Chemistry 1B: General Chemistry Section 01
Summer 2018

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Course Webpage: Canvas
Office Hours: *By appointment for summer*
Class Meetings
Lecture: MTuWTh 10:30 am – 11:45 am, S72
Lab: MTuWTh 7:30 am – 10:20 am, SC2204

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 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. At De Anza College, the lab and lecture may not be taken as separate courses under any circumstances.

Course Description
Chemistry 1B is the second quarter of a year-long introduction to the principles of general chemistry, and a direct continuation from Chemistry 1A. Chemistry 1B will constitute an investigation of intermolecular forces and their effects on chemical and physical properties, investigation of reversible reactions from the standpoints of kinetics, thermodynamics, and equilibrium, as well as investigation and application of gas laws and kinetic molecular theory.

Prerequisites
Chemistry 1A with a grade of C or better. EWRT 211 and READ 211 (or LART 211), or ESL 272 and 273.

Hours
Five hours lecture and twelve hours laboratory will be spent in class. The summer schedule is condensed, and we will cover two-weeks' worth of material every four days. You should expect to spend an additional 40 hours a week studying and working on class assignments.

Attendance Policy
Your punctual attendance is expected at all lecture and laboratory sections of the course. If you will have to miss class due to a verifiable emergency, let me know by e-mail as soon as possible. Exam and quiz dates may change. If you already know you will need to miss a day due to any other commitments, you should not take this class.

Textbook and Materials
1. *Chemistry: The Molecular Nature of Matter and Change*, 8th edition by Silberberg and Amateis. You are strongly encouraged to purchase this textbook from the De Anza College bookstore.

2. A scientific calculator. Phones and graphing calculators may ***not*** be used on exams or quizzes. I recommend the TI-30XS calculator which is available from multiple retailers.
3. The Chemistry 1B laboratory manual, available online at the De Anza Chemistry Department webpage. All lab procedures and pre-lab assignments will be posted on the course Canvas webpage.
4. A dedicated laboratory notebook. The lab notebook should be a bound composition type notebook. Notebooks with spiral binding and perforated pages are not permitted. All pages must be numbered.
5. Approved laboratory safety goggles (not safety glasses), available from the De Anza College Bookstore.
6. Disposable latex or nitrile gloves (*recommended)*.
7. Stapler and staples.
8. Access to a printer.

Resources

1. 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. Their website is: https://www.deanza.edu/studentsuccess/mstrc/
2. 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. Their website is: https://www.deanza.edu/dsps/

Study Tips

1. Complete the assigned reading before coming to class. Review 1A topics that are unfamiliar.
2. Take *handwritten* notes during class and review your notes regularly. Write down any questions you have and bring them to class or office hours.
3. Do a little bit every day. Do not leave homework assignments until the last minute.
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 other assignments on time* in order to pass the class.
6. Take care of yourself! Stay well-rested and drink water.

Important Dates

Add Day:	July 8, 2018	Last day to *add*.
Drop Day:	July 9, 2018	Last day to *drop* the course without a withdraw being recorded.
Withdraw:	August 1, 2018	Last day to *withdraw* from the course.

If you drop or withdraw from the course, you *must* check out of your lab locker by the last lab period.

Exam Dates and Tentative Content

There will be three midterm exams and one cumulative final exam. The date of the final exam is determined by the college and cannot be moved.

Exam 1 (100 points)	July 11th, 2018
Kinetics Quiz (50 points)	July 18th, 2018
Exam 2 (100 points)	July 31st, 2018
Thermodynamics Quiz (50 points)	August 8th, 2018

Lab Final (100 points) August 8th, 2018
Lecture Final (150 points) August 9th, 2018 (8:20 am – 10:20 am in SC2204)

Grading Breakdown and Grade Scale

To succeed in this course, you will need to exhibit consistent and sustained effort throughout the quarter. This will be demonstrated through homework assignments, laboratory preparation and data analysis, and examinations.

