



Advanced Placement Chemistry Summer Coursework

Welcome to Advanced Placement Chemistry with Mrs. Sullivan!

Advanced Placement Chemistry is a very challenging, yet extremely beneficial and rewarding class to complete. Expect to work **very** hard and embrace the growth mindset with frequent Mastery Checks and available retakes. There will be nightly homework assignments - including required textbook readings, lecture videos, and practice sets (P&Ps). 25% of class periods spent in AP Chemistry will be hands-on laboratory experiments that require formal write-ups (required by the AP College Board).

Students enrolled in AP Chemistry should be here for one of the following reasons:

- 1) General chemistry provided you with a thrilling challenge! You find chemistry interesting and you embrace the growth mindset knowing that chemistry is not a subject to seek perfection - but knowledge and growth about the world around you and yourself.
- 2) You are interested in pursuing any college major that requires general chemistry or MORE! This includes all STEM majors (biology, chemistry, physics, geology, engineering, architecture) as well as any healthcare or therapy field (nursing, pre-med/biomedical/biochem, occupational therapy, physical therapy, kinesiology).

If the **only** reason you are enrolled in AP Chemistry is because you believe it will make your college application look better - *and* you do not qualify for one of the two reasons above, I do not suggest this course.

The AP Chemistry exam is scheduled for May 5, 2027, and covers 9 Topics (listed below). Due to Park's block scheduling and anticipated breaks - that leaves approximately 7 months to cover 9 topics of material. Therefore, this summer work is intended to jump start the process and complete a majority of Unit 1 and 2 before the school year begins. These units should be *mostly* review - with the exception of 2 or 3 subunits throughout.

AP Unit #	AP Course Topic	Associated Textbook Chapter(s)
1	Atomic Structures and Properties	1 - 3, 6
2	Molecular and Ionic Compound Structure and Properties	4, 5
3	Intermolecular Forces and Properties	8, 10, 11
4	Chemical Reactions	6, 7, 14 - 16
5	Kinetics	17
6, 9	Thermodynamics and Electrochemistry	9, 12, 16
7	Equilibrium	13, 15
8	Acids and Bases	14



Getting Started: What you need to complete the summer coursework

Required Materials

Textbook: Flowers, P. et al. *OpenStax: Chemistry: Atoms First 2e*, 2019
ISBN: 978-1-947172-63-0 Retrieved from openstax.org/details/books/chemistry-2e

***The textbook is available for free through Openstax (link above). Please create an account in OpenStax so you can annotate and save your work online. For students who prefer a hard copy of a textbook, you may print the downloaded PDF at your local FedEx printer (NOT AT SCHOOL!) or purchase a hard copy from the OpenStax website).**

AP Classroom: You are responsible for all homework assignments posted on AP Classroom and will need to check for daily posted assignments each day after class.
<https://myap.collegeboard.org/> **Classcode: VRY67M**

EdPuzzle: Please follow the link below to join the AP Chemistry EdPuzzle class. Lecture videos to assist with topics from Unit 1 and 2 will be posted for you.
<https://edpuzzle.com/join/untumiw>

Composition Notebook: A composition notebook is required for each student to record laboratory procedures and raw data (required by the AP College Board) - as well as take notes, create summary tables, and unit concept maps.

Devices: An internet-connected computer, Chromebook, or tablet.

Calculator: Scientific or Graphing Calculator **is required!**

Summer Coursework Guide:

The following pages are weekly plans to complete the AP Chemistry summer coursework. The weeks are just a suggestion to keep yourself paced for completion by the first Friday of the school year and keep your brain fresh with the knowledge you left general chemistry with. **All summer coursework is due the first Friday of the semester.**



Summer Coursework Guide:

The following chart is a week by week plan to complete the AP Chemistry summer coursework. The weeks are just a suggestion to keep yourself paced for completion by the first Friday of the school year, and keep your brain fresh with the knowledge you left general chemistry with.

