Chemistry 1A Course Syllabus
Spring 2018

Instructor: Dr. Bindu Meprathu E-Mail: bmeprathu@santarosa.edu
Office: Bech Hall 1970 Phone: 707-527-4999 x9712.
https://profiles.santarosa.edu/bindu-meprathu

Office Hours Tue/Thurs 8:15am-9:00am
Tue/Thurs 10:30am-11:00am

Lecture (6896/6897)	Tue/Thurs	9:00am-10:30am	1999 Bech Hall
Lab Lecture (6896)	Tue	11:00am-12:00pm	1910 Bech Hall
Lab (6896)	Tue	12:00pm-3:00pm	1980 Bech Hall
Lab Lecture (6897)	Thurs	11:00am-12:00pm	1910 Bech Hall
Lab (6897)	Thurs	12:00pm-3:00pm	1980 Bech Hall

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.

Course Description
General principles of chemistry, including atomic theory, bonding, stoichiometry, kinetic molecular theory of gases, properties of mixtures, the periodic table, and thermochemistry. First semester of a one year program of general chemistry.

Prerequisite: Course Completion of Chem 42 OR placement on the Chemistry Diagnostic Test; AND Math 155 or higher or two years of high school algebra or equivalent.

Student Learning Outcomes:
1. Describe matter, its transformations and corresponding energy changes according to prevailing chemical theories.
2. Collect accurate data in the laboratory, and analyze with methods such as graphical and error analysis.
3. Communicate the findings of laboratory work in written laboratory reports.

Required Course Materials
1**. Textbook**: Chemistry: The Molecular Nature of Matter and Change by Silberberg and Amateis. 8th Edition. Textbook and access to online homework on Connect is required. ISBN**:** 9781260201680
2. **Chemistry Laboratory Manual** Chem 1A General Chemistry (Spring 2018) available only from SRJC bookstore.
3. **Chemistry Laboratory Notebook** capable of making duplicate copies
4. A scientific calculator
5. **Protective eyewear and apron**, provided during check-in, must be used in the laboratory at all times as required by California State law.
6. A pdf reader to view documents downloaded from the course Canvas site (canvas.santarosa.edu).

Course Content and Format

This course is designed to provide the student with an understanding of the fundamental principles of chemistry. We will build an understanding of the nature of matter and the vocabulary used to describe its components and interactions. Lecture material will be coupled with practical laboratory experience to develop the ability to analyze and communicate scientific concepts and data in both qualitative and quantitative manners. We will cover almost one chapter and perform one lab experiment per week. Each week will involve reviewing chapter materials, preparing for laboratory and writing laboratory reports.

Grading Policy

Your semester grade is based on three unit exams, laboratory reports, and the final exam.

Unit exams	450 points
Final exam	125 points
Labs	250 points
Homework	115 points
Quizzes	60 points
Maximum Possible	1000 points

Quizzes may be given during either lecture or lab lecture and will not be announced in advance. Each of the three unit exams will be based on materials covered in classroom, laboratory work and other assigned work. Final exam will be a comprehensive, multiple choice exam covering all topics covered during the semester.

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*.

Approximate Scale for Letter Grades

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

Online homework: Homework makes up 11.5 % of your grade. We will be using an online learning homework system Connect this semester. When you have your registration code, you will use it to register for Connect.

Section **9896** use this link: http://connect.mheducation.com/class/b-meprathu-spring-2018

Section **6897** use this link: http://connect.mheducation.com/class/b-meprathu-chem1a-spring-2018--6897

Please register for the correct section (6896 or 6897) you're enrolled in. Expect a homework assignment based on each chapter covered in class. Problems assigned will occasionally be based on material from the textbook that was not covered in class. In addition to HW questions, there are also LearnSmart modules assigned for each chapter. It is best practice to read each chapter and perform the LearnSmart activity pertaining to that chapter before coming to class. Keeping abreast of homework

due dates is the student's responsibility. Homework is due for each unit a week after the unit exam. It is recommended that you do the homework as we cover each chapter in class.

Attendance policy - This class follows the SRJC attendance policy. As the policy indicates: "A student may be dropped from any class when that student's absences exceed ten percent (10%) of the total hours of class time." Lab represents more than half of the class time each week. Failing to attend lab, particularly early in the semester, will likely cause you to exceed the 10% absence threshold, at which point you may be dropped from the class. Confirmed illness or unavoidable absence will be handled on a case by case basis. Please contact your instructor in class or by email if you have unavoidable circumstances.

Class Canvas site- Important information is posted on the class Canvas site. Login to view assignments, lecture notes, special readings, worksheets, schedules, and announcements.

Late Work Policy - Late work is not accepted except in unusual and unavoidable circumstances. Please work with your instructor if those circumstances arise. This policy applies to all lab reports, essays, online quizzes, and online homework.

Make-up policy - There will be no make-ups for the midterm or final exams. Confirmed illness or unavoidable absence will be handled on a case by case basis. Labs cannot be made up unless there is space in another lab section that is conducting the same experiment and you have permission of the lab instructor.

