

Welcome to Chem 201B Spring 2021

General College Chemistry II

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Office Hours (Student Help Hours): Tues. 10-11, Wed, 2-3, or by appointment



Welcome!

Welcome to Chem 201B! I look forward to being your guide through the next 18 weeks of general chemistry. This is a challenging course and requires a lot of time and effort, but I am here to help you along the way. This Welcome Letter outlines my expectations, course policies, required materials and the course schedule, and also gives information about what you should do in order to be successful in this course.

About Me

My husband Greg and I have been teaching chemistry since 1999. I have taught at Bakersfield College, Cal Poly, and Cuesta College. I love teaching, especially general chemistry, and love learning from my students. I work hard to create an open, friendly, supportive class environment, but I also maintain high standards for my students.



Greg and I have two adult children who are awesome, amazing people. In our spare time we love to garden, camp, backpack, hike, exercise, travel, and attend live concerts (mostly small, local, independent rock, alternative, folk-type music). We're really missing those concerts during COVID!

Required Meetings

This course will be conducted entirely online, including lectures and labs. There are mandatory meeting times that will occur via Zoom or other platforms. Please ensure that you are available at the following times for these meetings:

- Thursdays 1:00-2:50 p.m.
- An additional 5 hours of asynchronous lecture (2 hours) and lab (3 hours) online participation is also required each week.
- Additional time (at least 8-10 hours) will be necessary for reading, completing homework, and practicing problems.

Equity

I am committed to equity and inclusion in all my classes. If you meet the prerequisites for this course, you belong in this class, and you can succeed. It will take a lot of time, effort, and dedication, but you can do it and I am here to help you! In my class, I expect that all students will behave in a professional manner towards their peers, their instructor, and their community.



Is Distance Learning for You?



You CAN succeed in an online class, but it takes extra self-motivation, personal discipline, and organization. While there are mandatory class meetings with lecture and group work, much of the time you will be working on your own and teaching yourself with the help of computer software, internet forum discussion questions, tutorials, and videos. I will provide motivation and study tips to help you along the way and if you stumble, I will help you. Please take the following exploratory [Self-assessment survey](#) to judge your level of preparedness for taking an online class.

How to Succeed in General Chemistry

Chemistry is a challenging subject. Many students commit a lot of time and effort, but still struggle. I have learned that this is often because they are unfamiliar with how to study chemistry effectively. Being successful in chemistry requires different skills and strategies than biology, history, English, or many other subjects. If you tend to spend a lot of time studying chemistry without seeing successful results, please talk with me about your study strategies. Before you start the semester, I suggest that you read my [Tips of Succeeding in General Chemistry](#).

How to Get Help with Course Material



I am here to help you learn and enjoy the course material. If you are having trouble, please contact me early, and often. For questions about course content, *please use Piazza discussion forums*. If you have questions that are not related to the content of the course, please send me an email.

Free online tutoring is available at [Net Tutor](#) and in person free tutoring is available at [Student Success Centers](#) at both the San Luis Obispo and Paso Robles campuses, and may also be available online.

★Pro Tip!

Many students complete homework, worksheets, and lab reports in tutoring so that they can ask questions as soon as they get stuck. You can hang out in Zoom with a tutor while working on chemistry. Getting immediate help will lower your frustration and increase your mastery of the material and performance in the class.

College Services

Nationwide, 36% of college students face challenges in securing safe housing or affordable food. If you need help, Cuesta College has several resources that can help you.

