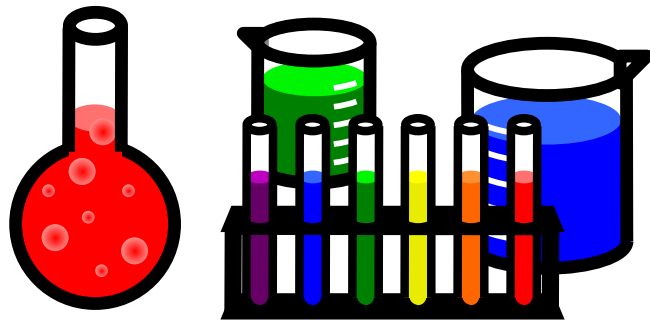


Rider Institute Online

AP Chemistry Part IV
Spring 2025 beginning January 7

Dr. Todd H. Rider, thor@riderinstitute.org
Website: riderinstitute.org



This online course will teach AP-level chemistry and help students prepare for the AP chemistry exam. There will be 16 weeks of class per semester.

Dr. Rider will teach 60 minutes per week via Google Meet, Tuesdays 1:00-2:00 p.m. Eastern/10:00-11:00 a.m. Pacific.

Dr. Rider will suggest reading and practice problems in the textbook and AP test preparation book. If students would like to study for the AP chemistry exam, they should do the reading and practice problems, which may take at least 5 hours per week. If students do not plan to take the AP chemistry exam and would just like to learn some chemistry, the reading and practice problems are optional. Dr. Rider is happy to answer questions and work through sample problems during the lectures, but checking the students' work and assigning any grades to the students is the responsibility of their parents or legal guardians.

For each chapter of the textbook, Dr. Rider will also suggest relevant lab activities that students could do at home. If students take this course, the parents or legal guardians of those students assume all responsibility and liability for ensuring that all applicable safety procedures and instructions are followed and for supervising any student lab activities. The Rider Institute and Todd H. Rider assume no responsibility or liability for any lab activities.

The AP chemistry exam is generally held in early May each year. The parents or legal guardians of the students are responsible for finding out when and where the exam will be, registering their students for the exam, getting their students to the exam, and paying any associated costs. For more information, see: apstudents.collegeboard.org/courses/ap-chemistry

The cost for Part IV (16 weeks) is \$352 per household of students, payable in advance. Payments are nonrefundable. Please pay via checks made payable to "Rider Institute Inc." and mailed to:

Todd Rider
5 Green Needles Road
Littleton, MA 01460

If you would like to register your student for Part IV, [please mail your check by Dec. 9, 2024](#) and also send an email (thor@riderinstitute.org).

Syllabus (chapter numbers refer to the Brown & LeMay textbook)

Spring 2025: AP Chemistry IV, 16 weeks (payment due in advance)

