De Anza College
Chemistry Department
Spring 2017

COURSE TITLE

Chemistry 1C-61/62 General Chemistry
Class 04/10/17 to 04/27/17
Meeting times: Sec 61/62 Lecture 6:00 – 7:15 PM, TTh, Room S55
Sec 62 Lab 2:30 – 5:20 PM, TTh, Room SC2008
Sec 61 (Lo) Lab 7:30 – 10:20 PM, TTh, Room SC2008

INSTRUCTOR

Dr. John Cihonski
Contact: School e-mail: cihonskijohn@fhda.edu

OFFICE HOURS

MW 1:30-2:30 PM in Chem Faculty office area

REQUIRED MATERIALS

1) Chemistry (Open Source) found at https://openstax.org/details/chemistry. Homework will be out of the Open Source text. Alternative text option: Silberberg, Chemistry: The Molecular Nature of Matter and Change, any edition
2) General Chemistry Laboratory (De Anza 2015 edition) – see lab PDFs Course Studio or http://deanza.edu/chemistry/Chem1B.html
3) 8.5 x 11 permanent bound laboratory notebook with carbon copies.
4) Safety Goggles (must be approved by instructor)
6) Scientific calculator

Course Description: Aspects of the reactivity of aqueous solutions, including the application of equilibrium to investigate: colligative properties, such as boiling point elevation and freezing point depression; buffer solutions, which are solutions able to resist changes in pH due to small quantities of acid or base; solubility and the formation of precipitates, including the calculation of solubility through equilibrium constants; electrochemistry; and the formation of complex ions. The course will also cover the fundamentals of nuclear structure and radioactive decay

Learning Outcomes for Chem 1C:

1. Apply the principles of transition metal chemistry to predict outcomes of chemical reactions and physical properties.
2. Apply the principles of equilibrium and thermodynamics to electrochemical systems.
3. Understand nuclear principles, applications and predict isotopic decay pathways

Grading Scheme

Minimum Course Score Grade (%)	Grade
92	A
80	B
65	C
55	D

Course Score formula

(3M + F + L)/580 = Grade

	Possible points
3 Midterm Exam (M) scores	300
F = Final exam score	200
L = Laboratory score	90
Total Possible Points	590

Dropping - It is the responsibility of the student to drop the class and to check out of the laboratory.

Attendance - Attendance is required for **all** laboratory sessions and highly encouraged for lectures. The course is impacted; there is neither make-up time in the course nor space for you to work in other sections. If you miss a lab, you need to discuss the issue with the instructor (valid reason and written documentations will be required).

- The 1st and 2nd unexcused missed labs will result in zeros.
- The 3rd unexcused missed lab will result in failing the course.

Lecture - Each of the three exams will be worth 100 points and the comprehensive final exam will be worth 200 points. If a student is absent during any exam, he/she will receive a grade of zero. At the discretion of the instructor, a makeup exam may be allowed for an urgent medical or legal situation which prevents a student from attending class. In such cases, all of the following requirements will apply: 1) Student must present documentation of the reason for absence (letter from doctor or court official, including address and phone number) to the instructor on the day student returns to school, 2) Exam must be made up within two days of missed exam, 3) Only one make-up exam is allowed per quarter. Unethical behavior of any kind will result in dismissal from the course with an F grade. Work must be shown on **all** problems (exam, homework, etc.) to receive credit. Bathroom breaks during an exam are discouraged.

Homework – Homework as noted on the Lecture and Exam schedule is optional. However it is important for your learning the material and it will help if you are on the border of a grade. "Homework" constitutes the problems related to each lesson (excluding the Comprehensive Exercises) that addresses the material covered and are answered in the back of the text. Homework is due the day of the exam covering that material. Each "Homework" will be graded 0, +1 or +2. A 0 means not turned in, +1 means turned in but incomplete (must see effort for credit though), +2 means you have at least tried every assigned problem. For credit WORK MUST BE SHOWN. Simply copying answers from the back of the book does not count. There are 6 topics in this course, so 100% completion is worth 12 points or about the equivalent of one letter grade improvement on an exam.