- On-campus food pantry (open daily) and a food bank distribution site (3rd Tuesday of the month).
- If you experience food or housing insecurity, please contact the Student Support Resolution Coordinator, Donna Howard, in Room 3172, 805.546.3192 or donna_howard1@cuesta.edu
- The Cuesta CaFE Center (room 3142) has food, toiletries, hygiene products, and clothing for students in need.
- Cuesta College offers personalized, confidential therapy services to support students for their academic success and personal development. Visit room 3150 or call (805) 546-3171 for appointments.
- I might be able to help too, so if you are comfortable in doing so, please let me know if you need assistance.
- More services and information can be found at <https://cuesta.instructure.com/courses/12134/pages/resources>

Necessary Computer Equipment/Skills

- **Electronic Device with Webcam:** computer or tablet with a webcam and modern software/apps, preferably not a phone, and internet access.
 - Cuesta system requirements are the [Technical FAQs page](#).
 - Mastering Chemistry system requirements are at the [Mastering System Requirements page](#).
 - For some lab simulations, you will need a computer (not tablet or Chromebook). If you do not have a computer, the best option is to borrow one from a few hours from a friend or family member. If this is not an option, send me an email to lbaxley@cuesta.edu to discuss other options.
- **Scanner:** Be able to scan documents from your computer or phone as a pdf (there are free apps for phones).
 - For iPhone, try: Cam Scanner, Genius Scan, JET Scanner, or PDF Photos
 - For Android, try: Cam Scanner, easyPDF, or Image to PDF
 - Alternatively, you may write directly in the document using a tablet or computer and save as a pdf.
- **Graphing Program:** The best program to use is Excel (not the free version). If you do not have Excel, there are computers in the library with Excel. Google sheets is reasonable, but doesn't work as well as Excel.
- **Computer skills:** downloading , printing, and scanning documents, using Canvas, using your Cuesta email account, posting discussion questions, watching videos, entering equations and graphing in Excel, and using Mastering Chemistry. It will also be necessary to follow directions for using other programs and online computer simulations.

Required Textbook

- **Textbook:** *Chemistry, A Molecular Approach*, N. Tro Prentice Hall, 2014 5th, 4th ed. or 3rd edition OK, or e-text in Canvas.
- **Mastering Chemistry Online HW:** \$70 through Canvas or free with new 5th edition text or e-book. Purchase online through Canvas only, **not direct from Pearson**.
- **Beyond Labz:** This laboratory simulation software will be used for the last two labs. The cost is \$25. Information for purchase will be provided at least one week prior to when the software will be needed. Please contact me if cost is an issue.

Other Required Materials

- **Scientific Calculator *non-programmable*** with Exponential notation (EE or EXP on most calculators,) and logs (LOG and LN). [TI-30XIIS](#) is suggested (No TI-8X series calculators)
- **Splash proof chemistry goggles:** There will be some experiments conducted at home. In order to conduct these safely, you must have approved chemical safety goggles. Goggles must completely enclose the eye and not have direct venting (holes) in them. Acceptable goggles are [Uvex Stealth Gray](#), and [Uvex Stealth Blue](#), and [Fisherbrand Economy](#)
- **Materials for kitchen chemistry.** Materials will be necessary for four at-home experiments. Please contact me if cost is an issue.



Accessing the Course and Class Participation

The course will be accessed through Canvas, including links to Zoom meetings and other materials. In order to succeed in the course, please attend all Zoom meetings and complete all work in Canvas or other required platforms by the due dates. If you are unable to attend a meeting, contact me as soon as possible. If you do not attend during the first week of classes you may be dropped in order to make room for another student from the wait list. Therefore, please contact me as soon as possible if there are extenuating circumstances that prevent your attendance.

Excessive absences (missing 3 Zoom meetings, 2 labs, 2 quizzes, or 2 exams) or neglect of coursework (below 50% in the 3rd week, or missing 50% of assignments or participation) may result in a drop. Missing 3 or more lab experiments will result in a non-passing grade.

Contact with Instructor

Email is the best way to contact me about the course, and Piazza (the online discussion board linked in Canvas) is the best way to ask questions related to HW or course material. Students are also encouraged to talk with me in Zoom during my Student Help Hours. If my scheduled hours don't work for you, please send me an email to set up an appointment.

