

GENERAL CHEMISTRY I, CHEM 103
Fall Semester 2026

Instructor: Prof. Eugenia Vasileiadou

Meeting Time:

Lecture: MWF at 12:10PM-1:00PM

Recitation: F at 1:10 PM-2:00 PM

E-mail: evasileiad@brynmawr.edu

Meeting Location: Park 243

(Lecture and recitation)

Office: Park 288

Office Hours: Tuesdays, 9:15AM to 10:15 AM

Thursdays, 9:15 AM to 10:15 AM

or by appointment (email me).

TA: Ramona Shekhar

TA Office Hours:

Wednesday 2PM to 4PM (Location TBD)

Welcome to general chemistry! Whether you want to become a scientist, an engineer, a doctor, a researcher or just hone your problem-solving skills and get a better understanding of the principles of the world – this course is a great place to start. In this course, we will begin to explore the world of chemistry by considering the behavior of atoms and molecules. A solid foundation in general chemistry concepts is essential for understanding many natural phenomena, from the processes occurring inside the human body (why is life carbon and not silicon-based?) to the properties of materials we use every day (why are fireworks so colorful?) Chemistry is a demanding but also highly elegant and beautiful subject – approach it with an open mind and growth mindset. I am excited about our journey!

Learning Objectives:

- 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.
- 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 to understand how those concepts are related to the electronic structure of atoms.
- Understand how the electron configuration of atoms is 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.
- Recognize, draw and name various organic (carbon-based) 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.

Course Materials and Resources:

- **Textbook:** OpenStax Chemistry 2e. This is an online open access text available at <https://openstax.org/details/books/chemistry-2e/>. You can get a physical copy of the book from the Bryn Mawr College bookstore or order it online through the site.
- **Calculator:** You will need a scientific calculator that is capable of processing scientific notation, natural logarithms and base 10 logarithms.
- **Electronic Achieve homework:** We will use Macmillan Achieve Learning for online homework. Please purchase Achieve access for this course at <https://achieve.macmillanlearning.com>. The cost is ~\$50; If this presents a financial difficulty, please contact your dean as soon as possible.

I encourage you to discuss homework problems with your peers, your lecture TA and me. However, you must complete the problems online on your own by the assigned due date. Under no circumstances should another student complete your homework. You are upheld to the Bryn Mawr Honor Code.

- **Course Moodle website:** Moodle is used for all lecture materials – please be sure to check the website daily. In addition, announcements will be sent via email, so please check your Bryn Mawr email account at least once a day.
- **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. Please come by with any and all questions. Office hours will meet in my office, Park 288.

Course Logistics:

- **Email:** Please check your BRYN MAWR email at least daily. Important course information will often be disseminated via this medium.
- **Electronic Information:** There will be a site for this course on Moodle. Course documents such as homework, reading assignments, and answer keys will be posted on Moodle.
- **Textbook:** Please read and work through the appropriate section of the textbook ahead of time (before it will be covered in lecture). You will be able to learn much more from the lecture if you have read the material ahead of time. You will be informed as to your reading assignments on a weekly basis.
- **Laboratory:** The laboratory portion of the course is directed by Dr. Watkins. See the “CHEM 103 Lab” page on Moodle for more information.

Key steps in succeeding in General Chemistry are to attend lectures, recitation, complete class assignments, participate, ask questions and continuous practice of all questions and problems done.

Participation and Attendance:

Attendance at lecture is crucial. This class covers a lot of material and each class builds on the material from the previous class. Missing a lecture will be very detrimental to your ability to succeed in this class. The lecture will not be recorded. However, my notes -not a recording of the class - will (eventually) be posted to Moodle.

A portion of the final grade (2%) derives from student participation during the lectures through the form of Google surveys that are related to the previous content to refresh students' skills and knowledge. This will be graded only for completion. Also, during the lecture classes, there will be a couple of questions electronically posted related to content explored in class that will be completed by students. This will be also graded only for participation, not on the outcome of the solutions proposed. Participation includes attendance as well.

Recitation: Recitation is an extra 50-minute period of course time that will take place on Fridays at 1:10 PM -2:00 PM. With the exception of midterm exam days, we will mainly use recitation to solve worksheet problems. These **worksheets** are intended 1) to help you practice key concepts in the relevant context, 2) to be an additional opportunity for you to solve multistep and multi-concept problems and 3) to see how problems will be graded on exams.

Worksheets must be completed during recitation time and submitted at the end of recitation in person. A late penalty of 50% is applied to worksheets turned in after the due date (you will have to scan your worksheet and email it to Dr. Vasileiadou). Worksheets that are submitted after Monday evening will not be accepted.

Course Assignments (Homework and Recitation Worksheets):

There are two different types of course assignments for this course:

1) Homework: Problem sets will be assigned on the Achieve platform on a quasi-weekly basis. Some of the problems will allow infinite attempts (with a slight penalty for incorrect answers).