Incomplete - If you are unable to complete academic work for unforeseeable, emergency or justifiable reasons within the last few weeks of the end of the term, you may petition to have an incomplete (I) recorded on your academic record. See the policy on grading for details.

Accommodation for Students with Disabilities - The instructor will work with you to meet your needs and to maintain confidentiality. Please register with the Disabled Resources Department (DRD) then give your instructor the required Academic Accommodation Authorization letter. Contact the DRD office, Bertolini, 3rd floor; (707) 527-4278; Email disabilityinfo@santarosa.edu; Website: drd.santarosa.edu.

Emergency Evacuation Plan - If an emergency occurs during class that requires evacuation of the building, please leave the class immediately, but calmly. Our class will assemble in the area between Bech and Shuhaw to make sure everyone gets out of the building safely and to receive further instructions. If you are a student with a disability who may need assistance in an evacuation, please see your instructor as soon as possible to discuss accommodations during an evacuation plan.

Academic Integrity and Student Conduct - Students and instructors are expected to comply with the Academic Integrity policy and procedures (https://rightsresponsibilities.santarosa.edu/academic-integrity). Students must comply with the Student Code of Conduct. Please adhere to the following class specific academic and conduct policies:

You are encouraged to work with other students as benefits you, but the **final work product you turn in must always be your own**. When duplicate work is detected, the work from all students involved will be not be accepted.

Keep phones and other communication devices on silent during lecture and lab classes.

If you must text or make a call, or if you must leave the lecture class for another reason, please exit the room quietly through the rear door, and return quietly through the rear door.

Lectures include designated discussion time; you are encouraged to engage in on-topic discussion with other students during those times. Questions for the instructor are welcome any time. But side discussions

are rude distractions for students around you and for the instructor. Those engaging in side discussions during lecture will be asked to leave.

If you arrive late to lecture, please enter quietly through the rear door. If you know you must leave lecture early, please let your instructor know before class begins and then sit near the door.

The lab lecture room (Bech 1910) has no rear door, so entering late or leaving early is a major distraction. Please do not enter lab lecture late or leave early except in truly unavoidable circumstances. As indicated in the Lab Safety and Late Lab Attendance policy, students more than 10 minutes late to lab lecture will not be admitted and cannot attend lab.

Tutorial Center - Help is always available during office hours. You can also schedule a tutor at the Tutorial Center, Doyle Library, First Floor, Room 4251. Tutors will meet with you individually, or you can schedule tutoring sessions with another student.

Study Tips

- Chemistry, like most things, takes practice. Get the practice you need by completing all assignments, including homework problems, worksheets, pre-labs, lab write-ups, practice exams.
- Keep current. In this class, material comes at you in large quantities each week. Much of the material after the first midterm exam will likely be new to you. Once you fall behind, catching up is very hard.
- Use the lecture outlines posted on the class Canvas site.
- Use the homework each week as an opportunity to find the topics and concepts that you don't understand. Get help for things you don't grasp right away. Don't wait until exam week.
- Labs are designed to demonstrate concepts covered in the lecture portion of the class. The calculations assigned for each lab, plus the lab reports, will help you learn these concepts. Use your time in lab effectively, as well as your time after lab working on calculations.

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 2/542018, last day to drop with 'W' is 4/22/2018. 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.

Incompletes will only be assigned to students with medical or family emergencies, which will not allow the completion of the course. Incompletes will be addressed on an individual basis. The student must have a passing grade at the time of requesting an incomplete.

Laboratory - The lab to be conducted each week is given in the course schedule. Read each lab thoroughly before coming to lab. You should come to each lab session with **1) your lab notebook, 2) a pen to record data, and 3) your lab manual.**

Each lab grade includes the following:

1. Participation (i.e. you came to lab prepared and you completed the lab in a timely manner)
2. Completeness of your lab notebook.
3. The lab report
4. The pre-lab and post-lab questions where applicable

Please do not leave lab until I check your lab notebook. If your notebook is incomplete, you will be able to correct it before lab ends. Lab reports are due, **in hardcopy form only**, at the beginning of the following lab session.

Lab is a key part of the chemistry learning experience. Failing to complete the assigned work for three or more labs will result in a penalty of at least one letter grade for the course, in addition to the points lost for not completing the lab. Also, see below for attendance and late lab policies.

Lab safety and Lab late attendance - Labs involve safety hazards and complicated procedures. Your knowledge of lab procedures and safety hazards specific to each lab ensures that you can conduct the lab properly and safely. Procedure details and safety instructions for each lab are presented in lab lecture. For your own safety, and the safety of those around you, **you will not be admitted to lab if you are more than 10 minutes late for the start of lab lecture**.

Safety glasses and other protective equipment are available at all times and must be worn as directed. Please follow the lab dress code, which requires closed-toe shoes, shirts and tops that completely cover the torso, and pants or skirts or dresses that cover the knee. Students who come improperly dressed for lab will be required to obtain additional protective equipment from the stockroom at the student's expense.

