AP® Chemistry Syllabus, 2023-24
Welcome to AP® Chemistry!

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Course:AP Chemistry

The Advanced Placement (AP) program is a cooperative educational endeavor between secondary schools and colleges and universities. It gives high school students exposure to college-level material through involvement in an AP course and then gives them an opportunity to show what they have learned by taking an AP Exam. Colleges and universities often grant credit, placement, or both, to these students.

By initialing below, I understand the requirements of enrolling in Advanced Placement _____; and my parents/guardian and I agree to the following terms:

____1) Successful completion of each AP course requires a **minimum of 3-6 hours of individual study time per week outside of class on a regular basis**. Including but not limited to required outside-of-school support or review sessions.
____2) I understand that an AP course is a **yearlong commitment** and it is an expectation that I will not withdraw from this AP course at the end of the first semester.
____3) Students are **required to take the AP exam** for the AP course in which they are enrolled during the 2023-2024 school year. The exams are given over a two-week period in May (May 6th). AP exams are beneficial because they compare student achievement on a national scale, help prepare students for future comprehensive exams at the college level and enable students to potentially receive university credit or advanced placement at most universities.
____4) For a student whose grade average is D or less at the end of any 5-week grading period, a student/parent/teacher conference will be held in order to evaluate the advisability of the student remaining in the class. Students choosing to stay in the course will be required to adhere to a tutoring support plan.
____5) Guidelines for grading and course evaluation shall be clearly communicated to students and parents as stated in the syllabus.
____6) Students found to have engaged in academic dishonesty shall be subject to grade penalties on assignments or tests and disciplinary penalties in accordance with the MAHS Academic Dishonesty Policy. Academic dishonesty includes cheating or copying the work of another student, plagiarism, and unauthorized communication between students during an examination.
____7) **Exiting Process:** A student desiring to exit an AP course at the end of the first six weeks must take the following steps: 1. Attend a documented student/parent/teacher conference during the first six weeks. 2. Attend a minimum of 3 documented tutorial sessions within the failing six weeks. 3. Complete the exit form, along with student, parent, teacher, and counselor signatures.

Student Printed Name: _____ Date: _____

Student Signature: _____

Parent/Guardian Signature: _____ Date: _____

Google Phone Number: **(626) 658- 8550**

Tutoring Hours: Daily, before school/after school, during lunch BY APPOINTMENT (Room 218)

Course Description:

This is an advanced placement course designed to prepare you, the student, for the AP Chemistry exam. You may receive AP credit as determined by your score on the AP exam given at 12pm on Monday, May 1, 2023. The course covers the equivalent of one full year of college level General Chemistry comparable to a first year general chemistry course at a college or university. Since passing the AP Exam *may* qualify the student to by-pass a first year general chemistry course, this course should be thought of as a college course. There will be college-level expectations for behavior, participation, and effort.

Students will obtain an understanding of chemistry foundations to support additional learning in chemistry. This course will develop critical thinking skills and the ability for students to clearly express their ideas and understandings. It will be necessary for students to complete work outside of class. Details regarding course objectives and units, please refer to the AP® Chemistry Course Description.

Required Materials:

Scientific Calculator (see AP® Central for an approved list of calculators)
Composition Notebook (for lab notebook)
Spiral-bound notebook
Student Chromebook

E-Text: Zumdahl Steven S., Susan A. Zumdahl and Donald J. DeCoste. *Chemistry (AP Edition)*, 10th edition. National Geographic Learning/Cengage Learning. 2018.

