	3/4	Th	<i>Silberberg Chapter 9</i>	Hess's Law Lab Due 8 am
	3/5	F	Quiz 6 Content TBA	Chem101 Homework 6 Due 10 am

10	3/9	Tu	<i>Silberberg Chapter 10</i>	
	3/11	Th	<i>Silberberg Chapter 10</i>	Titration Lab Due 8 am
	3/12	F	Quiz 7 Content TBA	Chem101 Homework 7 Due 10 am
11	3/16	Tu	<i>Silberberg Chapter 11</i>	
	3/18	Th	<i>Silberberg Chapter 11</i>	
	3/19	F	Lab Exam 50 minutes	
12	3/25	Th	Final Exam 9:15 am – 11:15 am <i>The time of the final exam is determined by the college and cannot be changed for any reason. If you cannot take the final at this time, you should not sign up for this class.</i>	Chem101 Homework 8 Due 10 am

Lab Schedule

Week	Tuesday	Thursday
1	Syllabus and Course Organization	Chemical Nomenclature • <i>Worksheet to be completed during synchronous class time</i>
2	Lab Essentials: Measurements and Graphs • <i>Worksheet to be completed during synchronous class time</i>	HOL Orientation and Laboratory Safety at Home
3	HOL Orientation <i>Order your HOL kit today!!!</i>	TBA
4	TBA	TBA
5	TBA	Lab Lecture: Laboratory Techniques and Measurements
6	TBA	Lab Lecture: The Mole
7	TBA	Lab Lecture: Stoichiometry of a Precipitation Reaction
8	TBA	Lab Lecture: Hess's Law
9	TBA	Lab Lecture: Titration Lab
10	TBA	TBA
11	Review	Review

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.