

Summer 2021 Chemistry S161/S165

General Chemistry I and II 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 both 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 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 taught.

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.

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/> (Links to an external site.)). 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 here a week before classes commence.

Please note: If you're only taking one semester of Gen Chem over summer with the other taken either prior or you intend to take it after Summer 2021, this textbook is **not** the adopted text used by Yale Chem during Fall and Spring semesters. The Top Hat text however is the preferred textbook for the Yale Summer Session and is required.

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	Exam1
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	Final Exam

General Chemistry II Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	Solutions	Solutions	Kinetics	Kinetics	Kinetics
Week 2	Equilibrium	Equilibrium	Acid/Bases	Acid/Bases	Exam 1
Week 3	Aqueous Equilibria	Aqueous Equilibria	Thermodynamics	Thermodynamics	Electrochemistry
Week 4	Electrochemistry	Nuclear Chemistry	Nuclear Chemistry	Coordination Chemistry	Exam 2
Week 5	Coordination Chemistry	Coordination Chemistry	Organic Chemistry	Organic Chemistry	Final Exam

Exams

General Chemistry I	General Chemistry II
Exam 1 Friday 10 June	Exam 1 Friday 15 July
Exam 2 Friday 24 June	Exam 2 Friday 29 July
Final Exam Friday 1 July	Final Exam Friday 5 Aug

Laboratories

Labs at Yale are a different course (Chem 134L/136L) and the organization and grades are separate.

Grading

There are 100 points available for each course in total.

Homework Problems (total 25 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 5 points)** – at the end of each Discussion Section, there will be a short quiz.
- **Exams (total 70 points)**: Exam 1 and 2 each contribute 20 points each, and the Final Exam contributes 30 points.

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.