Regular and Effective Contact

Regular and effective contact will be met through threaded discussion forums, announcements to students, email contact, and office hours. I strive to respond to questions posted in Canvas (Piazza) within 24 hours, and usually in less than 8 hours (sometimes I might not respond during the weekend). Lab reports, quizzes, and exams will be graded, with comments as soon as possible. Each student is expected to contribute to regular discussions and problem-solving during Zoom sessions. Students will also work in groups for most of the lab experiments.

Authenticating Student Identity will be conducted using the Learning Management System (Canvas) and the online homework system, which requires students to log into the program using a secure login and password to access. You must use your official Cuesta College email address for the online homework system (like marie_curie@my.cuesta.edu).

Prerequisites

MATH 127, MATH 127SI or its equivalent with a grade of C or better **and** CHEM 201A or equivalent with a grade of C or better.

Course Description

A continuation of Chemistry 201A with particular reference to the periodic classification of the elements and the laws of chemical equilibrium as illustrated by the qualitative scheme of analysis. Topics covered will include chemical kinetics, thermodynamics, aqueous equilibria, free energy entropy, electrochemistry, coordination chemistry, nuclear and organic chemistry. Laboratory work will include quantitative work as well as a qualitative scheme of analysis for cations and anions and some computer acquisition and analysis of data.

Student Learning Outcomes

Upon completion of this course, a student should be able to:

1. Evaluate and interpret numerical and chemical scientific information, including the determination of a rate law or equilibrium constant based on experimental data.
2. Solve mathematical problems in chemistry, including equilibrium calculations, kinetics, electrochemistry, and energetics.
3. Communicate chemical concepts through the use of molecular formulas, structural formulas, and names of compounds.
4. Perform laboratory experiments based on qualitative, gravimetric, volumetric, and instrumental analysis techniques and effectively utilize the appropriate experimental apparatus and technology.

Evaluation

- **Homework:** *Chemistry is best learned by regularly practicing problems.* Most homework problems will be assigned via Mastering Chemistry, but some assignments will be assigned directly through Canvas. The required problems represent the bare minimum. In order to master the material to prepare for exams, you will also need to complete worksheets and other assigned problems that are not submitted for grading.
- **Participation:** Students learn better when discussing course material and problem-solving strategies with other students. Therefore, part of your grade will be based on participation. Participation will include Zoom problem-solving sessions during scheduled class time, replying to discussion board prompts, and other opportunities.
- **Worksheets and Textbook Problems:** Chemistry is best learned by regularly practicing problems. In addition to homework, extra practice problems are available on worksheets posted in Canvas. These problems will not be collected or graded, but **you should complete all worksheets in order to master the material.** Answers to all questions are given, so you can correct your own work. **If you cannot do them on your own (no textbook or notes), you are not ready for the test! Keep practicing.**
- **Prelabs:** Most labs will have a prelab, which are completed on your own either before or after performing the lab experiment. Prelabs will be graded by Canvas. Students are given three chances to complete prelab assignments and their average score of three attempts will be kept.
- **Lab Reports:** Each lab experiment will require the submission of a lab report. Most lab reports will be conducted in groups as assigned by the instructor. Others will be conducted individually. For group labs, students will meet via Zoom or other platform to complete as a group.
- **DIY Mini-Labs:** Each student is to complete three *Do It Yourself Mini-Labs*. A list of possible mini-labs will be provided in Canvas. Students may propose different mini-labs, but must first receive approval from the instructor. DIY Mini-Labs are completed individually.
- **Quizzes:** Quizzes will be given during lecture time on the dates listed in the schedule. The lowest quiz score will be dropped.
- **Midterm Exams:** Exams will be given during lecture time on the dates specified on the class schedule. The format of the exams will include a variety of question types, such as multiple choice, matching, fill in the blank, and free response.
- **Final Exam:** The final exam will be comprehensive. The format of the final exam will be the same as the midterm exam. The final exam will be given during the time determined by the Cuesta final exam schedule.
- **Extra Credit:** I work hard to create a course where your grade is based on your mastery of the course material, not on “busy work” or extra credit. Therefore, I request that you not ask for extra credit. However, I do occasionally offer extra credit opportunities as extra motivation or for fun.

