

## Introduction to General, Organic and Biochemistry I

**Instructor: Dr. Lan Shen**

Email: [shenlan@fhda.edu](mailto:shenlan@fhda.edu)

Lecture time: M & W 8:30 am – 10:20 am SC 1102

Lab time: M or W 11:30 am – 2:20 pm SC 2204

Office Hour: Monday 10:30 am – 11:20 am Science Center 2<sup>nd</sup> floor lobby

### Learning outcomes

- (1) Solve stoichiometric problems by applying appropriate molar relationships.
- (2) Predict the behavior of ideal gases using Kinetic Molecular Theory.
- (3) Apply acid-base chemical principles to biological processes.

### Required Materials

- (1) Text: Timberlake's Chemistry: An Introduction to General, Organic, and Biological Chemistry (12TH ED.), ISBN 9780321908445
- (2) Lab manual: Introduction to General Organic and Biochemistry, (custom edition for De Anza) ISBN 9781256176510
- (3) Calculator
- (4) Safety goggles purchased from De Anza book store

### Grading Scale Breakdown

A+ > 97%	A > 93%	A- > 90%	
B+ > 87%	B > 83%	B- > 80%	
C+ > 75%	C > 68%	D > 60%	F < 60%

Any student who receives below 140/200 (70%) points in lab or misses 3 labs will automatically receive a grade of F. C and above are considered passing grades.

### Evaluations

- (1) Quizzes:  $(6-1) * 40 = 200$
- (2) Lecture Exams:  $3 * 100 = 300$  pts total
- (3) Final Exam: 200 pts
- (4) Lab: 200 pts total (9 -1) Labs @ 25 pts each (5 points pre lab, 20 points lab report sheet) = 200 pts

Post lab assignments are due by the end of the lab session. The lowest lab score will be dropped. No make-up labs will be allowed; no late labs will be accepted. No 'proxy' reports; you must do the lab to earn a post lab and lab grade.

- (5) Lab Exam: 50 pts
- (6) Class participation: 50 pts
- (7) Total 1000 pts

### Academic Dishonesty

Make sure you do your own work! Cheating in any form during an exam will not be tolerated. If you work in pairs on a lab experiment, state your observations and answer the questions in your own words. The first offense of academic dishonesty will result in a zero for that exam/lab/homework; the second offense will result

in withdrawal from the course, and reported to the Dean of Student Affairs. It is your responsibility to understand what constitutes academic dishonesty.

### **Disability Statement**

Disability accommodations: Anyone who may need an accommodation due to a disability should contact me privately to discuss your specific needs. Please contact Disability Support Program and Services located in SCS41 (408-864-8753 or 408-864-8748 TTY or dss@deanza.edu) to coordinate reasonable accommodations for students with verifiable documentation.

### **Attendance**

Failure to attend any of the lectures or laboratory classes during the first two weeks will result in you being dropped from the class. You are expected to attend all lecture and laboratory classes. I may withdraw a student after missing more than 4 labs/lectures without a documented reason for the absence. Strong evidence exists indicating that the success of student directly related to her/his class attendance. Plus your allotted participation points! You will be given an “F” grade for unexcused absences in TWO or more lecture and/or laboratory periods. If you choose to drop/withdraw from the course at any point during the quarter, it is your responsibility to withdraw from the course through Admissions and Records by the appropriate deadline. You are required to officially check out of your lab locker whether you remain in the course or drop/withdraw. Failure to check out of lab at the scheduled checkout date will result in an administrative fee and a block will be placed on your future registration. If you know in advance that you will need to miss a class, please notify the instructor and provide proof of the excuse. If you have already missed a class, please follow up with the instructor as soon as possible and provide proof of valid excuse.

Valid excuses are: birth/death in the family, work---related travel, illness/medical emergencies, conference travels, jury duty, accidents, legal issues, or traveling to represent De Anza College at meetings/other events. Please note that verifiable documented proof of the excuse is essential in order to grant an excused absence. THERE ARE NO MAKEUP QUIZZES, EXAMS, OR LAB REPORT

### **Cell phone and other electronics Policy**

Use of cell phone, lab top computer and any other electronic devices are strictly prohibited during class. There is to be no text messaging, browsing the Internet, or voice conversations. The instructor may ask you to leave the classroom or lab if you are caught playing video games or browsing internet during lecture or lab time, and it will be counted as unexcused absence. If you absolutely need to use your phone for emergency please step outside. Any violation of this policy could cost you the 50 pts of class participation. Violation of this policy may result in failure in the class.