- Posted on Schoology

Course Framework:

Unit Outline and Themes	AP Exam Weighting
Unit 1: Atomic Structure and Properties	7-9%
Unit 2: Molecular and Ionic Compound Structure and Properties	7-9%
Unit 3: Intermolecular Forces and Properties	18-22%
Unit 4: Chemical Reactions	7-9%
Unit 5: Kinetics	7-9%
Unit 6: Thermochemistry and Thermodynamics	7-9%
Unit 7: General and Solubility Equilibrium	7-9%
Unit 8: Acids and Bases/Buffers and Titrations	11-15%
Unit 9: Application of Thermodynamics	7-9%

Weighting Scale:

Unit Exams 40%
Quizzes, Lab Reports 20%
Classwork 30%
Homework 10%

Grading Scale (total points):

A 90-100%
B 80-89%
C 70-79%
D 60-69%
F 59% and below

Unit Exams:

At the end of each unit we will have an exam; one for each unit of study. In order to simulate the AP® Chemistry exam format, unit tests will include two formats: multiple choice and free response questions. Unit tests may include content from previous units, but the emphasis will be content learned since the last unit assessment. Students may complete test corrections before the next unit test.

Quizzes:

Quizzes will be administered at the discretion of the instructor. Make up quizzes and exams will be arranged at the discretion of the instructor. Granted that homework for the unit has been turned in, students may retake their quizzes before the end of the unit. The second score for the quiz will be recorded.

Assignments:

Homework will be assigned on a regular basis, and students will be required to show the completed homework to their teachers by the assigned due date. Most assignments will take more than one evening to complete, and students are responsible for coming in to get help before or after school.
Study Groups are encouraged, but each student is responsible for turning in their own original work.

Lab Portfolio/Reports:

All Lab write-ups should include the following:

I. Title, Name, Date
   A. The title should be descriptive. For example, “pH Titration Lab” is a descriptive title and “Experiment 7” is not a descriptive title.
II. Objective
   A. What’s the purpose/point of the lab
III. Hypothesis
   A. What do you think will happen
IV. Materials
   A. What Materials and Chemicals are you using
V. Pre-Lab Questions
VI. Procedure Outline
   A. You will need to make an outline/steps on how this lab will be performed. Does not need to be really descriptive just enough to allow someone to replicate the experiment.
VII. Data Tables
VIII. Calculations (as necessary)
IX. Discussion and Conclusion (Explanation should show how evidence supports the conclusion)
X. Experimental Sources of Error
   A. What could have affected the results we see in the experiment.

Final Note:

Class Procedures

Homework Assignments

- Homework will be assigned throughout each unit and graded on completion and effort and, minimally, on correctness. I will always do my best to provide feedback for students.

Entering the Classroom

- As students enter the classroom, they will arrive at their desks and begin on the task or answering a question presented on the board/screen.

Exiting the Classroom

- Students begin packing up only when Mr. Rodriguez tells them to. Once the students are packed up, the students will be dismissed by tables.

Notebooks

- Each student must have their notebook in class every day. Notebooks can be used electronically on Schoology.
- If students are absent they must update and organize their notebook.

Excused Absences

- Students are responsible for making up all homework, tests, and exit tickets that they miss.
- Students must retrieve assignments from the day missed from a student, or the teacher outside of class time. For example, during office hours.
- Students will be excused from in-class assignments with excused absences.
- Students have 1 week (from the day they were absent) to make up exams for full credit.
    - These grades will remain a ZERO until the student makes up the assignment
    - Students must meet with Mr. Rodriguez to set up a make-up time. Class time will never be used for a student to catch up on absent work.
- Other make-up work will only be accepted until the end of the unit.

Classroom Expectations

- Manual Arts Expectations:

Be Safe, Be Responsible, Be Respectful, Be Present and Engaged

- The student is expected to:
    - Come to class prepared and ready to learn.
    - Be in their seat and work on the daily catalyst before the start of class.
    - Create a positive and supportive environment by:
        - Respecting themselves, others, and the teacher

        - Paying attention when another person is speaking
        - Raising their hand to speak.
    - Follow directions carefully and as instructed.
    - Stay on task and do their very best!

LAUSD Cell Phone Policy

- Please do not use your phone during class time.
    - Cells will be taken away and held onto for the rest of class time.
- Recording class of any kind is not allowed.