Grading

| Item | % of Grade |
|---------------|------------|
| Homework | 10 % |
| Participation | 5 % |
| Prelabs | 4 % |
| Lab Reports | 16 % |
| Quizzes | 15 % |
| Midterm Exams | 25 % |
| Final Exam | 25 % |

| Range | Letter Grade |
|----------|--------------|
| 90-100 % | A |
| 80-89 % | B |
| 70-79 % | C |
| 65-69 % | D |
| <65% | F |

Plus/Minus grades: Plus/minus grading are awarded for the highest and lowest 2% of each grade (state law does not allow grades of "C-" at CA Community Colleges).

Make-ups

- **Quizzes:** To accommodate absences, the lowest quiz score will be dropped. Each student is allowed one make-up quiz if approved by the instructor.
- **Exams:** If you must miss an exam, please contact me as soon as possible (prior to the exam, if possible). I can accommodate make up exams only for certain circumstances and may give them during finals week.

Late Work

- **Homework** (including Mastering Chemistry, the Titration Assignment, and other assignments classified in Canvas as Homework) will receive full credit any time prior to 24 hours before the exam for which you will be tested on the homework material. After this 24 hour mark, you may complete the assignment, but will not receive credit.
- **Lab Reports** can be submitted up to one week late for full credit. After that, the score will be reduced by 5 pts for a regular lab report or 1 pt for a DIY Mini-Lab.
- **End of Lecture Quizzes** and other participation assignments (except discussion posts) may be submitted at any time for full credit.
- **Discussion posts** must be completed on time because if you submit a post late, you aren't really part of the discussion with the rest of the class.
- **Extra Credit** will only be awarded if it is submitted by the due date.

Accommodations

Some students may face learning disabilities or challenges that affect their academic performance. If you have a disability that could affect your class performance, please contact DSPS at 546-3148 as soon as possible. Exams and quizzes taken with accommodations must be taken concurrently (same start or end time) as the class. Please schedule your classes and other obligations such that accommodated exams and quizzes can occur concurrently with the class.

Academic Integrity

Any form of falsely claiming work to be your own when it was not (copying off another quiz or lab report etc.) or *sharing your work with others* is considered cheating. If you violate the academic honesty policy, you may receive a "0" for the assignment AND an equivalent assignment, or an F for the course. See the Cuesta College schedule for official student conduct policies.

The use of the internet, such as google, Chegg, or other sites, for lab reports, quizzes, exams, homework, or other work is prohibited unless otherwise specified in the assignments. If you aren't sure how to answer a question, ask for help from your instructor, tutor, or classmate, but do not copy someone else's answer, and do not resort to google or Youtube. There are many chemistry videos on Youtube with incorrect information. Instructor-approved Youtube videos are available in Canvas for many topics, so watch these instead of finding your own. If a video is unavailable for a particular topic, contact your instructor for help.

It is expected that students will work together on assignments. It is also expected that each student will do their own work and write answers in their own words. A good way to work together is to talk about a question, discuss an answer, and then each person writes an answer in their own words. For calculation questions, each student should do the calculations on their own and then compare answers. Although it may be tempting, do not write the result of another student's calculation.

Group Lab Reports

Lab experiments will be designated as either Individual Labs or Group Labs. Follow the directions for each lab on what is considered acceptable collaboration. Each student is required to collect data as described in the directions for the lab. Copying data from another student is not allowed, unless specified in the lab instructions for that lab experiment.

When working on lab reports in groups, each group member should determine their own answer and perform the calculations on their own and then share with the group. This way, students will learn from each other and careless errors will be caught. It is not allowed for individual students to complete sections of the lab and simply give their work to the group. All members must participate in every aspect of the lab report.