Laboratory notebook

Your laboratory experience will not be complete until all data and observations have been properly recorded and reported. Hence, an accurate record of experimental results is an indispensable part of all scientific research. In many university, government, and industrial laboratories, for example, a notebook must be maintained so that it can be admitted as evidence in court should a dispute arise as to the priority of discovery for patent rights. In such a notebook, each page is dated and all significant results are witnessed. Although, we need not take such elaborate precautions, we will also not treat the lab notebook as *a private diary* whose contents are decipherable only by you. Since the material in the notebook is subject to the scrutiny of others, it must be intelligible to anyone conversant with chemistry and in such a format as to leave no doubt of its reliability and honesty.

The following format for your lab notebook is suggested. Print the following information on the inside cover or the first page of the laboratory notebook; your name, section number, course name and laboratory number. Use black or blue ***ink*** to write in the lab notebook. Press firmly while writing to create a legible copy. Record all data and observations directly and immediately into the laboratory notebook. When they are written days or even hours after the experiment was conducted, they inevitably are unreliable records of what actually happened in the laboratory. Only the original, unedited record has any scientific significance.

Your name, section and the experiment number should be written at the top of each page since the copy pages occasionally get shuffled. Each day's entry should be dated even if it appears in the middle of a page. Do not record data on any surface other than your lab notebook. It is extremely important that you acquire this habit and compliance with this rule will be strictly enforced. **Mistakes should be crossed out, never erased or obliterated. Draw a single line through a mistake and write the correct entry above or beside it, but never on top of it.** All deletions should be accompanied by a brief explanation. If considerable material on a page is to be disregarded, cross it out with a large X. In every case the deleted entry must still be legible. Record all data (masses, volumes, temperatures, times, colors, odors, evidence of physical or chemical changes, descriptions of experimental problems, etc.). Since this written record serves as the basis on which your report will be composed outside of the laboratory at a later date, it is important that a generous amount of information be recorded in the notebook. Whenever possible, organize data in table. **At the completion of an experiment, have the instructor initial your lab notebook page.**

Laboratory reports

After completion of each laboratory session, you must prepare a laboratory report. Any work that is sloppy, poorly organized or inaccurately done will be returned with a zero grade and/or instructions for a one-time rewrite. The pages of the report should be stapled in the upper left- hand corner.

The lab report will consist of any **pre-lab assignments, the completed data sheets outlined in your lab manual, examples of all your calculations, correctly annotated tables and graphics (if required), a summary and discussion of your experimental results, and the answers to the questions found at the end of the experiment**. You can type this report, but neatly handwritten work will also be accepted. Neatness, organization, completeness and accuracy of assignments are expected. A **cover page** including experiment title, your name, course name and date of experiment must be prepared. The major sections of a report must be discussed under the following heading:

Purpose: The purpose or objective of the experiment should be stated concisely in a few sentences.

Data: Numerical data should be presented in tables, with headings and clearly labeled rows and columns. Include the units on all measured quantities and detailed observations. Indicate the amount, concentration and identity of the chemicals used. Graphs should be used to illustrate the relationships between the measured quantities. Graphs must have heading, clearly labeled x- and y axis and include the units. Organization and neatness are extremely important.

Calculations: Only **one sample** of each type of calculation performed in obtaining your results needs to be presented. First show the equation to be used, and then insert a typical set of data being certain to identify from which trial it was derived. All final results expressed numerically should be rounded so as to be consistent with the rules for significant figures. Include the units in all calculation examples. Use your word processor equation editor or similar software to insert all the calculations and equations in your report. Present the numerical values corresponding to the results of assigned computations or other significant findings in tabular form. In some instances, results may be shown effectively in graphical form.

Discussion: Begin your discussion with a consideration of the results just presented in the table of results. Relate them to the objectives set forth in the experiment, and demonstrate your understanding of the concepts used in this exercise. Comment on the precision of your work. Compare your results for accuracy with literature values whenever they are available, and comment on the agreement or disagreement. If you use information obtained from other reference materials, acknowledge these sources with footnotes (author, title, page number, edition or volume, publisher, date) at the bottom of the page of your report where the borrowed information is presented. Included in this section should be a detailed and quantitative discussion of the errors likely to be found in the data and the influence these errors had on the final results. Experimental error is that error which remains in spite of the experimenter's best efforts. "Spilling samples, carelessness, misreading the buret, or errors in calculations" are not considered experimental errors. These are mistakes, and they can be eliminated by being more careful and repeating the work. Students are encouraged to consult more advanced textbooks, specific reference books and journal articles containing material related to the experiment being studied. The open stacks and the Reserve Book Desk of the Doyle Library on the SRJC campus or the Sonoma State Library are likely sources of information.

Conclusions: You must address specifically which of the purposes of the experiment were accomplished and any failure to accomplish such purposes.

Post-laboratory questions: Answer the assigned questions and problems for the experiment and attach them to the end of the report. Attach all other sheets that may be required for a particular experiment such as charts and/or graphs.

Copies of the notebook pages: Duplicate copies of the laboratory notebook pages that were prepared during the experimental study should be placed on the back of the completed report. Ensure that all of the pages are included and arranged in the correct order. DO NOT, under any circumstances, attach the original pages from the laboratory notebook to the report. The laboratory notebook must be maintained as an original record of your work with all pages bound.