

CHEM& 161
General Chemistry I



Syllabus
Fall 2021

Instructor: Dr. Sonya Doucette

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Office: Meet on Zoom!

Office hours: MWF 8:30 - 9:30 am; TTh 11:30 am - 12:30 pm; and by appointment

Sections A & B, Combined Lecture T Th F 9:30 – 10:20 AM (Zoom)

Section A #3313

Section B #3315

Discussion T 10:30 – 11:20 AM (Zoom)

Discussion Th 10:30 – 11:20 AM (Zoom)

Lab M 9:30 AM – 12:20 PM (Zoom)

Lab W 9:30 AM – 12:20 PM (Zoom)

Course Outcomes: <http://www.bellevuecollege.edu/classes/All/CHEM%26/161>

Course Credits: 6

Course Description: First in a three-course chemistry sequence for science and engineering students. The 161/162/163 series covers atomic structure, stoichiometry, solutions, gas laws, periodic law, bonding, molecular orbital theory, colligative properties, radioactivity, thermochemistry, equilibrium, acids, bases, oxidation-reduction, electrochemistry, kinetics, and some organic chemistry. Courses take a quantitative approach and include lecture, discussion, in-class activities, and lab work.

Course Prerequisites: 1) Completion or concurrent enrollment in MATH& 141 or higher, or placement into MATH& 142 or higher and 2) CHEM& 121 or 140 with a C or better (or equivalent), or by chemistry placement exam.

Required Materials

- **Textbook:** Tro. 2018. Chemistry: Structure and Properties, 2nd Ed, Pearson.
- **Scientific or Graphing Calculator:** You will use this almost every day. Please make sure it is available during class sessions!
- **Email:** Check your BC email every day for important course announcements.
- **Course Website:** We will use the Canvas Online Learning Management System. You can get help from IT: <https://bellevuecollege.teamdynamix.com/TDClient/Home/>.

My Teaching Philosophy: Welcome! This quarter, I hope you acquire new and exciting ways to view the world through a better understanding of chemistry. I look forward to working with you throughout this journey. I approach teaching with the philosophy that learning is difficult and requires each individual student to put forth sustained and honest effort. I also believe that learning is a collaborative process and I am here to help you in any way I can. I view my role as that of a coach, mentor, and collaborator. I will provide you with many resources to cultivate your learning. In order to succeed in this course, you will need to take full advantage of these resources. Be proactive and

engaged. Prepare for each class or lab session. Attend every class and be on time. Respect and support the desire of other students to learn. I promise to work hard to support your learning and anticipate that you will do the same for yourself. Let's make our time together productive, worthwhile, and even fun!

Assessment and Evaluation

Your grade is based on your understanding of course content, which is promoted and evaluated beginning with pre-class questions following by online homework, quizzes, in-class and in-lab assignments, and a quarter-long research project. For our laboratory work this quarter, you will learn about the scientific process, conduct your own research project, and take part in an act of civic engagement to further your understanding about how science is applied to the world around you. At the end of the quarter, you will present your research and civic engagement experience to the class. Some extra credit points are available. A point breakdown is given next followed by a detailed explanation of the each evaluation tool used in this course.

Course Grading:

Pre-Class Questions & Homework	variable (20 % of final grade)
Quizzes (5 x 50, 1 drops)	200 pts (25 % of final grade)
Lab assignments (7 x 20)	variable (35 % of final grade)
<i>Includes research project</i>	
Discussion assignments* (9 x 20)	180 pts (20 % of final grade)

*The discussion assignments is tentative and might end up being less than 9.

Letter grade based on overall course % (rounded to two significant figures):

A	95+	C+	77 – 79
A-	90 – 94	C	73 – 76
B+	87 – 89	C-	70 – 72
B	83 – 86	D	60 – 69
B-	80 – 82	F	below 60

Your final course grade will be calculated as a weighted average, which will result in a percentage of total points, and then converted to a letter grade. Gradebook does not accurately reflect your course grade because it is not possible to drop quizzes or add extra credit points in Canvas. Therefore, Gradebook is likely an underestimate of your course grade. A "Grade Calculator" is available on our Canvas site. You can use this to

determine your grade at any time during the quarter. Extra Credit points are added at the end of the quarter in the following order (until you run out!): quizzes, laboratory assignments, discussion assignments, and modules.

