

Chem 103: General Chemistry I Fall 2026

Instructor: Timothy D. Cook, Ph.D. (tdcook@brynmawr.edu; Office: Park 169)

Time: *Lecture:* MWF 12:10 pm-1:00 pm

Recitation: F 2:10-3:00 pm

Room: Park 278 (recitation & lecture)

Office Hours: M 1:30pm – 3:00pm

(in Park 169) W 11:00am – 12:00pm
or by appointment (email me)

Textbook: OpenStax Chemistry 2e <https://openstax.org/details/books/chemistry-2e>

The version of the online textbook we are using has a **green banner**. The “atoms first” edition has an orange banner, and different chapter numbers. Beware of the orange banner if you access the text via Google! If the reading doesn’t seem to align with the topic listed on Moodle, double check that you’re on the right version the textbook. You can also just download the textbook to your device(s) to avoid this.

Required Materials: Scientific calculator (Recommended: TI-30 or above, or equivalent). A graphing calculator is not necessary. Cell-phone calculators are not permitted on exams and quizzes.

Learning Goals:

- Apply chemical principles to solve both conceptual and quantitative problems.
- Develop fluency in the “language of chemistry” by learning and correctly using chemical terms, symbols, and equations.
- Link the material learned to the laboratory practical work for the mutual reinforcement of key concepts.
- Build a chemical foundation that applies to and complements past, current, and future knowledge in chemistry, physics, biology, geology, and beyond.
- Gain an awareness of how chemical principles are relevant to the world around us.
- Understand and utilize the naming conventions for chemical compounds and chemical formulas
- Understand and utilize the concept of the “mole” in quantitative calculations

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- Balance chemical reactions and understand the concepts underpinning reaction stoichiometry
- Utilize stoichiometric concepts to identify limiting reagents, calculate yields and otherwise analyze chemical reactions
- Gain a qualitative understanding of thermodynamic concepts including heat and work and develop the skills to perform quantitative calculations to determine the values of these properties
- Understand both the wave-like and the particle-like properties of light (radiation)
- Be familiar with the basic concepts of quantum mechanics, and understand how those concepts are related to the electronic structure of atoms
- Understand how the electron configuration of atoms are determined
- Use the periodic table in concept with information about the electronic configuration of atoms to rationalize the trends in various properties of elements
- Use the Lewis-dot model to represent the bonding in molecules
- Use VSEPR theory to predict the shapes of molecules
- Predict the polarity and charge distribution within molecules using an understanding of atomic properties
- Understand the key concepts of molecular-orbital theory and use these concepts to rationalize the behavior and properties of simple molecules
- Understand conceptually and use quantitatively the ideal gas law
- Describe, as well as understand the implications of, intermolecular forces as well as understand how these forces impact the properties of liquids and gases

Office Hours:

General Chemistry is a challenging course, and I am here to help you through it! My office hours are designated times that I have set aside **solely to answer student questions. You will NEVER be interrupting or bothering me** by coming to my office hours. Please come by with any and all questions. Office hours will tentatively meet in my office, Park 169, unless regular attendance is large enough to necessitate a larger space. I am also happy to meet by appointment, as necessary.

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I love questions and will frequently solicit them during lecture and recitation. Lingering questions you have from lecture are a great reason to come to office hours. Help with homework problems (i.e., you can't figure out why the correct answer is different from yours, or don't know how to begin to approach a problem) is another great reason to come see me. Use this resource early and often!

Online Homework (Achieve):

<https://achieve.macmillanlearning.com/courses/2w2sob> ID: 2w2sob

- We will use Achieve as the homework platform for this course. Achieve is an interactive homework website that gives immediate feedback in real time, provides tips and hints as you work through problems, and gives you personalized help in ways that are just not possible with traditional homework. **Each student should purchase access to Achieve (~\$40).** *If you have any issues associated with this cost, please reach out to your dean.*
- You may consult and collaborate with other students in the class to work on these problems, but you must submit all problems on your own online by the date and time specified.
- There is a 5% late penalty per day for Achieve homework, up to a maximum deduction of 35%. As detailed below, completing the homework is **essential** for understanding the material. The homework deadlines are strategically designed to help you maintain a successful pace in this course. You will have to contact me to re-open any assignments that are more than 1 week late. Skipping or not putting effort into homework are surefire ways to fall short of your goals on exams and quizzes.
- Each problem will lock after 5 attempts. If you still haven't gotten the correct answer, you can contact me for extra attempts. You can email me or come to office hours, but you have to include your work or thinking so I can help you figure out the problem before I give you extra attempts.
- **Homework is about practice and understanding, not completing an assignment. You should always approach it this way.** Many of you will go on to take Organic Chemistry, where the homework is totally on-your-own and not collected or worth any points...now is the time to build a good relationship with homework and its necessary role in your learning!
 - There are no shortcuts. You should expect to spend 6-10 hours a week outside of class and lab working on chemistry to master the material.
 - The best way to learn how to solve chemistry problems is to consistently work lots and lots of chemistry problems!!!

