CHEM 201A: General College Chemistry I
Fall 2019 Syllabus & Schedule

Instructor:	**Praveen Babu, Ph.D.**	**Email: pbabu@cuesta.edu**
Office/Mailbox:	**SLO – 6600D (D8)/6600B**	**NCC – N2429**
Phone:	**SLO – (805) 546-3100 x2196**	**NCC – (805) 591-6200 x4511**

Course Description

Chemistry 201A presents the first semester lecture and laboratory components of a one-year course in the fundamental principles of chemistry. In this course, you will learn the chemical attributes of matter and become familiar with the Periodic Table of the Elements and its contents. You will also become familiar with the physical states of matter, Stoichiometry, thermochemistry, and thermodynamic principles as they relate to matter. The laboratory component will introduce techniques and methods to measure precision and accuracy, standard methods of gravimetric and volumetric analysis, and some computer acquisition and analysis of data. The laboratory will reinforce important chemical principles presented in the lecture component, and develop problem solving skills via experimentation. Each student will perform experiments, make careful observations, collect data, and formulate conclusions based on their results. Most importantly, this course will provide you with an understanding of the submicroscopic world and how it is essential to everyday life.

This course is designed for students who have been successful in previous chemistry courses and who have basic laboratory skills. It requires diligent and disciplined study habits, good attendance, and a positive attitude. Students considering majors in the sciences or engineering and transferring to a UC or CSU must complete this course.

NOTE: Chemistry 201A is a heavy load. It is imperative that students devote at least 25-30 hours outside of class each week to the course in order to succeed.

Student Learning Outcomes and Objectives

Upon successful completion of this course, you should be able to accomplish the following:

1. Describe the chemical and physical properties of a chemical substance based on the atomic and molecular structure including orbital theory, the type of chemical bond, and the shape of the molecule.
2. Evaluate and interpret numerical and chemical scientific information.
3. Solve stoichiometry problems, including mass/mass, mass/volume, and volume/volume relationships.
4. Communicate chemical concepts through the use of molecular formulas, structural formulas, and names of compounds.
5. Perform laboratory experiments based on gravimetric, volumetric, qualitative and instrumental analysis techniques, and effectively utilize the appropriate experimental apparatus.

Prerequisites

A "C" grade or better in Math 227, Math 227SI, or an Intermediate Algebra equivalent, **AND** a "C" grade or better in Chemistry 210, High School Chemistry or an equivalent chemistry course is required. The course text provides a review of important mathematical concepts entitled "Mathematical Operations" in Appendix I (p. A-1).

Required Text and Materials

The following five items are the only course-specific materials you will need to succeed in this course. Retailers may "suggest" or "recommend" additional items (e.g., lab coats, laminated Periodic Tables, study guides, etc.). Those are not required for this course and you do not need to purchase them.

1. ***Chemistry, A Molecular Approach,*** Tro, Nivaldo J., 5th Ed.
   - Standard Book ISBN 9780134874371
   - A Cuesta College Edition is also available through the campus bookstore.
   - Either version will work. Purchase which ever is cheapest, but check for discounts when bundled with item 2 below:
2. ***Modified Mastering Chemistry*** access code for Tro 5th ed.
   - Make sure it is a *Modified* Mastering Chemistry code for the 5th edition of the textbook.
   - Do not buy these used because they are single use codes. Used ones are useless.
3. ***Chemistry 201A General College Chemistry I Lab Manual,*** Cuesta College Chemistry Faculty, Fall 2019.
   - Lab manuals are available only in the campus bookstore.
4. **A scientific calculator**
   - Your calculator must NOT be a graphing or programmable calculator
   - Examples of acceptable models include the Texas Instruments TI-30Xa or TI-30XIIS and the Casio fx-115ES Plus models. Scientific calculators in the $10-$20 range should be fine.
5. **Splash-proof vapor-proof chemical safety goggles**
   - Goggles are available for purchase in the campus bookstore.
   - You may purchase goggles elsewhere, but please check with your laboratory instructor whether they meet the requirements of the chemical laboratory. If they do not, you will not be permitted to use them and goggles are mandatory for experiments.