Laboratory - All laboratories are expected to be completed (see Attendance). Lab reports are due the next lab period within the first five minutes of the scheduled lab period. If a lab report is late it will be penalized twenty percent per day. For all laboratory experiments, the advance study assignment sheet must be completed and initialed by the instructor prior to the beginning of the lab period. Laboratory data sheets must also be initialed by the instructor before leaving the lab. The initialed Advance Study Assignment sheet and the initialed lab data sheet must be turned in with the final lab report. An incomplete report will receive a zero. Coming sufficiently late for a lab (as determined by the instructor) can result in your not being permitted to do the experiment.

Chemistry 1C: Sec 61/62 Lecture 6:00 – 7:15 AM, TTh, Room S55

	Topic	Chapter(OS)	Problems *
1	Solutions and Colloids	11	2 – 74
2	Ionic Equilibria in Aqueous Systems	14.6 & .7 15.1 & .3	86 – 110 2-30, 36-46, 54, 98, 110, 112
	Exam 1		
3	Electrochemistry	17	2 – 42, 48 – 52
	Exam 2		
4	Transition Metals	19	2-18, 26-38, 44-48
5	Nuclear	21	2-20, 26-38, 45-54
	Exam 3		
	Final Exam Tuesday, June 27th 6:15 – 8:15 PM		

* Problems are from the Open Source (OS) Chemistry text. Homework problems to be turned in are the even numbered problems at the back of the chapter. The problems of interest are indicated above.

Chemistry 1C: Sec 62 Lab 2:30 – 5:20 PM, TTh, Room SC2008
Sec 61 (Lo) Lab 7:30 – 10:20 PM, TTh, Room SC2008

Week of	Tuesday	Thursday
Apr 9	Check-in	Freezing Point (1)
Apr 16	Freezing Point (2)	Buffers (1)
Apr 23	Buffers (2)	Ksp & Common Ion (1)
Apr 30	Ksp & Common Ion (2)	Electrochemistry (1)
May 7	Electrochemistry (2)	Anions (1)
May 14	Anions (2)	Cations (1)
May 21	Cations (2)	Cations (3)
May 28	Cations (4)	Cations (5)
June 4	Cations (6)	Cations (7)
June 11	Cations (8)	Open
Jun 18	Open	Check-out

Laboratory Safety
Laboratory safety is an everyday assignment. Being safe in the lab is a top priority. The importance of safety in the laboratory will be reviewed on the first day of lab. Any unsafe behavior, intentional or not, will be noted and may be cause for dismissal from the class.
Under NO circumstance are shorts and sandals allowed in the laboratory. You will be dismissed from the laboratory if you are not wearing appropriate protective clothing.
For your protection, safety goggles with indirect ventilation and an ANSI minimum rating of Z87 must be worn at all times in the laboratory. One warning will be issued to any student that is observed wearing their goggles on their forehead, hanging them around their neck, etc. instead of wearing over their eyes. if the warning is disregarded, expulsion from the lab and a zero on the lab work may result.
Latex gloves will be provided for those experiments using chemicals that are hazardous to skin.

Chemical Disposal and Clean-up
As a concern for the environment and to follow county, state and federal law, proper chemical disposal is essential. Students who do not comply with directed procedures may be expelled from the lab or failed in the course for repeated offenses. Check with the instructor if you have any questions. All students are requested to do a conscientious and thorough job of cleaning up after themselves, whether it is in their own work area in the lab, or shared areas such as the chemical supply table and balance room.