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Resources for Mastery:

- Your instructor! In addition to Office Hours, I encourage you to ask me questions at any time, in or outside of class. I am passionate about helping you succeed in what is traditionally an intimidating and stressful course. Please **email me with questions any time** and I will do my best to respond as soon as I can. I am happy to schedule meetings (via Zoom or in-person) outside of office hours as needed.

I strive to create a classroom community where every student feels included, that they belong, and that they can contribute and succeed. There are always ways I can improve my teaching and the classroom environment, and your feedback is crucial. Please talk to me or a TA if there is ever anything I can do to make this class more accessible, inclusive, or engaging for you!

- Homework. Practice makes permanent. **There is no substitute for practice** in this course. I recommend reading over your notes and the textbook, and then attempting problems one-at-a-time. Before moving on, check the Achieve feedback, and you will typically either:

A) have the correct answer.

B) have the incorrect answer, and understand your mistake.

C) have the incorrect answer, and not understand your mistake, or not understand the solution/feedback whatsoever.

Scenario C) means you should find help! Come to office hours, email me, talk to a classmate, etc. Take action to close this gap in your understanding. This is especially crucial early in the course for foundational topics that will consistently appear throughout the semester.

If you can't figure out how to begin to approach a problem, you should likewise find help!

If you understand the homework problems, you shouldn't find any surprises on a quiz or exam.

- The Textbook. The OpenStax textbook has been carefully crafted with helpful and easily digestible presentations of the topics to students. I urge you to use the textbook as a primary resource in this course. Even taking 5-10 minutes to briefly skim the assigned reading can make a huge difference in learning and retention versus encountering the material for the first time during lecture.
- Lecture. Lecture is an opportunity to interactively engage with a presentation of the material. I will do my best to present in a way that supplements the textbook rather than restating the same ideas in the same format. To get the most out of lecture, you should **read the assigned text section before class. Even taking 5-10 minutes to skim the text can make a huge difference!**

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You should also take notes and ask questions frequently. Notes will be a mix of handwritten and PowerPoint lessons. PowerPoint files will be posted to Moodle before class to facilitate notetaking. I will post my annotated lecture notes to Moodle after class. **These should be used as supplements, not replacements for attending lecture.**

- Moodle. Moodle will be used for announcements, grade-keeping, and as a repository for course resources. In addition to lecture notes, I will occasionally post additional practice materials. Check Moodle and your email daily for communications about this course.
- Recitation. Recitation will meet each week after Friday's lecture, unless there is an exam that week.
 - The first half of the period may be used for
 - i. short supplemental lectures
 - ii. a free "question period" for us to review troublesome problems upon request
 - iii. and/or to work through examples together in small groups.
 - The second half of the period will be used for a short weekly quiz (more information below.)
- Your TA. We are lucky to have a TA to support your learning in this course as well! More information will follow regarding TA support sessions and availability.

Assessment:

- Weekly Quizzes: We will have weekly quizzes in recitation starting the 2nd week of class. These quizzes are designed to encourage you to stay current with the material, and to help you evaluate your understanding as the exam approaches. The first quiz is a great way to gauge the success of your study/homework habits and strategy in this class. Do not get behind on the homework and make sure to ask lots of questions in and outside of class!

Quizzes are worth 10 points each. Your lowest quiz score will be dropped.

****Unexcused missed quizzes may not be made up or rescheduled. ****

If you play a sport and know you will miss class due to a college athletic competition that you are participating in, you must schedule this with me ASAP early in the semester.

If you start feeling ill the morning of a quiz, or must miss for any other day-of reason, that will count as your dropped quiz. If you provide advance notice of an illness or exceptional

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circumstance **at least one day before** the quiz, you *may* be allowed to make it up the following Monday morning, at the instructor's discretion.

- Midterm Exams: Four (4) in-class exams will be given on the dates indicated in the course calendar document. Exams will be closed-book and closed-notes. Exams will be given during the 1-hour lecture period, and recitation will not meet during those weeks. Each exam is worth 75 points. Your lowest midterm exam score will be replaced by your final exam score, if your final exam score is higher than the average of your four midterms.
- Final Exam: A 3-hour time slot for the cumulative final exam will be established during the final exam period. More information on this as we get closer to the end of the semester. Final exam is worth 100 points.
- Homework: Your Achieve homework % grade will be scaled to 40 points total. There is no reason you shouldn't get 100% on every assignment if you start them in time to ask for help!

