Welcome to class! In CHEM 400, we like to work hard, learn a lot, and have fun while we do it. What do I mean by "work hard"? Students report that they spend an average of 13 hours a week outside of class doing homework and lab reports, reviewing lecture notes, and studying for exams. That's a lot! But those students who put in that time do pass the class. Did you know that—during office hours—I'll check your assignments before you turn them in? Get your questions answered and your assignments graded during office hours or during discussion section.

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Respect for Diversity: It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups.

Prerequisite: CHEM 300 with a grade of "C" or better completed within one year prior to enrollment in CHEM 400 or placement through the assessment process (ACS California Chemistry Diagnostic Exam) completed within one year prior to enrollment in CHEM 400 (students having taken CHEM 310, CHEM 305, or another chemistry course must complete the assessment process within one year prior to enrollment in CHEM 400) AND MATH 120 or MATH 124 with a grade of "C" or better, or placement through the assessment process. Both prerequisites will be checked at the beginning of the first class meeting.

Advisory: ENGWR 300 and ESLR 320 with grades of "C" or better; All students enrolling in this course are strongly advised to take the chemistry and math assessment exams administered through the Assessment Center, regardless of prior coursework. These exams provide a better idea of a student's readiness for college level general chemistry, since they measure the actual chemistry and math capabilities of the student as they enroll in the course, rather than at the completion of their preparatory coursework.

Course Description: CHEM 400 covers the fundamental principles and concepts of chemistry including chemical nomenclature, balancing reactions, stoichiometry, thermochemistry, acid/base and reduction/oxidation (redox) reactions. Also covered are theories addressing atomic and molecular structure and bonding, as well as the physical and chemical properties of gases, liquids, solids, and solutions, including strong and weak intermolecular forces. One hour per week will be devoted to discussion/problem solving sessions. Laboratory experiments are primarily quantitative, requiring good technique and critical thinking. CHEM 400 is for students majoring in biology, chemistry, pre-dentistry, pre-medicine, pre-pharmacy, and engineering.

Student with disabilities: Sacramento City College welcomes students with disabilities into its educational programs. The college has an office of Disability Services and Programs for Students (DSPS) to support these students in the pursuit of their academic goals (http://www.scc.losrios.edu/dspsc). In order to receive consideration for reasonable accommodations, you may contact the DSPS. It is always best to do so before the first day of class. Please share DSPS documentation with your instructors and discuss the accommodations with them as early in your courses as possible. You must follow this process for every semester that you request accommodations.
**Required Materials:**
2. Laboratory Manual for Chemistry 400 by SCC Chemistry Faculty
3. The People's Guide To General Chemistry Fall 2019 Edition by Miller
4. Laboratory notebook: must have sewn binding or be a duplicate copy notebook
5. UVEX Indirect vented safety goggles

**Recommended:**
1. Lab coat or apron
2. Non-Latex disposable gloves
3. ACS General Chemistry Exam Study Guide (available from ACS)

**Safety:** Safety goggles are to be worn whenever chemicals are in use in the laboratory! Always work safely. If you are unsure what the correct procedure is, please ask. Safety first.

**Class Policies:**
1. Please raise your hand to ask questions or speak up if I’m not looking. It is very important that all student questions be answered.
2. Students are to conduct themselves with the utmost respect for others.
3. There is no acceptable reason to cheat in this class. Cheaters will be dealt with severely.
4. No children or guests allowed in class unless special permission has been obtained ahead of time.
5. If your cell phone rings and you must take the call, please exit the classroom and talk.
6. In this class we honor all students regardless of age, socioeconomic status, gender, immigration status, ethnicity, ability, sexual orientation and religion.

**Homework:** The only way to learn chemistry is to do the homework problems. There will generally be two types of HW each chapter: online homework using the Chemistry 400 Canvas web site and written homework passed out in class and available on the CHEM 400 web site. Each of these may be graded based on completion and/or on problems being graded explicitly. Homework will generally be due at 12:30:00pm on the date noted on the class schedule. Generally, written "green sheet" HW will be due at 12:30:00pm on Wednesdays and online Canvas HW will be due on Fridays at 12:30:00pm. Late homework will not be accepted. Your lowest homework assignment of each type will be dropped.

**Discussion Laboratory Section (≈ 2-hour lab portion):** Attendance at discussion laboratory section is mandatory to get the points for the assignments completed in this section. If you do not finish the assignment, get it signed before you leave and bring it (completed and correct) to the next week's section. Your lowest discussion assignment will be dropped.

**Wet Laboratory Section (≈ 4-hour lab portion):** The experiments are designed to familiarize you with lab procedures and reinforce concepts covered in lecture. All experiments will be carried out individually unless otherwise instructed. Lab reports are due one week after completion of the experimental work. Lab reports may be turned in up to one week late with a 20% penalty. Lab notebooks may also be collected and graded periodically throughout the semester. Attendance is required in lab. The score on each lab will depend on three main criteria: structure and content of your lab book, completeness and accuracy of your recorded observations, and finally the quality of your results and the answers to any questions. Each experiment in your lab book must be initialed by the lab instructor in the appropriate locations (see individual experiment instructions). If there is a midterm exam scheduled on your lab day, you must attend lab to take the exam. **There are no lab make-ups. You may miss one experiment. If you miss two experiments for any reason, then the highest grade you can earn in the class is a “D”**.

**Quizzes:** There will be four times that quizzes can be given: during discussion, during the first fifteen minutes of lab, online within Canvas, or as take-home quizzes announced and distributed in lecture or discussion. For take home quizzes, you may not photocopy them as each quiz has a different question. Specific times and dates will be announced in class. There are no quiz make-ups!