Office Hours and Assistance

Mon.	11:00am-11:30am	6600D (D8)	San Luis Obispo Campus
Tues.	11:00am-12:00pm	N2429	North County Campus
Wed.	11:00am-12:30pm	6600D (D8)	San Luis Obispo Campus
Thur.	2:00pm-3:00pm	N2429	North County Campus

I am always available by appointment, email, or over the phone. If you have any questions, just ask! If you're having trouble, please see me early and as often as possible until you're comfortable with the material. I am here to help, and I sincerely want you to do well.

Classroom and Attendance Policies

1. **Arrive on time to lecture and lab.** Regular attendance is essential to succeed in the course. Arriving late to class is rude and disruptive. Do not attempt to turn in assignments

after class has begun. In addition, important safety and experimental information is discussed at the beginning of each lab session. **If you are even 5 minutes late for lab, you will not be allowed to participate.**

2. Students who do not attend the first lab session will be dropped from the course. The first lab session covers safety in the lab and each student will sign a safety contract.
3. **There are no makeup labs.** Each lab requires extensive "behind the scenes" preparations so makeup labs are not feasible. One lab will be dropped prior to calculating your course grade at the end of the semester. **You may not drop the last lab.** Students who do not participate in two consecutive labs may be dropped from the course. **Administratively dropped students will still need to officially withdraw from the course and must check out of his/her locker.**
4. In the event of an absence, you are responsible for turning in assignments on time, obtaining new assignments, and noting any schedule changes.
5. You must attend lab only during your registered laboratory section.

Grading Policy

Each student will be graded using examinations, quizzes, assignments, class participation, laboratory grades (see below), and a cumulative final examination weighted as follows:

Examinations	35%
Quizzes (15%) & Online Homework (5%)	20%
Laboratory Reports, Technique, Safety	20%
Cumulative Final Examination	25%

Final course grades will be based on a standard percentage scale: A (91-100%), B (81-88%), C (71-78%), D (61-68%), and F (< 60%). Plus/minus grades will be given for borderline scores within 1%.

Examinations will be administered on the dates indicated on the lecture schedule. A makeup examination will be given, at the instructor's discretion, only in an emergency and must be requested within 2 calendar days of the scheduled examination. A 15% penalty will be deducted from the score on any makeup examination and only one makeup examination per student is possible per semester if all stipulations are met. Only students who have completed all laboratory assignments prior to the scheduled exam date are eligible for a makeup examination. **There are no makeup quizzes.** Each student's lowest quiz grade will be dropped prior to the calculation of their final grade. **There is no makeup for the final examination.** The cumulative final examination will be administered only at the date and time scheduled by the College.

You must receive a passing grade in the laboratory component of the course to receive a passing grade overall. Laboratory grades will be based on your performance in relation to the specific course objectives listed below:

1. Quality and execution of lab work and written assignments.
2. Comprehension of pertinent principles as demonstrated by the completion of lab reports.
3. Participation and lab citizenship. A safe and clean laboratory must be maintained at all times. The laboratory is a community and it is everyone's responsibility to adhere to safety guidelines. Cleaning up after yourself is your personal responsibility, and cleaning up common areas is everyone's responsibility. **Because of potential safety hazards, points will be deducted (5 points per infraction) if you remove your safety goggles during lab, fail to clean up after yourself, or fail to adhere to safety guidelines. Points will also be deducted for eating, drinking, or chewing gum in the laboratory.**

**ABSOLUTELY NO EATING, DRINKING, CHEWING GUM, ETC.
IS PERMITTED IN THE CHEMISTRY LABORATORIES**

You must read each laboratory exercise and complete all pre-lab questions before every laboratory session begins. Completed laboratory reports from the prior week and pre-labs for the current week are due at the beginning of each lab period. Your work in the laboratory should be neat, legible, and recorded in ink on the data sheets provided with each experiment. No late submissions will be accepted without compelling evidence of a verified excuse (i.e., late assignments may or may not be accepted at the instructor's discretion).