▪ Pre-Class Questions are worth **20 % of your total course grade**. They are online questions found on Canvas based on pre-class videos and readings. You get two attempts per question. Each week, you complete two question sets: one prior to each lecture (due 11:59 pm the evening before lecture). Question sets are not timed, you can take as long as you want, although there are definite due dates. (Question set **Due Dates** can be found on our Canvas Calendar.) I will use Question results to guide our lecture sessions by giving attention to where you are struggling. Pre-Class Questions are not quizzes, but instead assess your *engagement prior to coming to lecture*. Do not worry if you select the incorrect answer – you are not yet expected to know the content. To ensure your grade is not affected by Pre-Class Questions, you can replace each question set score with a homework score. For each Set, there is a corresponding Mastering Chemistry online homework assignment. If you earn 90 % or higher on the Question set, then you do not need to complete the homework (but I suggest you eventually do it, at a minimum, as practice for quizzes!) If you earn less than 90 % on a Question set, **and you earned a score of 50 % or more on the Question set**, you must complete the homework. I will take the highest score earned as your final score.

Pre-Class Questions improve class time. Our time together will be used to work on problem areas, such as concepts or calculations you are struggling with, and engage in activities that build deeper understanding of concepts and foster critical thinking skills. Although you will take more of your own notes, using videos and textbook readings, you will not struggle on your own as much outside of class. Pre-Class Questions free up class time for me to provide more immediate feedback, so you will spend less time outside of class seeking help. They make learning more effective and personalized. Students tell me that Pre-Class Questions help them improve study habits, learn more, and spend less time “burning the midnight oil” to cram quizzes.

Tips for Successful Module Completion: **Pre-Class Questions are at the heart of learning in this course. If you do not put effort into them, you will not do well in this course.** You will complete and submit Question sets individually, although I encourage you to work together if that is helpful. Do not wait until the last minute. “The BC server was down” or “Canvas was not working” are not excuses for late submissions. Some technology problems are inevitable, however, and might occasionally hinder your completion of a Question set and a 5 % buffer will be applied to your total score at the end of each quarter. For example, if you have earned 90 out of 100 possible points, I will add 5 points ($0.05 \times 90 = 5$) to give you a total of 95 out of 100.

A good strategy for completing Pre-Class Questions, so that they don't seem overwhelming and long, is to start early and complete them in small pieces rather than

all at once. Read the questions before you watch the video or read the textbook, so that you have an idea of what information to look for. Then, answer easy questions first. Canvas will save your work. Come back later to tackle harder questions and enlist the help of classmates (or me!). Give it your best shot and come to lecture with questions!

▪ Mastering Chemistry Online Homework, together with Pre-Class Question sets, are worth **20 % of your total course grade**. Although it is not technically required, Mastering Chemistry is highly recommended for the following reasons. First, if you do not earn 90 % or better on a Pre-Class Question set, and you fail to complete the Mastering Chemistry homework assignment, then you will receive a 0 % on the Pre-Class Question set. Second, even if you receive 90 % or better, the homework helps you improve your Pre-Class Question score. Third, *practice, practice, practice* is very important in chemistry. There are two types of Mastering Chemistry assignments available in this course. *Homework* assignments for each Pre-Class Question can improve your score and are generally due each Thursday evening by 11:59 pm. *Additional Practice* (optional and not graded) provides more practice, does not have a due date, and will not affect your grade in any way – do as much or as little as you want (although, I recommend doing more rather than less!). Instructions on how to register for Mastering Chemistry are posted on our Canvas site. (You should register through Canvas, not through the Pearson website.)

Tips for Success on Mastering Chemistry (MC) Homework: Do not wait until the last minute. Homework questions take time. Also, you may have clarification questions for me because the terminology used is sometimes different than in our textbook. It is good practice to read the homework questions at the start of each week. Each assignment contains content covered in class earlier in the week or the week before.

▪ Quizzes: Quizzes occur online on Canvas every other week, beginning in Week 2, and are due by 11:59 pm on Fridays. They will be a mix of multiple choice and short answer/explanation-style questions and are worth **25 % of your total course grade**. Quizzes cannot be missed and made up later, but your lowest quiz score is dropped.

Tips for Success on Quizzes: The best way to prepare for quizzes is to get LOTS of practice with word problems and concept application. I will focus lecture time on concepts and calculations that gave students the most trouble in Pre-Class Question sets. As you work through the Pre-Class Questions, write down your specific questions and then get them answered during lecture or discussion sessions. Check off questions from your list as they are answered. If lecture ends and you still have questions, seek help from me or from classmates.

In chemistry, it is VERY important to practice, practice, practice! It is the rare student who passively reads and memorizes that will do well in chemistry. Active learning is VERY important, so be sure to pay attention and actively ask questions during

lecture, be an active participant in discussion activities and during laboratory sessions, and spend lots of time doing extra practice problems (beyond the required homework assignments!) from your textbook and in Mastering Chemistry.

