Chemistry 1C Sec 01 & 02 Winter 2023

Course Dates and Times:

Dates: From 01/09 to 03/30

Lecture: MW 12:30 AM – 01:45 PM Room SC1102

Lab: Sec 01 MW 08:30-11:20 AM Room SC2208
Sec 02 MW 02:30-05:20 PM Room SC2208

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

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

Office Hours: MW 11:30 AM – 12:20 PM in Chemistry Office area

General:

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

Absenteeism, verifiable excuses and reporting – Situations claiming an excuse but without a verifiability excuse have been increasing. The major excuse is Covid. 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). 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 (or 9e). 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 your copy is not the 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 but being just one step up the learning curve 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/9e). 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 attempt every problem, (2) that your work is 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 (LE)* 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 before 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 presented in a rational, coherent, and legible, independently *hand written report* that will be submitted 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 usually irrelevant haggling the grades will be 0, 5, 15, 18, 20, 23 and 25 points (or a 100, 90, 80, 70, 60% 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 HW completed/4 Possible HW) x 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 (4 x 25 pt)	100
Home Work (Acceptable or Unacceptable)	See XC above
Total Points:	300

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

Quarter Lecture Calendar: Chem 1C W23

Estimated start and due dates are indicated and will be modified as needed.

Week of:	Monday	Wednesday
Week of Jan 08	Course Intro (Syllabus)	General Course Q & A Start C13
Week of Jan 15	Holiday	C13 Cont.
Week of Jan 22	Census C13 Cont.	Finish C13 w HW Q&A Start C19 if time
Week of Jan 29	C19 Cont. **C13 HW due**	C19 Cont.
Week of Feb 05	Finish C19 w HW Q&A	Student driven C13 & C19 Review **C19 HW due (√ & return today)**
Week of Feb 12	**Exam 1 (E1)** – covering C13 & C19	Start C21
Week of Feb 19	Holiday	C21 Cont.
Week of Feb 26	C21 Cont.	Finish C21 w HW Q&A
Week of Mar 05	Start C23 **C21 HW due**	C23 Cont.
Week of Mar 12	C23 Cont.	C23 Cont.
Week of Mar 19	Finish C23 w HW Q & A	Student driven C21 & C23 Review C23 HW due (√ & return today)
Week of Mar 26	Grade Check before E2 (All but E2) **Exam 2**	After E2 is graded – provide E2 and final grade *on an individual basis by personal request only*

There is a 20%/day late penalty on all assignments (HWs, LEs & Exams) assessed based on the email time they are received.

Quarter Lab Calendar: Chem 1C W23

Estimated start and due dates are indicated and will be modified as needed.

Week of:	Monday	Wednesday
Week of Jan 08	*Check-In*, Labs, Experimental Approach & Example Lab Report	Freezing Point 1 – Introduce Lab
Week of Jan 15	Holiday	Freezing Point 2
Week of Jan 22	Freezing Point 3	Titrations 1 – Introduce Lab **Freezing Point Report Due**
Week of Jan 29	Titrations 2	Titrations 3
Week of Feb 05	Anion & K_{sp} 1 – Introduce Lab	Anion & Ksp 2 **Titrations Report Due**
Week of Feb 12	Anion & K_{sp} 3	Anion & K_{sp} 4
Week of Feb 19	Anion & K_{sp} 5 Reminder: E1 in Lecture	Anion & K_{sp} 6
Week of Feb 26	Holiday	Electrochemistry 1 – Introduce Lab Anion & K_{sp} Report Due
Week of Mar 05	Electrochemistry 2	Electrochemistry 3
Week of Mar 12	Electrochemistry 4	**Electrochemistry Report Due**
Week of Mar 19	Open/C23 related	Open/C23 related *Lab Check-Out*
Week of Mar 26	Grade Check before E2 (All but E2) **Exam 2**	

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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 (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 you are introduce to 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 metail chemistry to predict outcomes of chemical reactions and physical properties.

*Evaluate isotopic decay pathways.

*Demonstrate a knowledge of intermolecular forces.

Office Hours:

M,W	11:30 AM	12:20 PM	In-Person	Chemistry Faculty Office Area
M,W	1:30 PM	2:30 PM	In-Person	MLC103