Technical Issues?

For issues related to accessing Cuesta's Canvas Site, email: support@my.cuesta.edu. Technical issues with the online homework system are best resolved by clicking the appropriate links in the MC system.

Netiquette and Online Course Participation:

- Use respectful and professional language in your forum discussions. Respect the learning progress of your peers.
- Please do not use texting language, lol (SCNR).
- Emoticons are acceptable ways to show emotion.
- Avoid ALL CAPS as they come across like YOU'RE SCREAMING.
- You are expected to read all forum posts, and to make at least 8 posts or responses with specific details in the discussion forums this term. Try to give guidance rather than provide exact answers. Assigned posts do count towards your 8 post minimum.
- All messages are public, so be professional and courteous when you post.
- Make your posts and replies specific to a particular problem or issue.
- Complete sentences and thoughts are mandatory for forum posts.
- You must log into Canvas at least once per week.

Important Course Dates

Please look carefully at the Course Schedule at the end of this document and mark your calendar with the quizzes, exams, and other important dates. Be careful to plan your travel, medical appointments, and other plans around these dates so that you can maximize your potential in this class.

Class Schedule

(Material or assessments may be moved as needed)

| Week | Lecture Topic | Lab | Notes |
|-----------|---|-------------------------------|---|
| 1 (1/18) | Course Orientation Ch 15: Kinetics Lecture 1 | Chem 201A Review Problems | Mon. Holiday <i>1/17 Drop Deadline</i> |
| 2 (1/25) | Ch 15 Lectures 2 & 3 Quiz 1 (Including nomenclature) | 1. Kinetics of Food Coloring | <i>1/31 Deadline to Add a class and to Drop w/out a W</i> |
| 3 (2/1) | Ch 16: Equilibrium Lectures 1 & 2 Quiz 2 (Including nomenclature) | 2. Kinetics of Crystal Violet | |
| 4 (2/8) | Ch 16 Lecture 3 Ch 17: Acids and Bases Lecture 1 Quiz 3 | 3. Equilibrium | Fri. Holiday |
| 5 (2/15) | Exam 1 (Chs 15 & 16) Ch 17 Lecture 2 | DIY Mini-Lab 1 | Mon. Holiday |
| 6 (2/22) | Ch 17 Lectures 3 & 4 | 4. Acids and Bases | |
| 7 (3/1) | Ch 18: Aqueous Equilibria Lectures 1 & 2 Quiz 4 | 5. Buffers | |
| 8 (3/8) | Ch 18 Lectures 3 & 4 Quiz 5 | 6. Titration | |
| 9 (3/15) | Titration Assignment Due Ch 19: Thermodynamics Lecture 1 | DIY Mini-Lab 2 | |
| 10 (3/22) | Exam 2 (Chs 17 & 18) Ch 19 Lecture 2 | 7. Thermodynamics | |
| 11 (3/29) | Ch 20: Electrochemistry Lectures 1 & 2 | 8. Activity Series | |
| (4/5) | Spring Break | | |
| 12 (4/12) | Ch 20 Lectures 3 & 4 Quiz 6 | 9. Voltaic Cells | |
| 13 (4/19) | Ch 26: Coordination Compounds Lectures 1 & 2 Quiz 7 | 10. Electrolysis | <i>4/18 Deadline to drop w/ a W</i> |
| 14 (4/26) | Ch 26 Lecture 3 Ch 21: Nuclear Chemistry Lecture 1 Quiz 8 | 11. Complex Ions | |
| 15 (5/3) | Exam 3 (Chs 19, 20 & 26) Ch 21 Lecture 2 | 12. Qualitative Analysis | |
| 16 (5/10) | Ch 22: Organic Chemistry Lecture 1 Review Session | DIY Mini-Lab 3 | |
| 17 (5/17) | Finals Week: Final Exam Tuesday, May 18, 12-2 pm | | |