Tardy Policy

- Particular attention should be given to getting to class on time.
- Students should be seated in class by the scheduled class time.
- If there is no written excuse, the student will receive a truancy for classes missed.
- Progressive consequences. Demerits may be applied for being constantly late. Additional consequences will be assigned for continued tardiness.
- This will also affect citizenship grades in that class. A "U" may be assigned for multiple tardies, and or absences.

Unexcused Absences

Each student is obligated to accept the responsibility of getting to class on time. Manual Arts' UNEXCUSED tardy policy (per quarter, 5 weeks) is as follows:

- Tardy 1-3 Handled by TEACHER (detention, etc.).
- Tardy 4 Teacher contacts parents for notification of "U" in citizenship.
- Tardy 5 Refers to a counselor who contacts parents for further intervention.

Any additional tardies will result in further disciplinary actions. This policy resets each quarter (every 5 weeks).

Behavior Expectations and Consequences

Inappropriate Behavior	*Failure to follow classroom guidelines will cause:*	*If behavior happens frequently, teacher may select any combination of consequences depending on what is most appropriate for the situation:*
• Inappropriate language • Put downs/insults • Refusal to work • Distracting/disrupting • Use of Technology (CP) • Disrespectful	• A verbal warning • 2nd warning: Name is written down and we will talk after class • 1 check by name: Call to parent • 2 checks by name: detention or referral to counselor	• Move seats • Call home • Bring issue to SLC team • Parent meeting • Student reflection form • Demerits (# of demerits is at teacher /administrator discretion)

Extreme or Dangerous Behavior

- Fighting, verbal abuse, threats, tagging/vandalism, sexual harassment, bullying, theft, etc. will not be tolerated. These offenses can result in a referral to a SLC administrator for appropriate consequences. Potential consequences include: detention, suspension, opportunity transfer, expulsion, arrest, etc.

School Policies

- We will follow the guidelines set out in the Manual Arts Handbook for student attendance, appearance, behavior, hall pass and other issues.

Course Topics:

Time	Topics/Subtopics Curriculum Framework (Scientific Practices in parenthesis)
2 weeks	Unit 1: Atomic Structure & Properties ● Moles & molar mass ● Spectroscopy ● Elemental & mixture composition ● Atomic structure & electron configuration ● Periodic trends **Big Ideas**: SPQ; SAP **Learning Objectives**: SPQ-1.A (SP 5.B); SPQ-1.B (SP 5.D); SPQ-2.A (SP 2.A); SPQ-2.B (SP 5.A); SAP-1.A (SP 1.A); SAP-1.B (SP 4.B); SAP-2.A (SP 4.A)
3 weeks	Unit 2: Molecular & Ionic Compound Structure & Properties ● Chemical bonds ● Intramolecular forces ● Structure of ionic solids, metals, & alloys ● Lewis diagrams, resonance, formal charge ● VSEPR & bond hybridization **Big Ideas**: SAP **Learning Objectives**: SAP-3.A (SP 6.A); SAP-3.B (SP 3.A); SAP-3.C (SP 4.C); SAP-3.D (SP 4.C); SAP-4.A (SP 3.B); SAP-4.B (SP 6.C); SAP-4.C (SP 6.C)
4 weeks	Unit 3: Intermolecular Forces & Properties ● Intermolecular forces ● Solids, liquids, & gases ● Gas laws & kinetic theory ● Solutions & mixtures ● Chromatography ● Photoelectric effect ● Beer-Lambert law **Big Ideas**: SPQ; SAP **Learning Objectives**: SAP-5.A (SP 4.D); SAP-5.B (SP 4.C); SAP-6.A (SP 3.C); SAP-7.A (SP 5.C); SAP-7.B (SP 4.A); SAP-7.C (6.E); SPQ-3.A (SP 5.F); SPQ-3.B (SP 3.C); SPQ-3.C (SP 2.C, 4.D); SAP-8.A (SP 4.A); SAP-8.B (SP 5.F); SAP-8.C (SP 2.E)