Rules for a Safe Chemistry Lab Environment

1. Prepare for each experiment by reading all of the directions before lab starts.
2. Locate the Safety Equipment. Know the locations of the eye wash, safety shower, fire extinguishers, fire blankets, first aid kit, fume hoods, telephone and all exits that are to be used in an emergency. Your laboratory instructor will describe the use of the safety equipment.
3. Protect your eyes. Wear approved eye protection at all times. Goggles provide maximum safety. Prescription glasses, if you need them, must be worn under approved eye protection.
4. Tie long hair back. This precaution will keep your hair out of burner flames and harmful chemicals.
5. Do not wear clothing with loose, flowing sleeves. This precaution will keep your sleeves out of burner flames and harmful chemicals.
6. Wear shoes that cover all of your feet. Broken glass on the laboratory floor and spilled chemical reagents are all too common. Shoes that cover your feet completely will protect them from broken glass and chemical splashes. The best types of shoes are closed-toe made out of leather.
7. Wear clothes that cover your torso and your legs to the knees (although ankles is even better). Clothing will give your body needed protection. It is recommended to use a lab apron or lab coat.
8. Do not eat or drink in the laboratory.
9. Do not taste any chemical reagent.
10. Do not smell chemical reagents directly. When you are instructed to smell a chemical, do so by gently wafting the vapors toward your face. Do not inhale deeply.
11. Do not pipette solutions by mouth. Use a rubber suction bulb to fill the pipette.
12. Do not work with flammable liquids near aflame.
13. Do not engage in games or horseplay in the laboratory. Never run in the laboratory.
14. Do not attempt unauthorized experiments in the laboratory.
15. Do not work in the laboratory in the absence of your instructor or his or her authorized representative.
16. Use a fume hood when required.
17. Handle glass tubing and thermometers carefully. When inserting glass tubing or thermometers through a rubber stopper, always hold the glass close to the stopper and use a lubricant such as glycerin to help the glass slide through the stopper. Do not continue to try to force glass through a stubborn stopper, get a new stopper and/or get help. When inserting a pipette into a pipette bulb, hold the pipette near the bulb and GENTLY insert the pipette.
18. When diluting, never pour water into concentrated reagents. Always pour the reagent into the water.
19. If you spill a chemical reagent on yourself immediately flood your exposed area with water and then summon the laboratory instructor. Inform the instructor immediately about any other accidents or spills.
20. Be aware of your neighbors. Are they obeying the safety rules? A neighbor's accident may injure you.
21. Avoid touching your/ace and rubbing your eyes while in the laboratory. If you must do so, first wash your hands.
22. Wash your hands before leaving the laboratory.
23. Never heat a closed container. Pressure build up can cause the container to explode.
24. Assume any chemical is hazardous if you are unsure.
25. Do not violate any other safety rule issued by your laboratory instructor.

Housekeeping Rules:

1. Clean up broken glass immediately with a broom and dustpan. Do not use your hands. Dispose of broken glass in the special container that is provided, never in a regular trash can.
2. Chemical spills must be cleaned up immediately. Immediately notify your instructor who will advise you how to clean it up and/or assist you. Dispose of the collected contaminated chemical properly as instructed.
3. Do not pour any chemical down into the sink or in the trash without authorization. Clearly labeled disposal bottles will be provided when needed.
4. Take containers to the stock of chemical reagents. Do not bring stock chemicals to your laboratory bench.
5. Read the label on a reagent bottle carefully. Is it the correct chemical? Is it the correct concentration?
6. Do not insert your own pipette, medicine dropper or spatula into a stock bottle.
7. Use special care with stoppers or tops of stock bottles. Do not allow them to pick up contamination.
8. Always replace the stopper or top of a stock bottle when you are finished taking some of the reagent. Make sure that you put the stopper or top back onto the correct bottle.
9. When pouring liquid from bottles, hold the bottle with the label against the palm of your hand so that the liquid is poured from the side opposite the label. If any liquid runs down the outside of the label, immediately wipe off the liquid.
10. Do not take any more of a reagent than is required. Many of the chemicals used in the laboratory, including deionized water, are costly.
11. Never return any unused reagent to a stock bottle. If you take too much of a chemical, dispose of it as directed by your instructor or offer it to a classmate who needs it.
12. Set up your glassware and apparatus away from the edge of your laboratory bench.
13. Thoroughly clean the area around your laboratory bench and the top of your laboratory bench be leaving lab.
14. Keep shared areas of the laboratory clean. This includes areas such as the balance room and where the stock bottles are stored. It is especially important to keep the balances clean and free of chemical spills.
15. Keep your laboratory equipment clean. Good results depend on clean equipment.
16. If a piece of equipment containing mercury is broken, inform your laboratory instructor immediate. Keep the area blocked off to avoid scatter.

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,

_____,

First Name Family Name

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