Jan. 7 Ch. 19: Chemical thermodynamics

Jan. 14 Ch. 19: Chemical thermodynamics

Jan. 21 Ch. 19: Chemical thermodynamics

Jan. 28 Ch. 20: Electrochemistry

Feb. 4 Ch. 20: Electrochemistry

Feb. 11 Ch. 20: Electrochemistry

Feb. 18 Ch. 21: Nuclear chemistry

Feb. 25 Ch. 21: Nuclear chemistry

Mar. 4 Ch. 21: Nuclear chemistry

Mar. 11 Ch. 22: Nonmetals

Mar. 18 Ch. 22: Nonmetals

Mar. 25 Ch. 22: Nonmetals

Apr. 1 Ch. 23: Transition metals

Apr. 8 Ch. 23: Transition metals

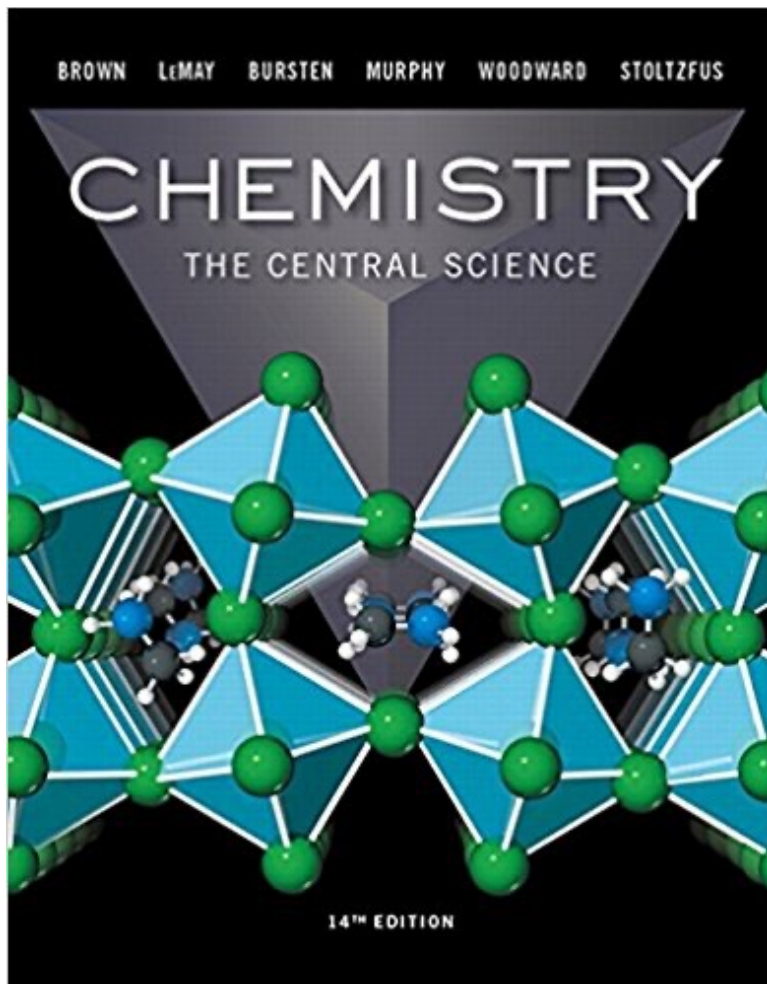
Apr. 15 Ch. 24: Organic/biochemistry

Apr. 22 Ch. 24: Organic/biochemistry

**Class is 60 minutes
per week via Google Meet,
Tuesdays
1:00-2:00 p.m. Eastern/
10:00-11:00 a.m. Pacific**

**Dr. Rider has over 30 years
of experience in science
education and research:
riderinstitute.org/education
riderinstitute.org/about**

**The AP chemistry test is generally
held in early May each year.
For more information, see:
[https://apstudents.collegeboard.org/
courses/ap-chemistry](https://apstudents.collegeboard.org/courses/ap-chemistry)**