### **Dropping the Course**

If you must drop this course, it is your responsibility to withdraw by contacting Admission and Registration (in person, by phone, or on-line). If this is not done, you may be kept on the rolls and receive an “F” grade. You must also arrange for your locker checkout by 06/21/2015.

### **Important Dates to Remember**

4/18	Last day to add this class
4/19	Last day to drop a class with refund
5/29	Deadline to drop class with a ‘W’ (Withdraw)
6/25	Final Exam; 7:00 AM – 9:00 AM (Thur.) Room SC1102

**Tentative Lecture and Exam Schedule**

<u>Chapter and Lecture Topic</u>	<u>Week of</u>
Syllabus & Chapter 1, 2	04/06/2015
Chapter 3: Matter & Energy	04/13/2015
Chapter 4: Atoms and elements	04/20/2015
Chapter 5: Nuclear Chemistry	04/27/2015
Review Chapter 1 – 5	
<b>Mid-term Exam #1: Chapter 1 – 5</b>	<b>TBD</b>
Chapter 6: Ionic and Molecular Compounds	05/04/2015
Chapter 7: Chemical Quantities & Reactions	05/11/2015
Chapter 7: Continued	05/18/2015
Chapter 8: Gases	05/25/2015
NO CLASS on 5/25	
Review Chapter 6 – 8	
<b>Mid-term Exam #2: Chapter 6 -8</b>	<b>TBD</b>
Chapter 9: Solutions	06/01/2015
Chapter 10: Acids and Bases	06/08/2015
Review Chapter 9 -10	
<b>Mid-term Exam #3: Chapter 9 – 10</b>	<b>TBD</b>
Final Review	06/15/2015
<b>Final Exam: cumulative</b>	<b>06/25/2015</b>

## Lab Requirements

Pre Lab (5 pts): For each experiment, you must read and understand both the background information (“Discussion”) and the experimental procedure before coming to the laboratory.

Report sheet (20 pts): The experiments must be done on your own unless told by the instructor otherwise. If working in a pair, you will be collecting and sharing data with a partner. However you must do your own calculations, state your observations in your own words, and formulate your own conclusions for each experiment (obvious copying will result in points lost for both people involved). After finishing the experiment, clean up, wipe down your bench, and get my initials in your lab manual for proper clean-up. Pre and Post Lab Questions in the Lab Manual Students are expected to complete and turn in the report sheet by the end of a lab session.

If you miss check in or experiment 1 you will be dropped. NO EXCEPTIONS! Arriving on time is crucial in this course, especially in lab. If you arrive late to laboratory-lecture you will receive a zero for that lab day. NO EXCEPTIONS!

Stockroom: Students are expected to check into their lockers at the beginning of the quarter and out at the end of the quarter. If you decide to drop this class before the end of the quarter you will need to come to the regularly scheduled lab time and check out of your lab locker.

WEEK	WEEK OF	MONDAY	WEDNESDAY
1	APR 5	CHECK-IN	CHECK-IN
2	APR 12	L1: MEASUREMENT & SIGNIFICANT FIGURES	L1: MEASUREMENT & SIGNIFICANT FIGURES
3	APR 19	L2: CONVERSION FACTORS	L2: CONVERSION FACTORS
4	APR 26	L3: DENSITY AND SPECIFIC GRAVITY	L3: DENSITY AND SPECIFIC GRAVITY
5	MAY 3	L4: ENERGY & STATES OF MATTER	L4: ENERGY & STATES OF MATTER
6	MAY 10	L5: COMPOUNDS & FORMULAS	L5: COMPOUNDS & FORMULAS
7	MAY 17	L6: GAS LAW	L6: GAS LAW
8	MAY 24	MEMORIAL DAY	L7: SOLUTIONS, ELECTROLYTES & CONCENTRATIONS
9	MAY 31	L7: SOLUTIONS, ELECTROLYTES & CONCENTRATIONS	L8: ACIDS, BASES, pH & BUFFERS
10	JUN 7	L8: ACIDS, BASES, pH & BUFFERS	L9: ACID-BASE TITRATION
11	JUN 14	L9: ACID-BASE TITRATION	CHECK-OUT
12	JUN 21	CHECK-OUT	