If applicable, please see your laboratory syllabus for a comprehensive point distribution. Laboratory grades will be compiled by your laboratory instructor and reported to your lecturer. They will contribute to your final grade as stated in your lecturer's syllabus.

Do not disrupt the class by turning in late course work during the safety briefing at the beginning of each laboratory session.

Before every lab period (due at the beginning of the period):

- Read and understand the experiment.
- Do the assigned pre-lab questions.
- Turn in the lab from the previous week (unless stated otherwise).

During lab periods:

- Follow all safety guidelines.
- Make qualitative observations as you progress through the lab.
- Record data in black or blue ink on the supplied data sheets. If a mistake is made, use 1 line to line out the incorrect data.
- Have your area clean, and all data sheets initialed (where specified) before leaving lab.

Required Materials for Laboratory Sessions

1. **Splash-proof safety goggles** (available for purchase in the campus bookstore) and **closed-toe shoes** are required for every laboratory session. Mandatory **safety aprons** are provided and must be worn during all lab sessions.
2. ***Chemistry 201A Lab Manual***, Dr. Baxley
3. Scientific calculator (non-graphing, non-programmable only) and/or your text.

Communication and Electronic Devices

The use of electronic devices (e.g. phones, MP3 players, texting, etc.) will not be permitted during class or lab. If you have a reasonable need to be contacted via mobile phone, set your device to a silent sensory alert. Take all calls outside.

The use of electronic devices (e.g., laptops, tablets, etc.) is permitted if such devices are used for course-related work. Course-related work includes note-taking, looking up reference material, and other tasks specifically relating to the material being covered in this course.

Academic Honesty

Students are responsible for being aware of and complying with the Cuesta College Student Conduct/Academic Honesty Policy. **This policy especially pertains to our laboratory setting as each student is responsible for generating, analyzing, and submitting his/her own data, calculations, conclusions, and assignments.** Students who fail to comply will be dropped from the course or given a failing grade (F).

Special Accommodations

Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please contact Disabled Student Services & Programs (DSPS) at (805) 546-3148 in Building 3100 (first floor) on the SLO Campus or at (805) 591-6215 on the North County Campus (N3121 in the LRC) to coordinate reasonable accommodations for students with documented disabilities. Assessments administered by DSPS must be done so on the same day and at the same approximate time as the rest of the students in the course.

HOMEWORK (via <u>MODIFIED</u> MASTERING CHEMISTRY)

A portion of your overall grade will be the use of an online homework program called Modified Mastering Chemistry. It is important that you enroll in Dr. Babu's Modified Mastering Chemistry online course through Canvas as soon as you are registered in his Cuesta College course.

You must register for the online homework portion of the course through Canvas using the "MyLab and Mastering" link. While in Canvas/on the CHEM 201A course home page, mouse to the top left of the screen and click the "MyLab and Mastering" link. Follow the prompts from there.

After you have joined a course you can open any assignments from the **Assignments Due Soon** area or from the **Assignments** page.

