

Chemistry 1C Sec 07 Summer 2024

Dates: From 07/01 to 08/09

Lecture: MTWTh 11:30 AM – 012:45 PM Room S34

Lab: Sec 07 MTWTh 08:30-11:20 AM Room SC2208

Instructor: John Cihonski, e-mail: cihonskjohn@fhda.edu

Zoom code (if needed): <https://fhda-edu.zoom.us/j/9071890886>

Office Hours: By student request

General:

Course Goal: Provide a Chem 1C course with sufficient content so those in the sciences can succeed academically, with the understanding and ability to apply the course materials and problem solving skills that help build a solid foundation for further studies.

Absenteeism, verifiable excuses and reporting – Situations claiming an excuse but without a verifiability excuse have been increasing. So, all excuses *must* have a verifiable written excuse. For Covid the student *must* report through the De Anza at [Student COVID-19 Reporting \(deanza.edu\)](http://Student COVID-19 Reporting (deanza.edu)). If the situation is not properly addressed then the absence will be unexcused – no “makeup” permitted.

Chemistry 1C will focus on the following topics:

Chapter 13 Mixtures and Solutions

Chapter 19 Ionic Equilibria

Chapter 21 Electrochemistry

Chapter 23 Transition Metals and Coordination Compounds

Components of this course:

- Textbook Silberberg, 8e (provide e-copy). Read the recommended sections of the text then master the text example problems including the example follow-up problems labeled A & B. For adequate mastery of the material insure that you can work these problems without looking at hints or solutions. If you have a text hard copy that is not 8e or 9e then you should share a copy or obtain a copy of the homework from a friend.
- Lectures After reading the recommended text material and attending the lectures; you should understand the material sufficiently well to be solve the on slide questions (labeled as “Q” in red). The red Q’s are similar to the text and homework problems and *they will be the main focus on the exams*. Think of the lectures as being your ‘Exam Study Guide.’
- Homework (HW) is from the text (Silberberg 8e). The homework shouldn’t be difficult assuming you have read the text, studied the in-text examples and attended lectures. Your homework will be submitted as a *handwritten* document for grading. *Typed copies of the homework will not be accepted*. Since most answers are provided in the back of the text I will be looking for three things: (1) at a minimum you will attempt every problem, (2) your work will be legible and coherent (meaning that I can read and follow it) and (3) that you *show your work* (justify/support your result) and *explain* your reasoning. Your homework will be graded as either *acceptable* or *unacceptable*.

- Laboratory Experiments – Lab procedural PDFs are available on line from the school site: <https://www.deanza.edu/chemistry/Chem1C.html> Each lab will focus on a specific experimental topic and the resulting written reports should demonstrate that you have learned the concepts prepared a professional report. Examples will be discussed. We will be doing two types of labs – Research and Qualitative – which will be defined and clarified as we perform them.

The class will be doing the same laboratory procedure and you are free to discuss the lab with each other. However, everyone is responsible for their personal *independent* experimental write up. The labs and reports present an opportunity to demonstrate that you can break a problem down into simple steps; develop a rational, reasonable and meaningful solution that is presented in a coherent and *legible hand written report* as the “carbon copy” from your lab notebook. ***An example report will be shown and discussed in class prior to the first experiment.*** Think of this as a document you might use to promote your skills in the real world. Grading will be on a 25 point basis for the four experiments reports. To eliminate “1 point” time consuming irrelevant haggling the grades will be 0, 5, 15, 18, 20, 23 and 25 points (or on a 0, 20, 60, 72, 80, 92, and 100% basis if you prefer).

- Extra Credit (XC) Potential XC points will be available based on your HW assignments. If you successfully complete all four HW assignments then you will receive 3% points added to your final grade percentage Assume you completed 3 of the 4 HWs – then the points that will be added to your final grade will be $(3 \text{ HW completed} / 4 \text{ Possible HW}) \times 3\% = 2.25\%$. The intent is to boost hard working students to the next grade if they are close. So, if your current overall average is 78.2% (a C) then with the 2.25% added, your grade will improve to an 80.5% (a B).
- Exams There will be two (2) exams - A mid-term, Exam 1, covering the first two chapters and an Exam 2 that will cover the last two chapters (not comprehensive). Exam specifics will be discussed at the appropriate time. Be aware that lab related questions/problems are fair game on the exams.
- Plagiarism is presenting someone else’s work or ideas as your own. This has been a common occurrence and will not be tolerated. If caught you will be given a “0” for the assignment and you will be *further penalized the same number of points as the assignment is worth*. E.g. if the assignment is worth 20 points then you will earn a 0 for the assignment plus a penalty score of -20 will be added for plagiarism – meaning an overall loss of 40 pts!