**Exams:** There will be 3 midterms and a final. Midterms will take one lecture section and will be worth approximately 150 points. The final will be cumulative and will be worth approximately 250 points. There are no make-up exams. If your final exam has a higher percentage than one of your midterms, then the percentage on the final exam will replace the percentage on that one midterm. If you miss a midterm exam, then the final exam percentage will also count as the percentage for that midterm exam.

**Approximate Point break down:**
- Final, three exams: 65%
- Quizzes: 5%
- Homework: 10%
- Discussion: 5%
- Laboratories: 15%
- 100%

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Grading: 90-100% = A, 80-89% = B, 70-79% = C, 60-69% = D, < 60% = F

Extra Credit: The maximum amount of extra credit that you can get in a semester is 10 points unless you attend a study group. Various opportunities to earn extra credit will be announced in class.

Study Groups: By creating a study group of your own, you may obtain up to 10 points of extra credit. To earn these points, you must (i) attend and participate in >85% of two hours of study group sessions each week, (ii) keep a written record of the problems solved in each study session, (iii) turn in the record at the end of the semester, (iv) have two or more people from the course in your study group, and (v) meet at a regular time each week. If you do not attend >85% of both sessions, then no credit will be given. If you attend a study group and get extra credit, then your maximum amount of extra credit rises to a total of 15 points.

Disciplinary: Unfortunately, some students choose to dishonestly represent their work when submitting assignments for classes. I am aware that this is a hard class and that there is a lot of stress placed on students to get certain grades. However, it is never acceptable to cheat, copy, plagiarize or otherwise misrepresent the work you are submitting for this class. I have infinitely more respect for the student who works hard to get a lower grade honestly than for the student who cheats to get the grade she/he “needs”.

For this reason, the policy—to be strictly enforced in this class—is that students are encouraged to work together to solve problems but may never, never, never copy any part of each other’s work (this includes homework assignments, labs, quizzes and exams). It should go without saying that copying or plagiarizing another person’s work is not allowed. It also should go without saying that using materials not specifically allowed (e.g., “cheat sheets”) to aid performance on an exam or quiz is not allowed. The penalty for committing any of these acts is at least a grade of zero for the assignment and a letter documenting the incident to the SCC Student Discipline Officer. Further, students may also be dropped from the class. There will be no leniency on this issue.

To be clear, I encourage you to:
1. Work with other students to complete assignments.
2. Discuss approaches to problems.
3. Ask me for help if you do not understand a concept.
4. Help another student by looking over their work and explaining to them the correct approach to a problem (e.g., telling them the correct formula to use).

To be clear, you will receive a grade of zero for:
1. Allowing (even passively) another student to copy work that will be submitted for this class. This includes even small parts of assignments, such as part D of problem 59 of homework 6 that your friend just did not have time to finish before it was due. Do not let another student copy even one part of one answer.
2. Copying another student’s work and submitting it as your own.
3. Copying work from previous semester’s students.
4. Using materials not allowed for exams or quizzes.
5. Looking at another student’s exam/quiz for answers during the exam/quiz.
6. Letting another student see your work during an exam/quiz.
7. Using a lab manual or lab book from a previous student in this class.
8. Plagiarizing (or directly copying) work from the solutions manual.

Student Learning Outcomes: Upon completion of this course, the student will be able to:

- evaluate chemical theories and their relationship to chemical properties. For example, understand modern atomic theory (including basic principles of quantum theory) as it applies to the electronic organization of atoms, chemical bonding, and periodic properties.
- demonstrate problem solving and critical thinking skills in the application of basic chemical principles to the solution of problems with multiple steps and/or intermediate conclusions and successfully apply reasonable approximations to the solution of experimental and theoretical problems.
- analyze significant figures, correct units of measurement, experimental errors as they apply to chemical calculations such as stoichiometry and thermochemistry
- conduct laboratory experiments, successfully selecting and operating common laboratory equipment to quantitatively and qualitatively demonstrate chemical principles with results recorded in a properly formatted laboratory notebook.
About Your Instructor

I was born in the Albany, NY area, but my Dad relocated to western Maryland before I was 1 year old. I lived in Maryland through high school. Then I went to the University of Delaware and got my B.S. in Chemical Engineering. While I was at Delaware, I did an internship at Salem Nuclear Power Plant in Salem, NJ.

About six months before we graduated from Delaware, I met my future wife. Three days after graduating, we moved to San Francisco. We lived there for a year before I started graduate school at UC Davis. After 5 years in graduate school, I started teaching part-time and then full-time at SCC.

During the summers while in high school and college and after first moving to San Francisco, I worked as a laborer for various contractors, including masonry and plumbing contractors. I have a lot of respect for anyone who works with their hands and their body for a living.

My wife and I have been together for 26 years. We have a 17 year-old daughter. I am involved with my teacher's union and the Sacramento Section of the American Chemical Society.

My father grew up in the Albany, NY area. He played nose tackle and center for his high school football team that won the state championship. He failed out of college before enlisting in the Marines and going to Vietnam. After the Marines, he earned a 4.0 GPA at community college and earned his AA in Construction Management. He worked for a general contracting company while I was growing up. He provided me with my work ethic and my love of reading.

My mother immigrated to the US from England and worked as a nanny. She stayed at home with my brother, sister, and me for a while before working at a women's shelter. She is still a UK citizen. I recently became a US/UK dual citizen. My Mom provided me with my work ethic and my patience.

I was the first one in my extended family (Mom, Dad, aunts, uncles, grandparents, cousins) to get a four-year degree and also the first one to get a PhD.