

Syllabus for: CHEM001 – CRN# 10630 – SCC Spring 2023

Welcome to chemistry! This will be difficult and require a lot of time and effort but I'm here to help along the way. If you made it this far, you do belong here and I'm excited for the opportunity to be your professor and looking forward to meeting and working with all of you. Let's have a great semester!

1. Quick Info:

- Lecture – meets in Vallejo room 242 from 9:00 - 10:15 am Tue/Thu starting Tue, Jan 17
- Lab - meets in Vallejo room 211 from 10:30 am - 1:20 pm Tue/Thu starting Tue, Jan 17
- Student Help Hours:
 - Fairfield:
 - Mon/Wed – 9:00-9:30 am room 2703
 - Wed – 1:50-3:00 pm in ASTC
 - Vallejo:
 - Tue/Thu – 9:00-9:30 am room 242
 - Thu – 1:20-2:30 pm room 211
 - Also by Discord (various times) and appointment!
- Personal questions/issues: email me commodore.st.germain@solano.edu or text/call at (707) 386-9588
- Class questions should be posted on the same Discord: <https://discord.gg/ZJcMGZXByg>
- You will need the class materials on the first day of class (see below)
- You are required to follow specific SCC COVID requirements here: <https://welcome.solano.edu/coronavirus/>.
- This syllabus is only a guideline and adjustments may be made as needed throughout the semester.

2. How the class will be run:

In general, this standard grading scheme will be used to determine the final grade: 90.00-100.00% A; 80.00-89.99% B; 70.00-79.99% C; 60.00-69.99% D (not passing); 59.99% or less F (not passing). I do not round and I do not give out free points because you are expected to earn your grade.

- Lecture is ~1 hour and 15 minutes long and will be a combination of traditional lectures and in-class activities. Here we will discuss concepts, work through practice problems, and have question and answer sessions. You are also encouraged to ask questions about things that you don't understand. You are expected to attend lectures and actively participate in class discussions and activities. I will attempt to record lectures and post links on Canvas but the lecture recordings are not guaranteed. If you miss something it is up to you to make up what you missed.
- Lab is ~3 hours will consist of in-class lab activities, wet experiments, computer simulations, worksheets, and/or group activities. Labs are mandatory and if you miss 2 labs, you can be dropped from the class.

Grading:

Grading Scheme		Grading Without Optional Assignments	
Grading / Exams	Percent of Final Grade	Grading / Exams	Percent of Final Grade
4 Exams	40.00%	4 Exams	~41.67%
Final	20.00%	Final	~20.83%
Lab Activities	20.00%	Lab Activities	~20.83%
Take Home Quizzes	10.00%	Take Home Quizzes	~10.42%
In Class Quizzes	5.00%	In Class Quizzes	~5.21%
Mandatory Assignments	1.00%	Mandatory Assignments	~1.04%
Optional Assignments	4.00%		

Homework/Assignments:

We will cover 1 chapter every 1-2 weeks. For each chapter there will be assignments as follows:

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- Key Term definitions (mostly optional) - define the assigned (see below) key terms at the end of the chapter - due the day before we start a chapter.
- Review Questions (mostly optional) - answer the assigned (see below) review questions at the end of the chapter - due ~1 week after we start a chapter.
- Key Concept Videos (mostly optional) - watch the assigned (see below) key concept videos and copy the problem and provide 1-3 sentences on why you chose your answer - due ~1 week after we start a chapter. Videos can be found at: https://media.pearsoncmg.com/ph/esm/esm_tro_chemistry_5/media/index.html.
- Miscellaneous Activities (mostly mandatory) – activities/assignments to help you learn chemistry, Canvas, or other concepts.

Lab Activities:

Labs will be mostly from the lab manual (see Class Materials) but there will be other provided lab activities. Lab grades will be from the successful completion of in-class lab activities, using safe lab practices, accuracy of lab results, and keeping a complete, legible, and accurate lab notebook.

Quizzes:

There will be 4 take-home quizzes throughout the semester (25 points each). You will do the problems and submit pictures of your work through canvas. All work must be shown. This is due the day before the midterm. The questions will be provided at least 2 weeks before the midterm so you have 2 weeks to work on it. There will also be in class quizzes at the beginning of the lecture that will be on problems from the previous lecture. There may also be 2 additional SLO in-class quizzes that are timed (5 points each). I will give you advanced notice if we are having these 2 additional SLO in-class quizzes.

Exams:

There will be 1 exam for each section. The first 3 exams will be taken during normal lecture/lab time and are multiple choice and will have a time limit of ~1.5 hours unless you have arranged additional time through DSP. It will consist of ~10 true/false questions, ~10 short multiple choice questions, and ~10 long/work/draw multiple choice problems. You are required to show all of your work and your work must be submitted at the end of the exam. The last exam will be 45 minutes long, will be about half the amount of questions and consists of short multiple choice questions, and work/draw multiple choice problems. Most of the exam questions will be on the in-class questions, take-home quiz questions, assignments, or very similar. Tests are open book but you will not have enough time to complete the test if you do not readily know the material. There are no make-up exams. If you miss an exam AND you have a confirmed medical excuse, your missed exam grade can be determined by your next exam grade. This replacement policy applies only to missing one exam.

Final:

There will be 1 cumulative final that covers sections #1-4 (mostly exams 1-3) in the same format as the midterms.

3. Class Materials:

- Device(s) and connection that can access and upload documents to Canvas and Discord.
- Calculator – non phone
- Text Book - Chemistry: A Molecular Approach, 5th Edition, Pearson Publisher, Tro – regular (used or loose leaf are both okay) or eText ([link - \\$9.99/mo](#)).
- Lab Manual – Exploring General Chemistry in the Laboratory, Customized for Solano Community College, Morton Publishing (get at the SCC bookstore)
- Lab Notebook – Bound Composition Notebook - 8.5x11” size would be the easiest for you (you can get these for <\$5.
- Safety goggles
- Safety gloves
- Lab coat (optional)

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4. Who I am:

My name is Commodore St. Germain (he/him). I did the bay area community college circuit as a student (NVC, SCC, DVC, Chabot, Merritt), earned my BS biochemistry/BA chemistry from SFSU 2014, and my PhD in Biochemistry, Molecular, Cellular, and Developmental Biology from UC Davis in 2020. I've been teaching since 2019 (chemistry, biology, and biotechnology). I spend a lot of my time: with my family/friends/dogs, exercising, watching true crime shows/anime, and talking (dreaming) about food. See more at <https://www.comstgermain.com>.

5. Course Description:

Presents principles of general chemistry for students in science, engineering, medical and related professions. Topics include atomic structure and theory, the periodic table, bonding, gas laws, stoichiometry, solutions, ionization, thermochemistry and equilibrium. This course requires significant math skills and previous knowledge of fundamental chemistry concepts. Field trips and online work may be required. 5 unit course. (CHEM 001 = C-ID CHEM 110) (CHEM 001 + CHEM 002 = C-ID CHEM 120S) General Education: SCC: Area A; IGETC: Area 5A, 5C; CSU: Area B1, B3 -- Transferable to UC/CSU -- Hours: 48-54 lecture, 96-108 lab

6. Prerequisites:

CHEM 160 (recommended for students with no previous chemistry) or CHEM 010 (recommended for students who have had an introductory level chemistry course) with a minimum grade of a C or a score of 3, 4, or 5 on the Chemistry AP exam; and MATH 104 or eligibility for MATH 002 based on a Multiple Measures Evaluation

7. Resources:

- If you are having problems, please email me or come to my office hours as soon as possible.
- Admissions and Records important dates: <https://welcome.solano.edu/ar-dates/>
- Distance Education Resources: http://www.solano.edu/online_classes/
- Canvas Help Desk: Click on the "Help?" question mark in the lower left corner of your Canvas screen for current help desk hours, phone numbers, and Canvas tutorials. (Links to an external site: <https://community.canvaslms.com/t5/Student-Guide/tkb-p/student>) is a great resource for how-to information and tutorials.
- Student Services: http://www.solano.edu/online_student_services/
- Library: <https://libguides.solano.edu/libraryresources>
- Financial Aid: http://www.solano.edu/financial_aid/
- Discrimination and Sexual Harassment: http://www.solano.edu/student_service/grievances.php
- Tutoring: If you want tutoring and/or suspect you will need tutoring contact Solano College Academic Success and Tutoring Center as soon as possible - http://www.solano.edu/academic_success_center/. Sign up here: <https://solano.instructure.com/enroll/EKEA7Y>
- If you have a disability or think you have a disability please contact Solano College Accessibility Services Program as soon as possible so they can help acquire resources for you - <http://www.solano.edu/dsp/index.php>

8. Plagiarism/Cheating:

From the SCC Student Handbook:

"An instructor who determines that a student has cheated or plagiarized has the right to give a failing (i.e. "F") grade, or numerical equivalent, for the assignment or examination. Instances of alleged plagiarism or any other form of academic dishonesty may be referred to the Chief Student Services Officer for action in accordance with the established disciplinary procedures as set forth in Solano Community College Board Policy, §5300. Following procedures consonant with due process, a student may be expelled, suspended, or given a lesser sanction if he or she is found to have

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committed an act of academic dishonesty. The totality of the particular circumstances, the student involved, and any relevant mitigating factors shall be considered in every case."

9. Attendance and Participation:

From the SCC Student Handbook:

"Students must attend the first meeting of their classes to assure verification of their enrollments. Students failing to appear may be dropped from class rolls [Board Policy 5020]. Regular attendance and participation is required of all students enrolled in courses and laboratories at Solano College. This includes regular attendance, completion of examinations, assignments, participation in class activities and discussions. Instructors shall provide students with written statements describing course requirements, grading standards and course prerequisites. Regular attendance is an obligation assumed by every student at the time of registration. Absences per semester should not exceed the number of hours or the number of days that a class meets per week. Absences in excess of the maximum may result in students being dropped from classes or having their grades lowered."

10. Sick Policy:

If you are sick, stay home! Let me know as soon as possible and we may be able to find you alternative assignments for the time that you are sick. Follow SCC guidelines found here: <https://welcome.solano.edu/coronavirus/>.

11. Workload:

Be prepared for about 15 hours of work per week in this course to pass. Additional effort may be needed to get higher than average grades. A three unit "lecture" course, by virtue of what is known as the Carnegie Unit, mathematically establishes a standard the amount of work expected from a student (and the instructor) in a 18-week course. California state law upholds this, see California Code of Regulations, Education Code, Title 5, Section 55002.5.

12. Student Learning Outcomes:

As a result of successful completion of this course, a student will be able to:

- Solve problems related to chemical stoichiometry.
- Relate atomic and molecular structure to the periodic table and chemical properties.
- Show proficiency in one or more lab techniques (titration, melting point apparatus, distilling, filtering, etc.).

Additional information can be found at <https://solano.elumenapp.com/public/> -> Chemistry -> This Class

13. Homework/Assignment List (optional after chapter 2):

Reading and Homework for Exam 1

Chapter	Reading Sections	Key Concept Videos	Key Terms	Review Questions
2 (Atoms and Elements)	2.6-2.9	all	2.5-2.9	13-28
9 (Periodic Properties of the Elements)	9.5-9.9, skip magnetic properties for now	Period Trends and Effective Nuclear Charge	9.1, 9.4-9.8	24-38
10 (Chemical Bonding I: The Lewis Model)	10.2-10.4, 10.6, 10.10-10.11, skip electron configurations for now	The Lewis model for Chemical Bonding, Electronegativity and Bond Polarity	10.1-10.10	1-4, 9-14, 19-23, 31-34

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11 (Chemical Bonding II: Molecular Shapes and Polarity)	11.2-11.3, 11.5, only go up to tetrahedral/4 electron groups for now	VSEPR Theory, VSEPR Theory: The Effect of Lone Pairs, Molecular Shape and Polarity	11.2-11.3	1-5b, 6-7
12 (Liquids, Solids, and Intermolecular Forces)	all	all	all	all

Reading and Homework for Exam 2

Chapter	Reading Sections	Key Concept Videos	Key Terms	Review Questions
14 (Solutions)	all	all	all	all
3 (Molecules and Compounds)	all	all	all	all
4 (Chemical Reactions and Chemical Quantities)	all	all	all	all
5 (Intro to Solutions and Aqueous Reactions)	all	all	all	all

Reading and Homework for Exam 3

Chapter	Reading Sections	Key Concept Videos	Key Terms	Review Questions
6 (Gases)	all	all	all	all
7 (Thermochemistry)	all	all	all	all
16 (Chemical Equilibrium)	all	all	all	all