Course Grading:

Lecture grade:

Your grade for this course will be assigned through the following point system:

4 Exams:	300 Points
Best 6 Quizzes:	60 Points
Achieve Homework:	40 Points
<u>Final Exam:</u>	<u>100 Points</u>
Total:	500 Points

Laboratory Grade: You are required to take the laboratory that accompanies the lecture part of this course. In recognition of the value of the lab to the overall course experience, your lab work will count as 30% of your final grade in this course. Prof. Lisa Watkins oversees the laboratory portion of the course and questions about the lab can be brought to her. Generally, the lab topics and activities will complement the course topics but will not always be synchronized. Questions about lab, especially feedback on lab reports and grades, should be brought to your individual lab instructor.

Overall: The overall course grade on your transcript will be determined by the following equation:

$$(\text{Lecture Grade}) * 0.66666 + (\text{Laboratory Grade}) * 0.33333 = \text{Total Course Grade}$$

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Approximate Grading Scheme:

93 – 100% 4.0 (A)	80 – 82% 2.7 (B-)	60 – 64% 1.3 (D+)
90 – 92% 3.7 (A-)	76 – 79% 2.3 (C+)	55 – 59% 1.0 (D)
87 – 89% 3.3 (B+)	70 – 75% 2.0 (C)	
83 – 86% 3.0 (B)	65 – 69% 1.7 (C-)	

I reserve the right to adjust this grading scale when I consider it necessary. Grade cutoffs may be lower than listed above (e.g. a 92% might be an A), but will not be higher.

Missed Assignments / Illness:

If you have a medical or family emergency that prevents you from taking a quiz or exam, ***you need to notify me as soon as possible***. I will work with you to arrange an alternative time for you to take this quiz or exam. **All missed assessments MUST be made up by the following Monday** to ensure equity for your classmates.

Known schedule conflicts, such as travel for an athletic competition, should be communicated ASAP so we can coordinate makeup quizzes/exams as needed.

If it is not possible to make up an exam within a reasonable timeframe and sufficient documentation is provided, then you may be excused from the assignment (only under extreme circumstance, at the instructor's discretion). The points for that assignment will not be included in your grade calculation.

Your first missed quiz (outside of circumstances outlined in the Assessments section) will be counted as your dropped lowest quiz grade.

AI Policy:

Absolutely no use of AI is allowed for this course. Using AI to solve homework problems runs completely counter to the goals of this course. If you are stuck, email me, come to office hours or TA hours or the tutoring center...etc! **The homework is crucial practice and preparation for assessments; do not deprive yourself of it by copying another's work, human or otherwise!**

Problem-solving and productive "struggling" with concepts is exercise for your brain. You would not have a robot lift weights for you in the gym and expect yourself to grow physically stronger. Do let not AI rob you of strengthening your brain!

I will also abide by this policy. At no point in this course will AI be used to generate any lecture materials, practice problems, assessments, or communications; nor will it play any role in grading.

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Academic Honesty:

Academic honesty in the classroom is a matter of equity for all students in this course, and for all past and future students whose degrees bear this institution's name. Any act of cheating prevents this course from operating fairly. Therefore, any instances of cheating on a quiz or an exam *will result in an automatic reduction to 0% for that assignment*. This 0% cannot be replaced or mitigated in any way. All instances of academic dishonesty will be referred to the honor board without exceptions.

Additionally, AI use is counter to the goals of this course, and is **not permitted** for any work in this course. Any instance of AI use will be treated as academic dishonesty, as described above.

Access and Accommodations:

Bryn Mawr College is committed to providing equal access to students with a documented disability. Students needing academic accommodations for a disability must first register with Access Services. Students can call 610-526-7516 to make an appointment with the Director of Access Services, Joanna Timmerman, or email at jtimmerman@brynmawr.edu to begin this confidential process. Once registered, students should schedule an appointment with the professor as early in the semester as possible to share the verification form and make appropriate arrangements. Please note that accommodations are not retroactive and require advance notice to implement. More information can be obtained at the Access Services website. (<http://www.brynmawr.edu/access-services/>)

Any student who has a disability-related need to record this class first must speak with the Director of Access Services and to me, the instructor. No accommodations can be implemented by the course instructor without a letter from Access Services.