

CHEM 1B: General Chemistry**Syllabus**

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 Office Hours: M/W 1³⁰-2³⁰pm & F 11³⁰-12³⁰am
 Office: SC1222

Lecture:	Rm S35	M/W/F	10:30-11:20am	
Lab:	Rm SC2204	M/W	7:30-10:20am	32202
		W/W	2:30-5:20pm	32203

Pre-requisites:

CHEM 1A with a grade of C or better. EWRT 1A or ESL 5 recommended.

Course Description

CHEM 1B is the second of a three-quarter general chemistry series. This class investigates intermolecular forces and their effects on properties, gas laws and kinetic molecular theory, and reversible reactions from the standpoints of kinetics, thermodynamics, and equilibrium.

Required Materials:

- Lecture Text: Silberberg, Amateis; *Chemistry: The Molecular Nature of Matter of Change*; 8th Ed. (earlier editions should be fine for content, but the problem numbers might not line up)
- Lab Text: online PDFs @ <https://www.deanza.edu/chemistry/Chem1B.html>
- Lab Notebook: any carbon copy notebook is fine, **but you must have a specific section for lab work!**
- Calculator: scientific with log functions, not your cell phone
- Safety goggles: to be worn each lab period
- iClicker Reef App available @ <https://www.iclicker.com/students/apps-and-remotes/apps>
- Disposable gloves: neoprene or nitrile, **NO LATEX** (recommended)

Grades:

Your grade will be based on several parts and divided as shown to the right:

Quizzes	100
Labs	300
Exams	600
Total	1000

- Quizzes – quizzes will be worth 100 points (10% of your grade). Four short quizzes will be given occasionally during lecture and are meant to act as a knowledge check. They will be based in part on HOMEWORK and on lecture notes. You will be given 20 minutes to complete them and they will be short answer or fill in the blank (no scantron required).
- Lab Grade – your lab portion will be worth 300 points in total (30% of your grade). This will include all work for any labs conducted from the lab manual online. Your grade will be based on pre-labs, in-lab notes, and lab reports. The Pre-Labs will be collected at the start of each lab by turning in carbon copies of your notebook. The Lab Reports will include carbon copies of the in-lab work as well as any post lab questions. Further details can be found on Canvas under the Lab Assignment Expectations. Please make sure to ask for any questions regarding due dates. As for the assignments themselves, please make sure to fully read through the labs posted online @ <https://www.deanza.edu/chemistry/Chem1B.html>. Lab Manual which has been created to help you through the lab portion of this course. Especially with regards to how to complete each assignment and my personal expectations. We will review this on the first day of lab as well. (Lab Assignments will be deducted 10% per day they are turned in late. If you contact me prior to the due date, the penalty might be waived, depending on the circumstances. You must submit all assignments to receive a passing grade in the course.) Lab exam will be open note and will cover techniques and sample calculations from the lab manual.

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- Exams – your exams will be worth 600 points in total (60%). There will be 3 exams, each worth 200 points and focused on specific sections of the course. However, chemistry always tends to build on previous knowledge, thus keeping up with old material will help you throughout the course. There will also be extra problem-solving sessions during and possibly outside of class that will help students prepare for the exams. To study for the exams, I would recommend completing all homework assignments, reviewing lecture notes in a study group, and then attempting the practice exams on Canvas. The exams
- Final Exam – the final exam will be optional for students that did not miss any previous exams and have received over an 85% on the previous 3 exams combined. If you felt you did poorly on a previous exam, you can use the final as an attempt to replace a lower grade on an exam. (I will be keeping the top three exam grades regardless of how you do on the final, this way your grade can only be helped) This will be a cumulative exam that will span the entire breadth of our course. Make sure to keep up with your previous chapters during the semester. Take time to review mistakes on old exams and go back to finish late homework and/or worksheets.

Attendance:

Lectures are not mandatory; **however**, extra credit will be given to students attending more than 80% of the lectures. (95-100% earns 30 extra points, 90-94% earns 20, 80-89% earns 10 extra credit points). This will be tracked using the iClicker Reef App that is available for your laptop or smartphone. Please make sure this is working and you are connected to my course (CHEM 1B W20), I will not add your attendance if you are unable to be tracked via the app. Lectures are your best source of knowledge and information for this course, somethings that I review or say may or may not be posted with the online notes, so make sure if you miss lecture to contact a peer and review what I went over.

Labs are mandatory. You should plan to arrive early to lab (5-10 minutes at least). If you arrive later then 10 minutes to lab, you will not be allowed in (unless you have communicated to me beforehand). Missing 1 lab throughout the term will automatically drop your grade by 1 letter grade. Missing 2 or more labs during the term will require us to meet and discuss your ability to pass the course.

Exams are mandatory. The dates should not change, but as things come up, I reserve the right to change exam dates with plenty of notice to students. Should you have a conflict, please speak to me as soon as you know of this conflict. Extenuating circumstances may allow us to schedule a make-up, but do not plan on this.

If something comes up, remember to always email me as soon as you know you will miss something that is mandatory. By timestamping an email, you ensure that you've covered yourself by communicating early. For labs, this means we may possibly setup a make-up, for exams this means we can discuss what can happen, circumstances permitting.

Student athletes should plan to speak with me within the first week if they are missing an exam or lab.

Class Conduct

- Arrive to lab and lectures on time or early.
- Do not disrupt class by talking or texting others.
- During lab, **NO ELECTRONIC DEVICES ARE ALLOWED** except a calculator. You may ask to take pictures of experiments, but if you phone or laptop is out, you will lose points from your Lab Conduct grade.

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- No use of headphones in lab ever. It is a safety hazard. Nor during lecture, it's extremely disrespectful.
- No eating or drinking in lab. Again, another safety hazard.
- Always wear lab goggles during wet chemistry labs. Wear them until the instructor says otherwise.