Grading:

Exams (Mid-term + Final) (2 x 100 pts)	200
Labs (6 x 25 pt)	150
Home Work (Acceptable or Unacceptable)	See XC above
Total Points:	350

Grading: A (100-92%), B (91⁺-80), C (79⁺-65), D (64⁺-55)

Quarter Calendar: Chem 1C Summer 23
Estimated start and due dates are indicated but may be modified if necessary

Week of:	Monday	Tuesday	Wednesday	Thursday
Wk-1 July 01	Lecture Course Introduction <i>Intro C13</i>	General Q & A on course C13 Lecture	C13 Lecture	Holiday
	Lab Discuss Lab in general Cover Lab sample reports	<i>Check-in, Intro Freezing Point Lab & draft 1st lab plan</i>	Freezing Point Lab	
Wk-2 July 08	C13 Lecture	C13 lecture & HW Q&A	<i>Intro C19</i> C13 HW Due at start of Lab	C19 Lecture
	Freezing Point Lab	<i>Intro Titration Lab</i> Freezing Point Report Due	Titration Lab	Titration Lab
Wk-3 July 15	C19 Lecture	C19 Lecture	C19 Lecture	C13 & C19 review for E1
	<i>Intro Ksp & Common Ion Lab</i> Titration Report Due	Ksp & Common Ion Lab	Ksp & Common Ion Lab	<i>Intro Anion Qual Lab</i> Ksp & Common Ion Report Due
Wk-4 July 22	Exam 1 (E1) –for C13 & C19 C19 HW Due before E1	<i>Intro C21</i>	<i>E1 Grade results</i> C21 Lecture	C21 Lecture
	Anion lab or do E1 first??? Discuss options	Anion Lab	Anion Lab	<i>Intro Electrochemical Lab</i> Anion Qual Report Due
Wk-5 July 29	C21 Lecture	C21 Lecture & HW Q&A	<i>Intro C23</i> C21 HW due	C23 Lecture
	Electrochemical Lab	Electrochemical Lab	<i>Intro Cation Lab</i> Electrochemical Lab Report Due	Cation Lab
Wk-6 Aug 05	C23 Lecture	C23 Lecture & HW Q&A	C21 & C23 review for E2	Exam 2 – C21 & C23 Time/Place to be determined C23 HW due before E2
	Cation Lab	Finish Cation Qual Lab & Report Due at end of period	<i>Lab check-out</i>	

There is a 20%/day late (not just class days) penalty on all assignments (HW, LEs, Exams & XCs) assessed based on the time they are actually received. Example, if an exam is due by 3 PM of a certain day but it not received until after it is due then the document will be considered to be one day late and the clock will then restart at midnight that day.

Topic 1: Mixtures, Solutions & Colligative Properties (C13)

Textbook/Lectures: Read C13 sections 1 & 4 to 6. Recommended that you read, understand and can work through the in text example problems (without the need to look for hints) then work the A and B related examples. The A and B worked answers are provided at the beginning of the “Problems” section at the end of each chapter.

Homework (HW): Problems from Silberberg 8e and 9e – with select answers in the Appendix: 4 5 7 8 9 12 13 16 44 45 46 49 52 53 55 59 61 65 69 70 75 84 88 91 93 94 97 101 102 107 110. Remember: For credit you must at a minimum attempt all the problems, clearly show your work and explain your answer – not just copy the answer from the book – in a hand written document.

Lab Experiment (LE): (See: <https://www.deanza.edu/chemistry/Chem1C.html>). The first lab will be the Freezing Point Experiment.

Topic 2: Ionic Equilibria (C19)

Textbook/Lectures: Read C19 all sections

HW: Problems from Silberberg 8e and 9e – with select answers in the Appendix: 3 5 8 17 24 27 35 43 47 50 52 53a 54a 64 70 72 74 76 79 84 88 89 92 97 104.

LE: Here you will be doing three labs (1) Titration and Buffers – ONLY THE TITRATION PORTION (2) K_{sp} and Common Ions and (3) Qualitative Unknown Anion Analysis and PDFs for these procedures are on the site mentioned above.

Topic 3: Electrochemistry (C21)

Textbook/Lectures: Read C21 – all sections

HW: Problems from Silberberg 8e and 9e – with select answers in the Appendix: 2 3 6 9 13 15 23 25 26 28 31 34 37 39 41 45 47 52 54 57 61 69 83 88 102.

LE: This Electrochemical Lab is a simple battery construction and analysis project. PDF is available from the site above.

Topic 4: Transition Metals & Coordination Compounds (C23)

Textbook/Lectures: Read C23 – skim Section 1 then read 3 & 4

HW: Problems from Silberberg 8e and 9e – with select answers in the Appendix: 11 15 22 23 35 36 44 46 47 49 50 54 58 62 63 66 76 78 81 87 91 95 98 102 110.

LE: Here you will be doing an extension of your Chapter 19 studies that involves the metals chemistry introduced in C23. The lab Qualitative Cation Analysis PDF of this procedure is available from the site mentioned above.

Student Learning Outcome(s):

- Apply the principles of equilibrium and thermodynamics to electrochemical systems.
- Apply the principles of transition metal chemistry to predict outcomes of chemical reactions and physical properties.
- Evaluate isotopic decay pathways.
- Demonstrate a knowledge of intermolecular forces.

Office Hours: