

Syllabus for: CHEM001 – CRN# 80666 – SCC Fall 2022

1. Quick Info:

- Lecture – meets in Fairfield room 2703 from 8:00 - 9:15 am Mon/Wed starting Mon, Aug 15
- Lab - meets in Fairfield room 2739 from 9:30 am - 12:20 pm Mon/Wed starting Mon, Aug 15
- Office hours:
 - Vallejo VJOCTR 215: 8:30-9:00 am – Tue/Thu
 - Fairfield ASTC: 12:30-1:30 - Mon
 - Fairfield 1819: 12:30-1:30 pm – Wed
 - Vacaville VVCTR 215: 3:15-3:45 pm – Tue/Thu
- STEM Club: Fairfield 1819: 12:30-1:30 pm – Wed
- 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/VTNm4P4hZ2>
- 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/>. These may change over time. You are scientists and the scientific evidence shows that these guidelines have been effective in minimizing COVID-19 hospitalizations. It is important that we lead by example to benefit public health. If you cannot follow these guidelines, please consider taking a fully online section of CHEM 001 or contact Solano College directly and immediately. Failure to do so may result in you not being able to complete CHEM 001 this semester.
- 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: 90-100% A; 80-89% B; 70-79% C; 60-69% D; 59% or less, F. 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%	4 Exams	~43.5%
Final	20%	Final	~21.7%
Lab Activities	20%	Lab Activities	~21.7%
Mandatory Assignments	2%	Mandatory Assignments	~2.2%
Optional Assignments	8%		
Quizzes	10%	Quizzes	~10.9%

Homework/Assignments:

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

- 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.

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- 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.
- Discussions (mostly optional) - participate in the assigned Canvas discussion for each chapter - due ~1 week after we start a chapter.
- Miscellaneous Activities (mostly mandatory) – activities/assignments to help you learn chemistry, Canvas, or other concept.

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 may also be 2 in-class quizzes that are timed (5 points each). I will give you advanced notice if we are having these 2 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 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 – Graph Ruled Solid Composition Notebook - 8.5x11” size would be the easiest for you (you can get these for \$3-\$4).
- Safety goggles
- Safety gloves (optional)
- Lab coat (optional)

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4. Who I am:



My name is Commodore St. Germain. I did the bay area community college circuit as a student (NVC, SCC, DVC, Chabot, Merritt), earned my BS biochemistry and 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.

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 Disability Services Program as soon as possible - <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 will 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 -> CHEM001 or at <http://www.solano.edu/slo/>.

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) (8:00-9:15 am room 2703)	Lab (9:30-12:20 pm room 2739)
Mon, Aug 15, 2022	1	Atoms and Elements (2)	Safety, schedule, weights, volumes, equipment, etc
Wed, Aug 17, 2022	1	Periodic Properties (9)	lecture continued
Mon, Aug 22, 2022	2	Chemical Bonding I: The Lewis Model (10)	Graphing
Wed, Aug 24, 2022	2	Chemical Bonding II: Molecular Shapes and Polarity (11)	LA F.2: Nomenclature
Mon, Aug 29, 2022	3	Liquids, Solids, and Intermolecular Forces (12)	LA 7.1 Molecules in 3D
Wed, Aug 31, 2022	3	Liquids, Solids, and Intermolecular Forces (12)	LA 13.2 Surface Tension and Capillary Action
Mon, Sep 5, 2022	4	Labor Day (no class)	no class

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Wed, Sep 7, 2022	4	Liquids, Solids, and Intermolecular Forces (12)	LA 6.1: Atomic Emission Spectra
Mon, Sep 12, 2022	5	Review Day	
Wed, Sep 14, 2022	5	Online: Quantum Chem 1	Midterm 1
Mon, Sep 19, 2022	6	Solutions (14)	LA 14.1 Freezing Point Depression
Wed, Sep 21, 2022	6	Solutions (14)	
Mon, Sep 26, 2022	7	Solutions (14)	LA 2.1: Composition of Chemical Compounds (parts C + D) - part B?
Wed, Sep 28, 2022	7	Molecules and Compounds (3)	LA 2.2: Empirical Formula of a Copper Compound
Mon, Oct 3, 2022	8	Molecules and Compounds (3) & Chem Rxns (4)	Quantum Chem 2
Wed, Oct 5, 2022	8	Chemical Reactions and Chemical Quantities (4)	LA 3.2 Limiting Reactants
Mon, Oct 10, 2022	9	Aqueous Reactions (5)	Oxidation Numbers
Wed, Oct 12, 2022	9	Aqueous Reactions (5)	LA 3.3: Analysis of Antacids
Mon, Oct 17, 2022	10	Review Day	LA 3.1 Acid Base Titrations
Wed, Oct 19, 2022	10	Quantum Chem 3	Midterm 2
Mon, Oct 24, 2022	11	Gases (6)	
Wed, Oct 26, 2022	11	Gases (6)	LA 4.1 Ideal Gas Law
Mon, Oct 31, 2022	12	Gases (6) / Thermochemistry (7)	
Wed, Nov 2, 2022	12	Thermochemistry (7)	LA 5.1 Thermochemistry and Hess's Law
Mon, Nov 7, 2022	13	Thermochemistry (7)	
Wed, Nov 9, 2022	13	Equilibrium (16)	LA 9.1 Equilibrium
Mon, Nov 14, 2022	14	Equilibrium (16)	Quantum Review
Wed, Nov 16, 2022	14	Equilibrium (16) / Review	Equilibrium Tutorial and Worksheet

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Mon, Nov 21, 2022	15	Review Day	
Wed, Nov 23, 2022	15	no class	no class
Mon, Nov 28, 2022	16	Quantum Chem 4	Midterm 3
Wed, Nov 30, 2022	16	Quantum Chem 5	LA 3.1 Acid Base Titrations (repeat)
Mon, Dec 5, 2022	17	Midterm 4	LA 13.2 Surface Tension and Capillary Action (repeat)
Wed, Dec 7, 2022	17	Review	Review
Mon, Dec 12, 2022	18	no class	
Wed, Dec 14, 2022	18	Final 8:00-10:00 am	