- **Laboratory Sessions:** Labs session occur each week on Tuesdays (Section A) or Thursdays (Section B). You may not attend another section's lab without *prior* permission from the instructor. The purpose of laboratory sessions is to improve your understanding of the scientific process, help you complete your course research project and civic action, and gain a "hands-on" understanding of chemistry. Labs are worth **35 % of your total course grade** and occur once per week. Do not assume labs will end early. If you arrive late and your group has already started work, you must complete the work on your own. Oftentimes, there will be an assignment due before a laboratory session to prepare you for the session. Laboratory sessions this quarter will be focused on

- **Discussion Assignments:** These are **20 % of your total course grade** and take place during your discussion session each week. They are activities designed to deepen your understanding of concepts, give you practice with calculations, build problem-solving and critical thinking skills, and (when possible) provide examples of real-world application. Cognitive research shows that deep understanding and critical thinking skills improve problem-solving ability. Therefore, these sessions aim to strengthen your ability to solve chemistry problems. Another goal is to enhance motivation to learn through exposure to real-world applications of chemistry concepts, when possible. Finally, working on solving problems in small groups helps to identify your progress, address specific questions that you have, and find areas that need improvement.

Tips for Success on Discussion Activities: Working in groups brings a diversity of strengths and perspectives to the problem-solving process that working alone cannot. I will assign group roles to facilitate the process of group work. However, sometimes group work can be frustrating. **If you are having problems, talk to me early on so we can resolve any issues.** If you already understand the concepts being covered, participation will still benefit you because explaining concepts to others solidifies understanding. If you already "get it," help others learn! Create a positive learning environment for all by being respectful, listening, and helping each other learn.

Student Resources

- **Docs and Dents Club:** For those interested in pursuing careers in medical or dental fields, or for those not sure who want to learn more, contact Carole Berg (425-564-2321, E-mail: CBerg@bcc.ctc.edu)
- **Chemistry Club:** For those generally interested in doing cool things with chemistry or pursuing careers in chemistry-related fields, contact Carole Berg (425-564-2321, E-mail: CBerg@bcc.ctc.edu)

- Science Study Center: The Center is located in S114. It is staffed by science and math faculty, and is a great place to study and get help. For hours and a schedule showing when you can get help in specific subjects, visit: <http://scidiv.bellevuecollege.edu/SSC/>
- Academic Success Center: The Academic Success Center (D204) offers drop-in tutoring times for chemistry. Also, students with a C or lower are eligible for individual tutoring.
- Open Computer Labs: Module completion for this course relies heavily on computer access. If you do not have a personal computer, you can use campus computer labs for free: <http://www.bellevuecollege.edu/servicedesk/students/n250-open-lab/>
- Advising: To learn about transfer credits to 4-year institutions or other academic advising, schedule an appointment with a Science Division advisor: <http://scidiv.bellevuecollege.edu/science-advising/>
- Disability Resources Center: The Disability Resource Center serves students with a wide array of learning challenges and disabilities. If you are a student who has a disability or learning challenge for which you have documentation or have seen someone for treatment and if you feel you may need accommodations in order to be successful in college, please contact us as soon as possible. If you are a person who requires assistance in case of an emergency situation, such as a fire, earthquake, etc, please meet with your individual instructors to develop a safety plan within the first week of the quarter. If you are a student with a documented autism spectrum disorder, there is an additional access program available to you. Contact <http://www.bellevuecollege.edu/autismspectrumnavigators/> for more information. Email and phone number is on the web page. ASN is located in the Library Media Center in D125. The DRC office is located in B132 or you can call our reception desk at 425.564.2498. Deaf students can reach us by Skype: the address is **DRCatBC** (NOTE: There is no @ sign...it is actually **DRCatBC**). Please visit our website at <http://www.bellevuecollege.edu/drc/> for application information into our program and other helpful links.
- Canvas: We will use the Canvas online Learning Management System (LMS) for this course. For help Canvas: <http://depts.bellevuecollege.edu/helpdesk/students/canvas/>.

The Fine Print: Course Policies and Expectations

- **COVID-19 Protocols**: Bellevue College is following state and local guidelines regarding COVID safety. All students need to attest that they have received their COVID-19 vaccinations or must receive a medical or religious exemption to attend Bellevue College. In addition, everyone is required to wear masks indoors and stay home if you are sick. Mask use outside and maintaining social distancing of at least 3 feet is strongly recommended. Detailed information can be found at <https://www.bellevuecollege.edu/covid19/>
- **Late Policy**: You will start the quarter with 5 late passes that can be used within 1 week of deadlines. Unused late passes become extra credit points. They can be used for labs, modules, and in-class activities (but **not for quizzes or the final research presentation**). You must indicate that you are using the late pass at the time the assignment is due, or before it is due. No penalty and no questions asked! Once you declare that you will use a late pass, it can not be taken back if you do not end up turning in the late assignment. To keep track of your use of late passes, I will create an extra credit grade category in Gradebook in which you will start the quarter with 5 points. When you turn in a late assignment, I will deduct 1 point from this extra credit category and your assignment will be graded as if it was on time. Assignments for which a late pass is not used, or those used with a late pass but turned in more than 1 week after the original due date, receive zero points.
- **Time Required to Complete Course Assignments**: You should plan to set aside 2 hours of out-of-class study time for every hour of class. (You may need more or less than this, depending on your prior experience and comfort level with chemistry.) Figure out (right now!) how you can devote the necessary time to this class.
- **Email and Canvas Announcements**: When school is in session, it is good practice to check your BC email account and our course Canvas sites at least once every 24 hours from Monday through Friday. This is to ensure that you receive important Announcements and other course information. I check email Monday through Friday and will always get back to you within 24 hours (excluding weekends).
- **Bellevue College Affirmation of Inclusion**: Bellevue College is committed to an environment in which everyone feels welcome to participate in

