

Summer 2025

Chemistry S161

General Chemistry I introduces the fundamentals of chemistry with emphasis on scientific problem-solving skills. Students learn chemical principles and apply these to solve qualitative and quantitative problems.

Completing the full year General Chemistry sequence of courses fulfills the prerequisites for medical school and for all majors that require a year of general chemistry, as well as the general chemistry prerequisite for Organic Chemistry (CHEM 220).

Given the compressed schedule of a summer session, the course requires an extensive commitment of time and effort. Given that new course content builds upon material previously learnt in the course, keeping up with the course is a priority, as there is very little time to go back and relearn concepts if not fully understand when first introduced.

Instructor: Dr. Paul Cooper E-mail: paul.d.cooper@yale.edu

Office Hours: I will be available to help you directly after class each day. I'm also more than happy to meet with you outside of these hours on an as-needed basis. Send me an email to arrange a day and time.

Canvas is used for the course website, and you are responsible for reading and knowing the course information described there.

Class Times

Lecture - MTWThF 9:30-10:45am

Discussion Section – M & W 11:00am-noon, Th 11:00-11:30am. A short quiz will be given on each M & W section.

Attendance at lectures and discussion section is required.

Required Resources

The textbook for the course is the General Chemistry e-text published by Top Hat (<https://tophat.com/marketplace/science-&-math/chemistry/full-course/general-chemistry-franklin-ow/293/>). This is a *digital-only* book, and as such you will need access to it. It is accessible via a computer, tablet or smartphone. Purchasing the book will also provide access to all homework and quiz questions. Further instructions (course code etc) will be posted before classes commence.

General Chemistry I Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	Intro/Basics	Basics	Matter	Matter	Molecules/ Compounds
Week 2	Molecules/ Compounds	Reactions/ Stoichiometry	Reactions/ Stoichiometry	Reactions/ Stoichiometry	Exam 1
Week 3	Gases	Gases	Thermochemistry	Thermochemistry	Introduction to Quantum Theory
Week 4	Atomic Structure	Atomic Structure	Lewis Structures	Chemical Structures	Exam 2
Week 5	Chemical Structures	Intermolecular Forces	Intermolecular Forces	Phases of Matter	Exam 3

Exams

Exam 1	Friday 6 June
Exam 2	Friday 20 June
Exam 2	Friday 27 June

Laboratories

Labs at Yale are a different course and the organization and grades are separate.

Grading

There are 100 points available for each course in total.

Homework Problems (total 30 points) – for each chapter there will be one homework set. These will be a traditional end-of-chapter style problem set usually consisting of 20-25 questions. You will have 3 attempts to get these correct. The in-chapter questions in Top Hat are not graded, but are highly recommended to be completed as practice, as we go through each module.

- **Quizzes (total 10 points)** – at the beginning of each Discussion Section, there will be a short quiz.

- **Exams (total 60 points)** – each exam is worth 20% of your final grade.

Letter Grades. Letter grades will only be assigned to the entirety of the semester's work and not to individual assessments. Typically, a final letter grade of B+ corresponds to the class average, but it is possible for everyone to get an A if you all excel!

The final grades are *not* assigned with a curve but based on cut-offs determined by the instructor as A = consistently excellent answers; B = primarily correct answers; C = lack of understanding of some key concepts; D = lack of understanding of most key concepts.

Academic Honesty Policy

Plagiarism is defined in the *Undergraduate Regulations* page, as are the penalties associated with cheating:

<http://catalog.yale.edu/undergraduate-regulations/>

Examples of cheating include, but are not limited to:

- Getting the answers from another student for problem sets, or having another student complete your online homework. You may discuss the Practice Problems with one another.
- Looking at unauthorized notes, books, or another student's paper during an examination.
- The use of a phone or Internet-enabled device during an exam. You must find a compliant calculator for use in the exams.
- Alteration of an exam after turning it in.

I encourage you to form study groups and to work together on ungraded questions.

Honor Code

Yale University is committed to upholding our shared values while community members are spread throughout the world. To carry out Yale's mission and continue to cultivate educational excellence, we ask everyone to abide by the following principles of academic integrity. Yale continues to lead during all circumstances, and we invite our community to uphold these values as we move forward together.

The same standards for academic integrity apply to both in-person and any online and/or remote forms of education. All coursework submitted by students is expected to be their own and accomplished according to course guidelines. Dishonesty, plagiarism, and unauthorized collaboration will be subject to disciplinary action, according to Yale's academic standards.

Unless your instructor explicitly states otherwise, educational material shared by your instructor or classmates is not intended for distribution beyond the classroom. Educational material includes, but is not limited to, images, message board posts, digital presentations (e.g., PowerPoint, Keynote, etc.), and links to live or recorded class sessions.

Disabilities

If you have a documented disability that requires special accommodations, you must send a Letter of Accommodation to Dr. Cooper. In the case of exams, advanced notice of at least 1 week is required so that arrangements can be made.

Diversity, Equity, Inclusion & Belonging

Science is greatly enriched by a diversity of ideas and contributions from people of wide-ranging backgrounds, values, and experiences. Our goal in this course is to facilitate access to participation in the scientific enterprise for all interested students of any racial, ethnic, or gender identity, any nationality, and any socioeconomic, class, educational, and religious backgrounds. We welcome and value all students' contributions in this course.