Lecture	70% of total grade
Exams	30%
Quizzes	15%
Final	15%
In-class practice	10%
Lab	**30% of total grade**
Pre-lab	5%
Lab data and participation	9%
Post-lab worksheets	5%
Lab final	9%
Clean-up	2%

Final %	Grade[1,2]
>100.0	A+
90.0 – 100.0	A
88.0 – 89.9	A–
85.0 – 88.9	B+
78.0 – 84.9	B
78.0 – 79.9	B–
73.0 – 77.9	C+
68.0 – 72.9	C
60.0 – 67.9	D+
50.0 – 59.9	D
<55%	F

[1]If your average in either the lab *or* lecture portion of the course is less than 55%, you will not pass the class.
[2]A+ grades will be given to students who demonstrate excellence in the following three areas: lecture, lab *and* class participation.

Lecture (70%)

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 days 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. The lecture participation grade (5%) must be earned through active engagement during 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. Computers are not necessary during lecture. 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.

Homework (0%)

Consistent practice is an essential component of learning, and homework questions will often be similar to exam questions. Recommended practice problems from the textbook will be posted for each chapter; however, due to the condensed summer schedule, homework will ***not*** be graded. It is your responsibility to keep up with suggested practice problems ***every day.***

In-class practice problems (10%)

A review question from the previous lecture will be posted at the beginning of every class. You may use any resources available to you to solve these problems, and collaboration with classmates is

encouraged. I will collect these problems and grade them out of 5 points. Bring loose leaf paper and a writing utensil to class with you.

Exams (30%)

There will be two midterm exams, each worth 15% of your final grade. Early and late exams will not be administered, and missing an exam **will result in a zero without documented proof of a medical or legal emergency** (e.g. hospitalization or car crash). If you need any accommodations for exams, DSPS will be able to notify me through Clockwork.

Exams will consist of short answer questions with the opportunity for partial credit. You must show your work in order to receive credit for any answer. I am more interested in how you think about a problem than your final answer. You will be asked to demonstrate your conceptual understanding of the material and apply those concepts in an algebraic context and solve quantitative problems.

Final (15%)

The final exam will be cumulative. The final exam will be administered on **Thursday, August 9th from 8:20 am – 10:20 am**. If you cannot take the final at this time, you should not enroll in the class. The final will not be administered at an alternative time under any circumstances. You must take the final to pass the course.

Lab (30%)

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 for*** to complete the required labs. Everyone gets one excused absence with no grade penalty. To receive this excused absence, you must contact your instructor ASAP to explain your absence from lab. After 24 hours, you will not able to excuse this absence and you will receive a zero for *all* associated assignments. A second absence, regardless of the circumstances of your first absence, will result in a zero for the lab and all associated assignments for that lab. After a third lab absence, you will automatically receive an "F" in the course.

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*** (e.g. Pre-lab, lab data, and lab analysis)***.***

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 signed your data.

Pre-lab (5%)

Pre-labs must be prepared in your laboratory notebook before the start of your laboratory section. Each pre-lab is worth 5 points. I will check your pre-lab at the start of class. You may complete your pre-lab after lab lecture before you can start work on the lab. ***You are not permitted to work on your pre-lab during lab lecture.***

Lab Data (9%)

Each wet-lab day is worth a total of 10 points. ***Data collected during the lab period must be recorded in your laboratory notebook***. If you write any data on a separate sheet of paper or the lab manual, you will lose points for that lab. You may recopy your data into a clean table in your lab notebook later

if you wish. Before you leave lab for the day, have me check off on your data and calculations in your lab notebook for the available points.

Lab Analysis (5%)
Data analysis worksheets will be posted on the course webpage. The precise nature of the assignment and the number of points available will vary. Due dates will be announced in class and on Canvas.

Lab Final (9%)
There will be one lab exam in this course. The lab final will be an open lab-notebook exam, and you may refer to any information that is handwritten in your lab notebook. Extra pages (either printed or handwritten) may not be inserted. The final will cover material, calculations, and analysis related to your laboratory experiments.

Clean-up (2%)
Each student is required to sign up for one lab period in which they will be responsible for after-lab clean-up. This involves staying to end of lab, making sure the common lab areas and balance area is clean, the waste bottles are closed, etc. In addition, each student is responsible for cleaning their own materials and work area. ***All clean-up must begin by 10 am***.

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. Cheating, copying, plagiarizing, etc. will not be tolerated, and the minimum consequence will be receiving a zero on that assignment. All laboratory data used in calculations and reported in lab reports must be collected by each student. Multiple instances of academic dishonesty may result in failing the course.

