

Chemistry 3A Course Syllabus General Chemistry

Santa Rosa Junior College Spring 2025

Instructor: Dr. Mary J. Cornett

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Lecture

T, Th 12:00-1:20, Lindley 396

Office Hours

T 1:20-1:50, Lindley 396 (after lecture)

T 1:50-2:20, Lindley 318 (may be in 322)

Th 11:00-11:50 Lindley 396 (before lecture)

This syllabus is to be considered as an agreement. Continued registration in this course means that you agree to the policies and procedures outlined in this syllabus. This syllabus is intended to give the student guidance in what may be covered during the semester and will be followed as closely as possible. However, the instructor reserves the right to modify, supplement and make changes as the course needs arise.

Important Dates

Sunday, Jan. 26 – Last day to drop with full refund

Sunday, Feb. 2 – Last day to drop without a W (or add w/approval)

Sunday, April 20 – Last day to withdraw with a W

Thursday, May 22 10:00am-12:45pm - Final exam

Course Description

This course teaches general principles of chemistry including atomic theory, bonding, stoichiometry, kinetic molecular theory, properties of mixtures, the periodic table and thermodynamics. This is the first semester of a one-year program of general chemistry.

Prerequisites

Concurrent enrollment in 3A and 3AL AND Course Completion of CHEM 42, or one year of high school chemistry taken within the last five years with a grade of B or higher; AND Course Completion of MATH 154 or MATH 155 or MATH 156 or higher (MATH) or appropriate placement based on AB705 mandates.

Student Learning Outcomes:

Upon completion of this course, students will be able to:

1. Describe matter, its transformations and corresponding energy changes according to prevailing chemical theories.

2. Interpret and solve problems in a chemical context using quantitative reasoning.

Objectives:

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

1. Use dimensional analysis and stoichiometry to solve quantitative chemical problems.
2. Apply atomic theory in describing matter, including chemical nomenclature and physical and chemical processes.
3. Summarize the quantum mechanical structure of the hydrogen atom in light of its emission spectrum, and apply it to many-electron systems.
4. Calculate energy changes in calorimetry and chemical reactions.
5. Use the periodic table of elements to recognize trends and patterns, and to perform calculations.
6. Describe the bonding and shapes of simple compounds with a range of models.
7. Apply kinetic-molecular theory to the behavior of ideal and real gases.
8. Relate intermolecular forces to the physical properties of matter.
9. Calculate the effects of solute concentration on the physical properties of solutions.

Required Course Materials

1. Textbook: Zumdahl and DeCoste, Chemistry, 11th Edition (Cengage, 2023)
2. Online Homework: OWLv2 (includes eBook access) Several formats for the textbook and OWLv2 access are available. A summary of the options (as I understand them) can be found in Canvas.
3. A scientific **calculator** with exponential & logarithmic capabilities.

Grading: Lecture

Grades are neither bestowed upon students by instructors, nor are they an entitlement, but are entirely *earned* by students. Realize that both objective factors (such as exam scores and problem/homework scores to which numerical values can be assigned) and subjective factors (such as effort, improvement, initiative, honesty, participation, academic growth, etc., which cannot be easily tagged with a number) will be taken into account at the end of the semester when letter grade assignments are made. Borderline cases will be decided after taking into consideration such factors as: *academic growth, classroom participation, initiative, attendance, punctuality, positive attitude and individual motivation.*

Your semester grade is based on four unit exams, a small homework/quiz component, and the final exam.

Unit exams	64 %
Final exam	16 %
Quizzes	10 %
OWL homework	10 %
Maximum Possible	100 %

Approximate Scale for Letter Grades

A (88-100%) B (77 – 87%) C (66 – 76%) D (50 – 65%) F (Below 50%)

Make-up Policy

All exams will be given in class on the day and time listed on the schedule. Missed exams due to medical and family emergencies will be addressed on an individual basis; however, valid documentation must be provided. There are no make-up labs.

Unit Exams

Each of the four unit exams will be based on material covered in classroom and homework completed to that date.

Final Exam

The final exam will be a comprehensive, mostly multiple-choice exam covering all topics covered during the semester and separated into 4 sections corresponding to the subjects of your 4 unit exams and the last material of the semester. The grade on one low scoring unit exam can be replaced with a better score in the corresponding unit in the final exam.

Quizzes

Quizzes are assigned on-line for each chapter and will be announced in advance.

Homework

There will be approximately 11 homework assignments corresponding to each chapter covered in the textbook. The homework will be completed and turned in using the OWLv2 homework system (see above website for registration link). An assignment that has 90% credit online will receive full credit in the grade book. This is to make up for any problems with the website we may encounter throughout the semester. Although the questions on the exams generally cover the same material, they are not written in the same style as the homework. Aim to learn the concepts!

Student Expectations

Academic Decorum

All students are expected to know the Student Conduct Code (<https://student-conduct.santarosa.edu/>) and adhere to it in this class. Inappropriate behavior in the classroom will result in a referral to the Vice President of Student Services for disciplinary due process.

Each student is expected to be considerate and polite to fellow students and instructor. Please turn off all potentially disruptive electronic devices before start of class. If arriving late, please enter quietly. If you must leave due to exigent circumstances, please seat

yourself such that you can exit with minimal disruption to other students and the instructor.

Academic Integrity

Students are expected to complete all assignments, lab reports and examinations with total honesty. Although working together on these assignments is allowed, each student must do his/her own work and use his/her own words. **Copying another student's work or laboratory assignments is considered cheating and both students will receive a ZERO for the assignment.** Please read the college policy/procedure on academic integrity at: <https://rightsresponsibilities.santarosa.edu/academic-integrity> Students who violate the district standards of academic honesty by engaging in cheating, plagiarism, impersonation, mis-representation of facts or committing other acts of dishonesty will be dismissed and a grade of "F" will be assigned, regardless of their level of performance up to that point in the semester.