Instructors: SHEN

Location: 2204

## **INSTRUCTIONS for Laboratory**

Lab score for each experiment will depend upon your preparedness, participation in class and your completion of the lab report. Late report will lose points. Improper completion of lab report or improperly answered questions will lose points.

Print out, read, sign and return to your instructor the safety statement on the next page. This must be returned by the end of the first lab period.

You must do your lab work at the time assigned. Attendance will be taken. Study the experiment carefully before coming to class so that you won't waste time going through the procedure during the lab. **NO MAKE UP LABS.**

You must do your own work unless you are told to work in pairs for an experiment. If you need guidance, let the instructor know.

Always think through the next step you are going to perform before starting it.

Record all data in ink while you work. Do not write data on paper towels or other pieces of paper or on your hand, even temporarily. Make sure your data is complete. Do not forget to write your name or record any unknown number. Pay attention to significant figures and units. If you make a mistake, cross it out neatly with a single line.

All lab reports are due at the end of each lab

Children are not allowed in the lab.

No eating or drinking in the lab.

**ALWAYS WEAR YOUR EYE PROTECTION.** Failure to wear your eye protection will lead to dismissal from lab and a lowered grade for that experiment.

You **MUST WEAR LONG PANTS AND SENSIBLE CLOTHING** when doing any lab that required Safety Goggles as discussed during the safety lectures. If you wear shorts, sandals, or other clothing that is not considered safe, you will not be admitted to the lab. You can **NEVER WEAR SHORT PANTS or SKIRTS** during LAB PERIOD.

Always work with clean equipment. Clean also means **DRY.**

Carefully measure the quantity of each material to be used for the experiments.

Always place reaction vials, test tubes or flasks in a clean beaker when standing them on a laboratory bench.

Do not take reagent bottles to your lab work area. Use test tubes, beakers, or paper to obtain chemicals from the dispensing area. Take small quantities of reagents. You can always get more if you run short.

Check carefully the label on each reagent bottle to be sure you have the correct reagent. The names of many substances appear similar at first glance.

To avoid possible contamination, never return unused chemicals to the reagent bottles. Dispose unused chemicals in designated waste bottles. Never interchange spatulas or droppers.

Do not insert droppers into reagent bottles. Instead pour a little of liquid into a small beaker.

Be neat in your work; if you spill something, clean it up immediately.

Wash your hands anytime you get chemicals on them and at the end of the lab period.

Keep the balances and the area around them clean. Follow the directions given by the instructor on the proper weighing technique to use. Otherwise, do not place chemicals directly on the balance pans; place a piece of weighing paper or a small container on the pan first, and then weigh your material. Never weigh an object while it is hot.

Do not heat graduate cylinders, burettes, pipettes, or bottles with a burner flame.

Do not look down into the open end of a test tube in which the contents are being heated or in which a reaction is being conducted.

Do not perform unauthorized experiments.

After completing the experiment, clean and put away your glassware and equipment. Clean your work area and make sure the gas and water are turned off. A clean lab is a safe lab. If the lab instructor notices any messiness around lab work area during or at the end of the lab period, points will be taken for every student.

Dispose solid waste such as filter paper, litmus paper, and matches in the wastebasket, not in the sink. Dispose broken glass in the broken glass waste boxes. Dispose all other solid chemicals as directed by your instructor. Pour all the toxic liquids into the waste bottle provided or as directed by instructor. All glassware should be rinsed with DI water before being cleaned in sink. The rinsed DI water needs to be disposed in proper waste bottles.

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.

By signing below, I, \_\_\_\_\_,

Acknowledge that I fully understand and agree to abide by the laboratory safety rules listed above.

Further, I acknowledge that my failure to abide by these rules will result in my being dropped from this chemistry class immediately.

\_\_\_\_\_ (Signature & Date)