Students with Disabilities

Students who are seeking support from the Disability Support Programs and Services (DSPS) should contact them directly at their office in LCW 110 or at (408) 864-8839 or via www.deanza.edu/dsps. De Anza College has the policy to accommodate all individuals regardless of disabilities, as such any students are welcome to come and speak with me privately regarding any accommodations necessary. They should email me directly and we can meet, please plan to bring your Accommodation Memo from the DSPS. Anything discussed will be kept in strict confidence and will not influence or affect your grade.

Academic Integrity

Academic integrity is a very serious thing. Cheating, copying, plagiarizing, or any form of using other person's work as your own is a serious offense. For more details about De Anza college's Academic Integrity policy go to <http://www.deanza.edu/studenthandbook/academic-integrity.html> to view. Any instance of academic dishonesty will not be tolerated and said students will not receive a passing grade in the course.

How to Approach This Course:

This course will move fast covering a variety of topics. In general chemistry is best studied through repetition of practice problems and group discussion of theories. I recommend forming a study group as soon as you can and meeting regularly. A good idea for a study group is to come together with a plan of action for each session. For example, come to the group planning to review a practice exam or working on hard challenge problems that some people did not understand.

In order to do well in chemistry, I advise a variety of methods to study:

- Read ahead in the textbook
- Complete homework problems (first with help if need be, second without help)
- Complete lab assignments
- Flashcards and study group work to teach each other (the best way to see if you know something, is if you can teach it to someone else)
- Attend lecture actively

Important Academic Calendar Dates:

January 6 th	First Day of Classes
January 18 th	Last Day to Add Classes
January 19 th	Last Day to Drop Classes with No Record Of "W" & Full Refund/Credit
January 31 st	Last Day to Request "Pass/No Pass"
February 29 th	Last Day to Drop with A "W"
March 23 rd – 27 th	Final Exams

Suggested Homework Problems:

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Ch 5 – Gases and the Kinetic-Molecular Theory

3, 6, 8, 20, 22, 24, 28, 32, 34, 36, 41, 45, 53, 71, 75, 77, 84

Ch 12 – Intermolecular Forces: Liquids, Solids, and Phase Changes

1-5, 13-19, 25, 28, 32-39, 41, 45, 47, 49, 55, 59, 63, 70, 71, 83

Ch 16 – Kinetics: Rates and Mechanisms of Chemical Reactions

1-5, 8, 10, 18, 21, 25, 26, 28, 34, 39, 48-51, 59, 69-71, 79, 85

Ch 17 – Equilibrium: The Extent of Chemical Reactions

3-5, 7-9, 11, 12, 14, 18, 20, 26-28, 30, 32, 34, 36, 39, 42, 46, 48, 50, 52, 58, 59, 64, 66, 70, 72

Ch 18 – Acid-Base Equilibria

1-9, 11, 13, 15, 17 19-23, 25, 27, 29, 31, 37, 38, 41, 43, 45, 47, 49, 59, 60, 84, 87, 117-120, 122, 126, 128, 134, 138, 140

Ch 20 – Thermodynamics: Entropy, Free Energy, and the Direction of Chemical Reactions

1-6, 10, 12, 14, 18, 22, 24, 31, 33, 45, 46, 49, 51, 61, 63-67, 71, 86

CHEM 1B Schedule (subject to change)								
Week #	Monday			Wednesday			Friday	
	Date	Lecture	Lab	Date	Lecture	Lab	Date	Lecture
1	1/6/20	Ch 5	Introduction & Check-In	1/8/20	Ch 5	Lab B1 - Molar Volume	1/10/20	Ch 5
2	1/13/20	Ch 12	Lab B1 - Molar Volume	1/15/20	Ch 12	Lab B2 - Vapor Pressure	1/17/20	Ch 12
3	1/20/20	<u>Holiday - No Class</u>		1/22/20	Exam 1 - Ch 5 & 12	Lab B2 - Vapor Pressure	1/24/20	Ch 16
4	1/27/20	Ch 16	Lab B7 - Synthesis of a Green Crystal	1/29/20	Ch 16	Lab B7 - Synthesis of a Green Crystal	1/31/20	Ch 16
5	2/3/20	Ch 17	Lab B7 - Synthesis of a Green Crystal	2/5/20	Ch 17	Lab B7 - Synthesis of a Green Crystal	2/7/20	Ch 17
6	2/10/20	Ch 17	Lab B3 - Iodine Clock	2/12/20	Ch 18	Lab Exam 1	2/14/20	<u>Holiday- No Class</u>

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			Reaction (Kinetics)					
7	2/17/20	<u>Holiday - No Class</u>		2/19/20	Exam 2 - Ch 16 & 17	Lab B3 - Iodine Clock Reaction (Kinetics)	2/21/20	Ch 18
8	2/24/20	Ch 18	Lab B4 - Spectroscopic determination of Keq	2/26/20	Ch 18	Lab B4 - Spectroscopic determination of Keq	2/28/20	Ch 18
9	3/2/20	Ch 18	Lab B5 - Ka of a Weak Acid	3/4/20	Ch 18	Lab B6 - pKa of an acid/base indicator	3/6/20	Ch 20
10	3/9/20	Ch 20	Lab B6 - pKa of an acid/base indicator	3/11/20	Ch 20	Lab B8 - Effect of T on Keq	3/13/20	Ch 20
11	3/16/20	Ch 20	Lab B8 - Effect of T on Keq	3/18/20	Exam 3 - Ch 18 & 20	Check Out Lab Exam 2	3/20/20	Final Review
Finals Week	3/23/20	<u>Finals Week - Study Time</u>		3/25/20	Final Exam (Cumulative) 9:15-11:15 am			

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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.