All summer coursework is due in class on the first Friday of the semester (September 4, 2026).

Suggested Week of Completion	AP Course Topic Covered	Assignments (Required Textbook Chapter(s), Lecture Videos, and P&Ps)
July 1	Getting Started	1. Read and understand unit learning objectives and essential questions from the Unit 1 Student Guide 2. Obtain composition notebook to be used for AP Chemistry ONLY 3. Create an OpenStax account and find Textbook <i>Chemistry, Atoms First 2e</i> 4. Join the AP Classroom using classcode: VR67M 5. Join our AP Chemistry EdPuzzle Class
July 6 (1 Week)	Unit 1: Atomic Structures and Properties Topic 1.4 - Composition of Mixtures Review of Foundational Concepts and Vocabulary <i>*This is by far the driest, most boring - yet very important chapter. Just get it out of the way as soon as possible!*</i>	6. Read Textbook Chapter 1: Essential Ideas 7. Watch the EdPuzzle video “AP Chemistry A Review of Measurement - 34:45 min” 8. Complete textbook chapter exercises 4 - 16 (even only), 26, 32, 38, 44 - 70 (even only) in your composition notebook.
July 13 (1 Week)	Unit 1: Atomic Structures and Properties Topic 1.2 - Mass Spectra of Elements Review and Foundational Vocabulary Review	9. Read textbook Chapter 2: Atoms, Molecules, and Ions 10. Complete ‘1.2 Mass Spectra of Elements P&P’ assigned in AP Classroom (3 questions) 11. Create a concept map in your composition notebook using all of the chapter’s ‘key terms’. (An example of a concept map can be found here.)



July 20 (1 Weeks)	Unit 1: Atomic Structures and Properties Topic 1.1 - Moles and Molar Mass Topic 1.3 - Elemental Composition of Pure Substances	12. Read textbook Chapter 6: Composition of Substances and Solutions 13. Complete '1.1 Moles and Molar Mass & 1.3 Elemental Composition of Pure Substances P&P' assigned in AP Classroom (6 questions)
July 27- August 9 (2 Weeks)	Unit 1: Atomic Structures and Properties Topic 1.5 - Atomic Structure and Electron Configuration Topic 1.6 - Photoelectron Spectroscopy Topic 1.7 - Periodic Trends Topic 1.8 - Valence Electrons and Ionic Compounds	14. Read textbook Chapter 3: Electronic Structure and Periodic Properties of Elements 15. Watch the EdPuzzle video "AP Chemistry Photoelectron Spectroscopy (PES) - 23:24 min 16. Complete '1.5 - 1.8 Electron Configurations and PERiodic Trends P&P' assigned in AP Classroom (12 questions)
August 10 - August 23 (2 Weeks)	Unit 2: Compound Structure and Properties Topic 2.1 - Types of Chemical Bonds Topic 2.3 - Structure of Ionic Solids Topic 2.5 - Lewis Diagrams Topic 2.6 - Resonance and Formal Charge	17. Read and understand unit learning objectives and essential questions from the Unit 2 Student Guide 18. Read textbook Chapter 4: Chemical Bonding and Molecular Geometry 19. Watch the EdPuzzle playlist "AP Chemistry Unit 2 Part 1: Compound Structure and Properties - 1hr 52min 20. Complete textbook chapter exercises 8, 12, 14, 39, 49, 55-73 (odd only) in your composition notebook.
August 24 - September 4 (1.5 Weeks)	Unit 2: Compound Structure and Properties Topic 2.7 - VSEPR and Hybridization	21. Read textbook Chapter 5: Advanced Theories of Bonding 22. Watch the EdPuzzle playlist "AP Chemistry Unit 2 Part 2: Compound Structure and Properties (Molecular Geometry, VSEPR, and Hybridization) - 1hr 25min 23. Complete '2.7 VSEPR and Hybridization P&P' assigned in AP Classroom (3 questions)