Every book chapter that we cover has an Achieve homework (problem set) associated with it, which is due soon after the chapter is covered. Each homework typically takes 1-5 hours to complete. I strongly encourage that you solve a few problems a day every day (to reinforce concepts as you learn them) rather than leave the entire set for the day it is due. There is a 5% late penalty per day for Achieve homework, up to a maximum deduction of 35%. 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. 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.

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!

Also, the Achieve system has "adaptive quizzes". If you get a question correct, it gives you a harder one etc. The way that they work is that you need to complete a certain amount of questions

correctly in order to get full credit for the quiz. Depending on how many you get incorrect, it could take longer or shorter to finish the adaptive quiz. These assignments are graded for completeness – 100% if you complete it, 0% if you do not – and make up a portion of the overall homework grade.

2) Recitation Worksheets: There will be several recitation worksheets handed out approximately once a week (on Fridays) that will be due by the end of the recitation period. They will be graded for correctness and will make up 4.5% of the overall course grade. **See above “recitation section” for more details.**

The lowest worksheet grade of the semester will be dropped. It may come to be that a problem directly from the homework or recitation worksheet will appear on an exam; you will be sad if this happens and you are not aware of it because you didn’t do the course assignments.

Exams: There will be three two-hour midterm exams in this course; they will take place on Fridays during lecture and recitation time (see course calendar).

All exams are closed book, closed notes, and will consist of quantitative and qualitative problems. **THERE ARE NO MAKE-UP EXAMS.** If an extenuating circumstance happens, notify Dr. Vasileiadou, along with your advising dean, at least 24 hours prior to an assignment deadline, if exceptional circumstances arise.

The cumulative final exam is mandatory for obtaining a passing grade in the course. Students who miss the final exam will receive a grade of incomplete and must wait one full academic year to take the final when it is offered in the next fall term. When the final exam is completed at that time, the incomplete will be replaced by the appropriate letter grade.

Course Assessment:

Your cumulative average grade for the course will be determined by the lecture component (67%) and the laboratory component (33%). Dr. Lisa Watkins is in charge of the laboratory component – please contact her for all things lab-related and be sure to monitor her course’s Moodle website.

Lecture Grade Component:	Percentage (%)
Course Assignments (Homework and Recitation Worksheet)	9% (Homework = 4.5% and recitation worksheets = 4.5%)
Attendance and Participation	2%
Midterm Exam (3 total)	36% (12% per midterm exam)
Final Exam	20 %

Approximate Grading Scheme:

93 – 100% 4.0 (A)
90 - 92% 3.7 (A-)
87 – 89% 3.3 (B+)
83 – 86% 3.0 (B)
80 – 82% 2.7 (B-)
77 – 79% 2.3 (C+)

73 – 76% 2.0 (C)
70 – 72% 1.7 (C-)

Honor Code:

You are highly encouraged to consult with your peers or seek out Dr. Vasileiadou's help during office hours to complete homework assignments; however, your work on the Achieve homework and worksheets must be your own, entered/written independently by you. You will complete all exams on your own, without books, notes, cellphones or any electronic devices. The only device allowed during exams is a scientific calculator. The storing of text, formulas or data on the calculator during an exam is a violation of the Honor Code.

Academic honesty in the classroom is a matter of equity for all students in this course. 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 by the honor board without exceptions. Additionally, AI use is counter to the goals of this course and is not permitted for any assignments in this course. Any instance of AI use will be treated as academic dishonesty, as described above.

AI Policy: Use of any text-generating software (such as ChatGPT, Google GEMINI, iA Writer, Marmot or Botowski) is not permitted, and use of this software on graded assignments will be treated as plagiarism.

Commitment to an Inclusive Learning Environment: The diversity that each student brings to this class is a resource, a strength, and a great benefit, and it is immensely important to me that each student feels welcome and well-served in this course. My goal is to cultivate a learning environment that supports a diversity of thoughts, perspectives, and experiences, and honors your identities and the intersection between them. I will strive to build this course on inclusive, anti-racist principles. This is guided by two guiding statements:

Each and every one of you belongs in this course and

Each and every one of you can succeed in this course.

Accommodations and Access Services: Bryn Mawr College is committed to providing equal access to students with a documented disability. Students needing academic accommodations for a disability must first speak with Access Services. Students can email accessservices@brynmawr.edu to request an appointment to begin this confidential process. If eligible for accommodations as per Access Services, students should schedule an appointment with the professor as early in the semester as possible to share their 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 must first be found eligible to do so by Access Services and must share this eligibility with me, the instructor. Class members need to be aware that this class may be recorded.