4 weeks	Unit 4: Chemical Reactions ● Physical & chemical changes ● Net ionic equations ● Stoichiometry ● Titration ● Reaction types including acid-base and redox **Big Ideas**: SPQ; TRA **Learning Objectives**: TRA-1.A (SP 2.B); TRA-1.B (SP 5.E); TRA-1.C (SP 3.B); TRA-1.D (SP 6.B); SPQ-4.A (SP 5.C); SPQ-4.B (SP 3.A); TRA-2.A (SP 1.B); TRA-2.B (SP 1.B); TRA-2.C (SP 5.E)
3 weeks	Unit 5: Kinetics ● Reaction rates & rate law ● Elementary reactions ● Collision model ● Energy profile ● Reaction mechanism & rate law ● Catalysis ● Multistep reactions **Big Ideas**: TRA; ENE **Learning Objectives**: TRA-3.A (SP 6.E); TRA-3.B (SP 5.C); TRA-3.C (SP 5.B); TRA-4.A (SP 5.E); TRA-4.B (SP 6.E); TRA-4.C (SP 3.B); TRA-5.A (SP 1.B); TRA-5.B (SP 5.B); TRA-5.C (SP 5.B); TRA-5.D (SP 3.B); ENE-1.A (SP 6.E)
2 weeks	Unit 6: Thermodynamics ● Endothermic & exothermic processes ● Energy diagrams ● Heat transfer **Big Ideas**: ENE **Learning Objectives**: ENE-2.A (SP 6.D); ENE-2.B (SP 3.A); ENE-2.C (SP 6.E); ENE-2.D

	● Heat capacity & calorimetry ● Enthalpy of reactions/formation ● Bond enthalpies ● Hess's law (SP 2.D); ENE-2.E (SP 1.B); ENE-2.F (SP 5.F); ENE-3.A (SP 5.F); ENE-3.B (SP5.F); ENE-3C (SP 5.A); ENE-3D (SP 5.A)

4 weeks	Unit 7: Equilibrium **Big Ideas**: TRA ● Reversible reactions ● Reactions quotient & equilibrium constant ● Equilibrium concentrations ● Le Chatelier's principle ● Common-ion effect ● pH & solubility ● Free energy of dissolution **Learning Objectives**: TRA-6.A (SP 6.D); TRA-6.B (SP 4.D); TRA-7.A (SP 3.A); TRA-7.B (SP 5.C); TRA-7.C (SP 6.D); TRA-7.D (SP 5.A); TRA-7.E (SP 3.A); TRA-7.F (SP 3.C); TRA-8.A (SP 6.F); TRA-8.B (SP 5.F); SPQ-5.A (SP 5.B); SPQ-5.B (SP 2.F); SPQ-5.C (SP 2.D); SPQ-5.D (SP 4.D)
4 weeks 3 weeks	Unit 8: Acids & Bases **Big Ideas**: SAP ● pH & pOH ● Strong/weak acids & bases ● Acid-base reactions & buffers ● Acid-base titration ● pH & pK_a ● Henderson-Hasselbalch ● Buffer capacity **Learning Objectives**: SAP-9.A (SP 5.B); SAP-9.B (SP 5.B); SAP-9.C (SP 5.C); SAP-9.D (SP 5.F); SAP-9.E (SP 5.D); SAP-9.F (SP 6.C); SAP-10.A (SP 2.D); SAP-10.B (SP 6.D); SAP-10.C (5.F); SAP-10.D (SP 6.G) Unit 9: Applications of Thermodynamics **Big Ideas**: SPQ; SAP; ENE ● Entropy ● Gibbs Free Energy & thermodynamic favorability ● Thermodynamic & kinetic control ● Coupled reactions ● Galvantic & electrolytic cells ● Cell potential & free energy ● Faraday's law **Learning Objectives**: ENE-4.A (SP 6.C); ENE-4.B (SP 5.F); ENE-4.C (SP 6.E); ENE-4.D (SP 6.E); ENE-5.A (SP 6.D); ENE-5.B (SP 4.D); ENE-6.A (SP 2.F); ENE-6.B (SP 5.F); ENE-6.C (SP 6.D); ENE-6.D (SP 5.B)