Attendance

Your regular attendance in lecture highly encouraged. Class attendance is a critical component of the learning process. Lectures will be recorded and posted on the Canvas website, however, the pace of the class during the summer means that waiting until recorded lectures are posted may cause you to fall behind. You also miss important opportunities to ask questions and participate more fully in the learning process. Class meetings start on the half hour. Conversations should end at that time, and you should be prepared to commence taking notes and working on practice problems. Every attempt should be made to arrive on time to minimize disruptions to the class. All students should bring a calculator and be prepared to work on problems in class.

Course Policies

Re-evaluation of Graded Work

If you believe that your work has been graded incorrectly, please attach a brief note explaining the suspected error and submit it to me within two weeks of the day it was returned to the class. Do not write on any work that you are submitting for a re-grade. If you are comparing your graded materials with that of other students, both your work and that of your colleague must be submitted together for consideration. The entire submission will be re-evaluated, and the score may be adjusted up, down, or not at all.

Drops, Withdrawals, and Incompletes

Please be aware, it is the students' responsibility to drop any course that they do not intend to complete and accept a grade. Last date to drop this course without a 'W' is 02/02/2025, last day to drop with 'W' is 04/20/2025. The instructor may drop any student enrolled in a course that is not present or has not made prior arrangements with the instructor by the second class roll call.

Safety and General Information

Emergency Information

In the event of an emergency, remain calm and take deliberate action as necessary. If an evacuation is ordered, take your belongings (if there is time) and exit the building in an orderly manner. Wait outside with your class in a safe area that allows access for emergency vehicles. Copies of the Emergency Preparedness Handbook are posted throughout the building. Any type of emergency can be reported to the District Police Dispatch at (707) 527-1000.

Accommodations for Students with Disabilities

If you need disability-related accommodations for this class, such as a note taker, test-taking services, special furniture, etc., please provide the authorization letter from the Disability Resources Department (DRD) to your instructor as soon as possible. You may also speak with me privately during office hours about your accommodations. Please fill out any paperwork for testing accommodations in advance of the exam, and keep me informed of what you need. I am happy to provide accommodations, but I do appreciate having a few days' advance notice. If you do not have authorization from DRD, contact the office directly (527-4278).

Chem 3A Class Calendar Spring 2025

Tentative

Week	Day	Date	Lecture Topics	Lab This Week
1	T	1/14/2025	Intro/Ch. 1	Intro/Safety/Locker Check (Monday lab also does Excel)
	Th	1/16/2025	Ch. 1: Chemical Foundations	
2	M	1/20/2025	Martin Luther King Holiday	Measurements (no Monday lab)
	T	1/21/2025	Ch. 1: Chemical Foundations	
	Th	1/23/2025	Ch. 1/Ch. 2	
3	T	1/28/2025	Ch. 2: Atoms, Molecules, & Ions	Using Excel (Monday lab does Measurements)
	Th	1/30/2025	Ch. 3: Stoichiometry	
4	T	2/4/2025	Ch. 3: Stoichiometry	Avogadro's Constant
	Th	2/6/2025	Ch. 3: Stoichiometry	
5	T	2/11/2025	Review	Synthesis of CuSO ₄ (Mon & Tues labs)
	Th	2/13/2025	PDA Day (no classes)	
	F	2/14/2025	Lincoln's Day Holiday	
6	M	2/17/2025	Washington's Day Holiday	TBD (Wed & Thursday labs do Synthesis of CuSO ₄)
	T	2/18/2025	Exam 1	
	Th	2/20/2025	Ch. 4: Reactions & Solutions	
7	T	2/25/2025	Ch. 4: Reactions & Solutions	Analysis of CuSO ₄
	Th	2/27/2025	Ch. 4: Reactions & Solutions	
8	T	3/4/2025	Ch. 5: Gases	Nine Factorial (Prep Week) (both prep and experiment for Monday labs)
	Th	3/6/2025	Ch. 5: Gases	
9	T	3/11/2025	Review	Nine Factorial: A Problem With Solutions (Mon lab does Gas Constant Determination)
	Th	3/13/2025	Exam 2	
3/17 to 3/23			No Classes-SPRING BREAK	
10	T	3/25/2025	Ch. 6: Thermochemistry	Determination of Gas Constant R (Monday lab does Heat Capacity)
	Th	3/27/2025	Ch. 6: Thermochemistry	
11	M	3/31/2025	Cesar Chavez / Dolores Huerta Day (No classes, District closed)	Heat Capacity of a Metal (no Monday lab)
	T	4/1/2025	Ch. 6/Ch. 7	
	Th	4/3/2025	Ch. 7: Atomic Structure	
12	T	4/8/2025	Ch. 7: Atomic Structure	Molar Mass of a Diprotic Acid
	Th	4/10/2025	Ch. 7: Atomic Structure	
13	T	4/15/2025	Review	Hess's Law: Citric Acid
	Th	4/17/2025	Exam 3	
14	T	4/22/2025	Ch. 8: Bonding	Hydrogen Spectrum
	Th	4/24/2025	Ch. 8: Bonding	
15	T	4/29/2025	Ch. 9: Orbitals	UV-Vis Analysis of Iron
	Th	5/1/2025	Ch. 9/Ch. 10	
16	T	5/6/2025	Ch. 10: Liquids & Solids	Lewis Structures and Molecular Shapes
	Th	5/8/2025	Ch. 10/Review	
17	T	5/13/2025	Exam 4	Checkout / Cleanup
	Th	5/15/2025	Review	
18	T	5/20/2025	7-9:45 3AL Final exam	
	Th	5/22/2025	10:00-12:45 3A Final exam	