Copying any assignment from another student is cheating. If I see you copying an assignment, both students will receive a zero on that assignment.

Lecture and Lab Schedule

Chemistry 1B will cover material presented in chapters 5, 12, 16, 17, 18 and 20 of Silberberg. We will also review Chemistry 1A topics presented in chapters 10 and 6 throughout the quarter.

Every effort will be made to keep to the lecture schedule below. If we fall significantly behind this schedule, the content of the exams will be adjusted to reflect the material that we covered in class. Exam and quiz dates by change at your instructor's discretion, so plan to attend all days.

	Monday	Tuesday	Wednesday	Thursday
Week 1 July 2 – 5 Lab	*Syllabus Check-in*	Molar volume Day 1	**NO CLASS**	Molar volume Day 2
Lecture	Ideal Gases Chapter 5	Ideal Gases Chapter 5		Intermolecular Forces Chapter 12
Week 2 July 9 – 12 Lab	Vapor Pressure Day 1	Vapor Pressure Day 2	Green Salt Day 1	Green Salt Day 2
Lecture	Intermolecular Forces Chapter 12	Phase Changes Chapter 12	**Exam 1**	Chemical Kinetics Chapter 16
Week 3 July 16 – 19 Lab	Green Salt Day 3	Green Salt Day 4	Iodine Clock Day 1	Iodine Clock Day 2
Lecture	Chemical Kinetics Chapter 16	Chemical Kinetics Chapter 16	**Kinetics Quiz** Equilibrium Chapter 17	Equilibrium Chapter 17
Week 4 July 23 – 26 Lab	Iodine Clock Day 3	Iodine Clock Day 4	K_c of iron Day 1	K_c of iron Day 2
Lecture	Equilibrium Chapter 17	Acid-base chem Chapter 18	Acid-base chem Chapter 18	Acid-base chem Chapter 18
Week 5 July 30 – Aug 2 Lab	K_A of Weak Acid Day 1	pK_A of Indicator Day 1	pK_A of Indicator Day 2	calcium hydroxide Day 1
Lecture	Acid-base chem Chapter 18	**Exam 2**	Thermodynamics Chapter 20	Thermodynamics Chapter 20
Week 6 Aug 6 – 9 Lab	calcium hydroxide Day 1	*Check-out*	**Lab final**	**Lecture final 8:20 – 10:20 am**
Lecture	Thermodynamics Chapter 20	Thermodynamics Chapter 20	**Thermo Quiz** Review	**Have a great break!**

Laboratory Safety

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:

1) **Chemistry Department-approved safety goggles purchased from the De Anza College bookstore (NOT safety glasses) must be worn at all times once laboratory work begins, 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 student drawers.
2) **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.
3) Shorts, cut-offs, skirts or pants exposing skin above the ankle, and sleeveless tops may not be worn in the lab: **ankle-length clothing must be worn at all times.**
4) Hair reaching the top of the shoulders must be tied back securely.
5) Loose clothing must be constrained.
6) Wearing "...jewelry such as rings, bracelets, and wristwatches in the laboratory..." should be discouraged to prevent "...chemical seepage in between the jewelry and skin...".
7) **Eating, drinking, or applying cosmetics in the laboratory is forbidden at ALL times, including during lab lecture.**
8) Use of electronic devices requiring headphones in the laboratory is prohibited at ALL times, including during lab lecture.
9) Students are advised to inform their instructor about any pre-existing medical conditions, such as pregnancy, epilepsy, or diabetes, that they have that might affect their performance.
10) Students are required to know the locations of the eyewash stations, emergency shower, and all exits.
11) Students may not be in the lab without an instructor being present.
12) Students not enrolled in the laboratory class may not be in the lab at any time after the first lab period of each quarter.
13) 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.
14) 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.
15) Strongly recommended: Wear Nitrile gloves while performing lab work; wear a chemically resistant lab coat or lab apron; wear shoes made of leather or polymeric leather substitute.

Reckless behavior will not be tolerated. If your actions endanger the health and safety of yourself or someone else you will be asked to leave and you will receive a zero for the day.

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.