college life, free from harassment and discrimination. We value our different backgrounds at Bellevue College, and students, faculty, staff members, and administrators are to treat one another with dignity and respect. For more information: <https://www.bellevuecollege.edu/inclusion/>

- **Religious and Faith-Based Accommodations:** Reasonable Accommodations for Reasons of Faith and Conscience: Students who will be absent from course activities due to reasons of faith or conscience may seek reasonable accommodations so that grades are not impacted. Such requests must be made within the first two weeks of the course to the office of the Associate Vice President of Student Affairs (see Bellevue College [Policy 2950](#)). In the event you feel you are being discriminated against based on faith or conscience, you may refer to the procedures outlined in the college's Discrimination, Harassment and Retaliation Policy ([1440P](#)).

- **College Anti-Discrimination Statement (Title IX):** Bellevue College does not discriminate on the basis of race or ethnicity; color; creed; national origin; sex; marital status; sexual orientation; age; religion; genetic information; the presence of any sensory, mental, or physical disability; gender identity or veteran status in educational programs and activities which it operates. For further information and contacts, please consult <http://www.bellevuecollege.edu/titleix/>

- **Science Division Policy on Cheating:** You are expected to conduct yourself with integrity. If you cheat*, or aid someone else in cheating, you violate a trust, and the following actions will be taken: (1) You will receive a grade of "0" on the work where the cheating occurred. This grade cannot be dropped. (2) A report of the incident will be sent to the Dean of Student Success. The Dean may file the report in your permanent record or take further disciplinary action such as suspension or expulsion from the College. If you feel you have been unfairly accused of cheating, you may appeal. (For a description of due process, see WAC 132H-120 and/or the Student Handbook.) (*Cheating includes, but is not limited to, copying answers on tests or assignments, glancing at nearby test papers, swapping papers, stealing, plagiarizing, lying, use of electronic information storage or communication devices to store or share answers and illicitly giving or receiving help on exams or assignments.)

- **Public Safety and Emergencies:** Public Safety is located in the K building and can be reached at **425-564-2400** (easy to remember because it's the only office on campus open 24 hours a day—2400). Among other things, Public Safety serves as our Parking Permits, Lost and Found, and Emergency Notification center. Please ensure you are signed up to receive alerts through our campus alerting system by registering at <http://www.bellevuecollege.edu/alerts/?ref=footer>. If you work late and are uneasy about going to your car, Public Safety will escort you to your vehicle. To coordinate this, please phone ahead and let Public Safety know when and where you will need an escort. Please familiarize yourself with the emergency postings by the door of every classroom and know where to go in the event of an evacuation. Your instructor will be asked if anyone might still be in the building, so check in before you do anything else. Emergency responders will search for anyone unaccounted for. **If a major emergency occurs, please follow these two rules: 1) Take directions from those in charge of the response** -We all need to be working together, **2) Do not get in your car and leave campus (unless directed to)** - Doing so will clog streets and prevent emergency vehicles from entering the scene. Instead, follow directions from those in charge. Please do not hesitate to call Public Safety if you feel safety questions or concerns at any time.

- **Anti-bias in the Classroom Statement:** Many Black, Indigenous, People of Color (BIPOC) faculty have expressed concerns about microaggressions in the classroom and Canvas forums, both directed at them and other students. As a result, the BIPOC Coalition Social Justice and Advocacy Committee proposes that the following anti-bias statement be included in all class syllabi. Bellevue College affirms the diversity of human identities and experiences and is committed to creating spaces free from harassment and discrimination (4000 Institutional Commitment to Inclusion). Furthermore, Bellevue College rejects all forms of racism, homophobia, sexism, xenophobia, religious intolerance, classism, ableism, ageism, language bias, and hate speech or actions that attempt to silence, threaten, or degrade others. In classroom settings, we might disagree with views shared in the classroom; however, courteous, and respectful behavior and responses are always expected. When providing criticism, it is important to focus on the ideas and not the person.