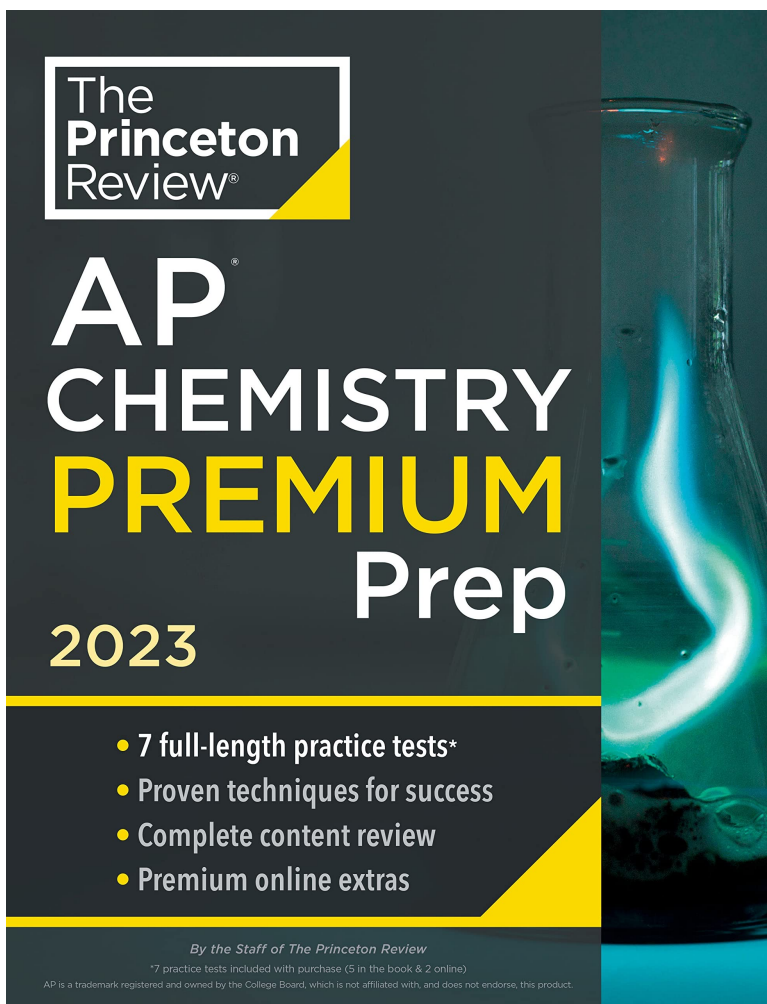
Textbook: Brown & LeMay

**15th ed. (2022) or
14th ed. (2017) or
13th ed. (2014) or
12th ed. (2012) or
11th ed. (2009)**

New textbooks are insanely expensive, but more affordable used copies are available from reputable dealers at [amazon.com](https://www.amazon.com), [abebooks.com](https://www.abebooks.com), etc. You can also save money (without losing much scientific content) by buying an edition that is recent but not the very latest.

If possible, also buy a solution book for your edition of Brown & LeMay.

Don't pay for online access codes (those are just an expensive gimmick) and don't rent a book (a good printed textbook that you can keep is an invaluable resource that can be useful in later courses).



**Book with several
AP Chemistry practice tests**

Princeton Review is good, or consider versions by Barron's or other publishers.

The AP tests and corresponding books are updated every year. The newest edition will be the most useful to you.

Consider checking a test prep book out of a library instead of buying a copy.

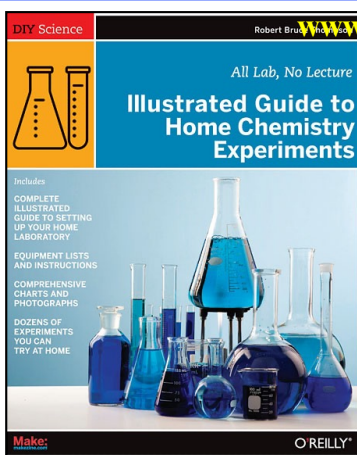
Use a test prep book throughout the chemistry course to compare what you are learning with the tests.

Follow all the safety rules and instructions that come with any lab materials, including (but not limited to):

- Have adult supervision at all times!
- Don't work in the kitchen or near food/drinks!
- Don't work with flames near flammable stuff
- (tablecloth, curtains, papers, loose hair, loose clothing, etc.)!
- Wear safety goggles (should come with kit, or buy at hardware store)!
- Keep science supplies away from small children, pets, supervillains, etc.!
- Have a fire extinguisher if working with flames!
- Have good ventilation if working with bad smells/fumes/smoke!
- Wear gloves and watch out for sharp edges (glass, metal, etc.)!

Suggested Lab Option 1:

Robert Bruce Thompson's kits are sold at www.thehomescientist.com and the accompanying books are also sold at Amazon.com. This is the most similar to traditional AP chemistry labs, but be warned—it is dry and serious.



www.thehomescientist.com/manuals/ck01-manual.pdf

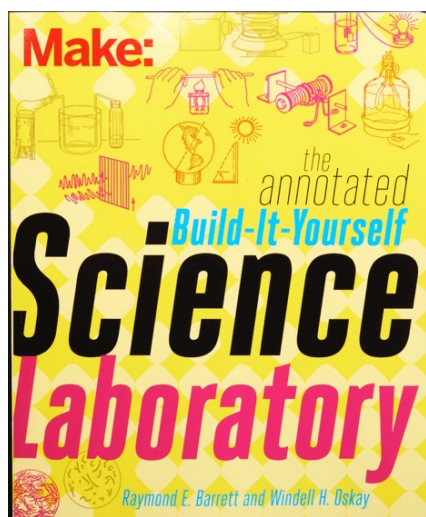


Suggested Lab Option 2: Thames & Kosmos Chem C3000, available from Amazon, Home Science Tools, and other online dealers. This is somewhat less like traditional AP chemistry labs (though still quite suitable), but much more fun and readable than Robert Bruce Thompson's kit. (A fun lab that students do and enjoy is more effective than a serious lab that students do not.) www.thamesandkosmos.com/manuals/sample/640132_chemc3000v2_manual_sample.pdf



Other Lab Resources:

Book of MacGyver-like methods to create your own lab equipment for chemistry and other sciences using commonly available items. Available from amazon.com and other booksellers.



www.homesciencetools.com
À la carte chemistry supplies, whole kits, etc. Great customer service, prices, quality, and selection.