****YOU MUST HAVE ACCESS BY THE END OF THE SECOND WEEK OF CLASS****

CHEM 201A	**Lecture Schedule**	Fall 2019
Dr. Babu	General College Chemistry I	

Wk #	Dates	Topics / Quiz / Examination	Homework Problems‡
1	8/12-	Ch. 1 Matter and Measurement	*(See Modified Mastering*
	8/16	Ch. 1 Matter and Measurement	*Chemistry online*)
2	8/19-	Ch. 2 Atoms and Elements	|
	8/23	Ch. 2 Atoms and Elements	|
		Deadline to withdraw without a "W" is 08/23/19 at Registrar's Office and 08/25/19 Online	
3	8/26-	Ch. 3 Molecules, Compounds, and Chemical	|
	8/30	Equations	|
4	9/3-	**EXAMINATION 1 (Chapters 1, 2, & 3)**	|
	9/6	Ch. 3 continued	|
5	9/9-	Ch. 4-5 Chemical Quantities and Aqueous Rxns.	|
	9/13	Ch. 4-5 Chemical Quantities and Aqueous Rxns.	|
6	9/16-	Ch. 17 Acids and Bases (17.1-17.6)	|
	9/20	Ch. 17 Acids and Bases (17.1-17.6)	|
7	9/23-	Ch. 7 Thermochemistry	|
	9/27	**EXAMINATION 2 (Chapters 3, 4, 5, 17)**	|
8	9/30-	Ch. 7 Thermochemistry	|
	10/3	Ch. 7 Thermochemistry	|
9	10/9-	Ch. 8 Electronic Structure of Atoms	|
	10/11	Ch. 8 Electronic Structure of Atoms	|
10	10/14-	Ch. 9 Periodic Properties of the Elements	|
	10/18	Ch. 9 Periodic Properties of the Elements	|
11	10/21-	**EXAMINATION 3 (Chapters 7-9)**	|
	10/25	Ch. 10 Chemical Bonding I: Lewis Theory	|
12	10/28-	Ch. 10 Chemical Bonding I: Lewis Theory	|
	11/1	Ch. 10 Chemical Bonding I: Lewis Theory	|
		Deadline to withdraw with a "W" is 11/01/19 at Registrar's Office and 11/03/19 Online	
13	11/4-	Ch. 11 Molecular Geometry & Bonding Theory	|
	11/8	Ch. 11 Molecular Geometry & Bonding Theory	|
14	11/12-	Ch. 6 Gases	|
	11/15	Ch. 6 Gases	|
15	11/18-	**EXAMINATION 4 (Chapters 9, 10, 11 & 6)**	|
	11/22	Ch. 12 Liquids, Solids & Intermolecular Forces	|
16	11/25-	Ch. 12 Liquids, Solids & Intermolecular Forces	|
	11/27	Ch. 12 Liquids, Solids & Intermolecular Forces	V
17	12/2-	Ch. 14 Properties of Solutions	*(See Modified Mastering*
	12/6	Ch. 14 Properties of Solutions	*Chemistry online*)
18	**SLO**	**CUMULATIVE FINAL EXAM (9:45-11:45pm Monday 12/9/19)**	
	NCC	**CUMULATIVE FINAL EXAM (8:00am-10:00am Thursday 12/12/19)**	

‡NOTE: ALL HOMEWORK will be through Modified Mastering Chemistry online.

CHEM 201A	**Laboratory Schedules**	Fall 2019
Dr. Babu	General College Chemistry I	

Week	Monday Lab (70163)	All other labs (70198, 70212, 70235)
1	**Safety Briefing*** Exp 1: Coin Experiment	**Safety Briefing*** Exp 1: Coin Experiment
2	**Check-in*** Exp 2: Measurements and Density	**Check-in*** Exp 2: Measurements and Density
3	Exp 3: Hydrates	Exp 3: Hydrates
4	***No Lab: Labor Day***	Exp 4: Precipitates (Purple Goopy Stuff)
5	Exp 4: Precipitates (Parts I & II)	Exp 4: Precipitates (continued)
6	Exp 5: Chemical Reactions	Exp 5: Chemical Reactions
7	Exp 6: Experiments with Acids and Bases	Exp 6: Experiments with Acids and Bases
8	Exp 7: Analysis of Vinegar	Exp 7: Analysis of Vinegar
9	Practice Problems	Practice Problems
10	Exp 8: Thermochemistry	Exp 8: Thermochemistry
11	Exp 10: Electronic Spectroscopy	Exp 10: Electronic Spectroscopy
12	Exp 11: Molecular Models	Exp 11: Molecular Models
13	Exp 12: Computer Models	Exp 12: Computer Models
14	***No Lab: Veterans Day***	Exp 13: Gas Laws
15	Exp 13: Gas Laws	Exp 14: Solubility Expt's & **Check out***
16	Exp 14: Solubility Expt's & **Check out***	***No Lab: Thanksgiving Holiday***
17	Final Exam Review Session*	Final Exam Review Session*

***NOTE: Attendance is required on these dates**