Title IX: Bryn Mawr/Haverford College is committed to fostering a safe and inclusive living and learning environment where all can feel secure and free from harassment. All forms of sexual misconduct, including sexual assault, sexual harassment, stalking, domestic violence, and dating violence are violations of Bryn Mawr/Haverford's policies, whether they occur on or off campus. Bryn Mawr/Haverford faculty are committed to helping to create a safe learning environment for all students and for the College community as a whole. If you have experienced any form of gender or sex-based discrimination, harassment, or violence, know that help and support are available. Staff members are trained to support students in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more.

The College strongly encourages all students to report any incidents of sexual misconduct. Please be aware that all Bryn Mawr/Haverford employees (other than those designated as confidential resources such as counselors, clergy, and healthcare providers) are required to report information about such discrimination and harassment to the Bi-College Title IX Coordinator.

Information about the College's Sexual Misconduct policy, reporting options, and a list of campus and local resources can be found on the College's website: [Bryn Mawr Sexual Misconduct Policy](#), [Haverford Sexual Misconduct Policy](#)

Course Calendar:

Date	Topic	Assignment
Mon, Aug 31	Course Introduction, Chapter 1: Essential Ideas (1.4-1.6)	
Wed, Sept 2	Chapter 1: Essential Ideas (1.4-1.6)	
Fri, Sept 4	Chapter 2: Atoms, Molecules and Ions (2.1-2.4)	Worksheet 1
Wed, Sept 9	Chapter 2: Atoms, Molecules and Ions (2.5-2.6)	
Fri, Sept 11	Chapter 2: Atoms, Molecules and Ions (2.6-2.7)	Worksheet 2
Mon, Sept 14	Chapter 3: Composition of Substances and Solutions (3.1-3.2)	
Wed, Sept 16	Chapter 3: Composition of Substances and Solutions (3.3-3.4)	
Fri, Sept 18	Chapter 4: Stoichiometry of Chemical Reactions (4.1-4.2)	Worksheet 3
Mon, Sept 21	Chapter 4: Stoichiometry of Chemical Reactions (4.2)	
Wed, Sept 23	Chapter 4: Stoichiometry of Chemical Reactions (4.2)	
Fri, Sept 25	Midterm Exam 1	

Mon, Sept 28	Chapter 4: Stoichiometry of Chemical Reactions (4.3-4.5)	
Wed, Sept 30	Chapter 4: Stoichiometry of Chemical Reactions (4.5)	
Fri, Oct 2	Chapter 5: Thermochemistry (5.1)	Worksheet 4
Mon, Oct 5	Chapter 5: Thermochemistry (5.3)	
Wed, Oct 7	Chapter 5: Thermochemistry (5.2-5.3)	
Fri, Oct 9	Chapter 5: Thermochemistry (5.3)	Worksheet 5
~ FALL BREAK~		
Mon, Oct 19	Chapter 6: Electronic Structure/Periodic Properties (6.1-6.2)	
Wed, Oct 21	Chapter 6: Electronic Structure/Periodic Properties (6.2-6.3)	
Fri, Oct 23	Chapter 6: Electronic Structure/Periodic Properties (6.4)	Worksheet 6
Mon, Oct 26	Chapter 6: Electronic Structure/Periodic Properties (6.5)	
Wed, Oct 28	Chapter 7: Chemical Bonding/Molecular Geometry (7.1-7.2)	
Fri, Oct 30	Midterm Exam 2	
Mon, Nov 2	Chapter 7: Chemical Bonding/Molecular Geometry (7.3-7.4)	
Wed, Nov 4	Chapter 7: Chemical Bonding/Molecular Geometry (7.5)	
Fri, Nov 6	Chapter 7: Chemical Bonding/Molecular Geometry (7.6)	Worksheet 7
Mon, Nov 9	Chapter 8: Advanced Theories of Covalent Bonding (8.1-8.2)	
Wed, Nov 11	Chapter 8: Advanced Theories of Covalent Bonding (8.2-8.3)	
Fri, Nov 13	Chapter 8: Advanced Theories of Covalent Bonding (8.4)	Worksheet 8
Mon, Nov 16	Chapter 9: Gases (9.1-9.2)	
Wed, Nov 18	Chapter 9: Gases (9.2-9.3)	
Fri, Nov 20	Chapter 9: Gases (9.3-9.6)	Worksheet 9
Mon, Nov 23	Chapter 10: Liquids (10.1)	
Wed, Nov 25	Chapter 10: Liquids (10.2, 10.3)	
~ THANKSGIVING BREAK~		
Mon, Nov 30	Chapter 10: Liquids (10.3, 10.4)	

Wed, Dec 2	Chapter 10: Liquids (10.3, 10.4)	
Fri, Dec 4	Midterm Exam 3	
Mon, Dec 7	REVIEW	
Wed, Dec 9	REVIEW	
	FINAL EXAM	