Videos can be found at: https://media.pearsoncmg.com/ph/esm/esm_tro_chemistry_5/media/index.html

14. Schedule:

This is the tentative schedule and may (probably will) change. The most up-to-date schedule will be on Canvas:

Day/Date	Wk	Lecture (chapter) (9:00-10:15 pm room VJO 242)	Lab (10:30-1:20 pm room VJO 211)
Tue, Jan 17, 2023	1	Atoms and Elements (2)	Safety, schedule, weights, volumes, equipment, etc
Thu, Jan 19, 2023	1	Periodic Properties (9)	lecture continued
Tue, Jan 24, 2023	2	Chemical Bonding I: The Lewis Model (10)	Graphing and Graphing Assignment
Thu, Jan 26, 2023	2	Chemical Bonding II: Molecular Shapes and Polarity (11)	LA F.2: Nomenclature
Tue, Jan 31, 2023	3	Liquids, Solids, and Intermolecular Forces (12)	LA 7.1 Molecules in 3D
Thu, Feb 2, 2023	3	Liquids, Solids, and Intermolecular Forces (12)	LA 13.2 Surface Tension and Capillary Action
Tue, Feb 7, 2023	4	Liquids, Solids, and Intermolecular Forces (12)	LA 6.1: Atomic Emission Spectra

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Thu, Feb 9, 2023	4	Review Day	review
Tue, Feb 14, 2023	5	Online: Quantum Chem 1	Midterm 1
Thu, Feb 16, 2023	5	Solutions (14)	LA 14.1 Freezing Point Depression
Tue, Feb 21, 2023	6	Solutions (14)	Exam Review / Periodic Table
Thu, Feb 23, 2023	6	Solutions (14)	LA 2.1: Composition of Chemical Compounds (parts C + D) - part B?
Tue, Feb 28, 2023	7	Molecules and Compounds (3)	LA 2.2: Empirical Formula of a Copper Compound
Thu, Mar 2, 2023	7	Molecules and Compounds (3) & Chem Rxns (4)	Quantum Chem 2
Tue, Mar 7, 2023	8	Chemical Reactions and Chemical Quantities (4)	LA 3.2 Limiting Reactants
Thu, Mar 9, 2023	8	Aqueous Reactions (5)	Oxidation Numbers
Tue, Mar 14, 2023	9	Aqueous Reactions (5)	LA 3.3: Analysis of Antacids
Thu, Mar 16, 2023	9	no class	no class
Tue, Mar 21, 2023	10	Review Day	Review
Thu, Mar 23, 2023	10	Quantum Chem 3	Midterm 2
Tue, Mar 28, 2023	11	Gases (6)	LA 3.1 Acid Base Titrations
Thu, Mar 30, 2023	11	Gases (6)	Midterm 2 Review
Tue, Apr 4, 2023	12	Gases (6) / Thermochemistry (7)	LA 4.1 Ideal Gas Law
Thu, Apr 6, 2023	12	Thermochemistry (7)	LA 5.1 Thermochemistry and Hess's Law Day 1
Tue, Apr 11, 2023	13	no class	no class
Thu, Apr 13, 2023	13	no class	no class
Tue, Apr 18, 2023	14	Thermochemistry (7)	LA 5.1 Thermochemistry and Hess's Law Day 2
Thu, Apr 20, 2023	14	Equilibrium (16)	LA 9.1 Equilibrium

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Tue, Apr 25, 2023	15	Equilibrium (16)	LA 3.1 Acid Base Titrations (repeat) - Graded Accuracy
Thu, Apr 27, 2023	15	Equilibrium (16) / Review	Equilibrium Tutorial and Worksheet
Tue, May 2, 2023	16	Review Day	Review
Thu, May 4, 2023	16	Quantum Chem 4	Midterm 3
Tue, May 9, 2023	17	Quantum Chem 5	LA 13.2 Surface Tension and Capillary Action (repeat) -Graded Accuracy
Thu, May 11, 2023	17	Midterm 4	Review
Tue, May 16, 2023	18	Finals week	no lab
Thu, May 18, 2023	18	Final 8:00-10:00 am	no lab