# **Orange High School** To Educate, Elevate, and Empower Every Student! Department of Science

# **AP Chemistry Course Syllabus**

Instructor: Mr. Kelly Email: kellybri@orange.k12.nj.us Period: TBA Room #: 240

#### **Course Description**

AP Chemistry is the second of a two-year sequence that is designed to prepare students to take the AP Chemistry examination. Topics include atomic theory and structure; chemical bonding; nuclear chemistry; states of matter; and reactions (stoichiometry, equilibrium, kinetics, and thermodynamics). AP Chemistry laboratories are equivalent to those of typical college courses. The key concepts and related content that define the AP Chemistry course and exam are organized around underlying principles that encompass core scientific principles, theories, and processes that cut across traditional boundaries and provide a broad way of thinking about the particulate nature of matter underlying the observations students make about the physical world:

- Chemical elements are the building blocks of matter, which can be understood in terms of the arrangements of atoms.
- Chemical and physical properties of materials can be explained by the structure and the arrangement of atoms, ions, or molecules and the forces between them.
- Changes in matter involve the rearrangement and/or reorganization of atoms and/or the transfer of electrons.
- Rates of chemical reactions are determined by details of the molecular collisions.
- The laws of thermodynamics describe the essential role of energy and explain and predict the direction of changes in matter.
- Bonds or attractions that can be formed can be broken. These two processes are in constant competition, sensitive to initial conditions and external forces or changes.

Students who earn a qualifying score on an AP Exam are typically eligible to receive college credit and/or placement into advanced courses in college.

This course requires that 25 percent of the instructional time engages students in lab

investigations. This includes a minimum of 16 hands-on labs (at least six of which are inquiry based), and it is recommended that students keep a lab notebook throughout. Students ask questions, make

observations and predictions, design experiments, analyze data, and construct arguments in a collaborative setting, where they direct and monitor their progress.

## **Course Outline**

Unit 1: Atomic Structure and Properties

- Unit 2: Molecular and Ionic Compound Structure and Properties
- Unit 3: Intermolecular Forces and Properties
- Unit 4: Chemical Reactions
- Unit 5: Kinetics
- Unit 6: Thermodynamics
- Unit 7: Equilibrium
- Unit 8: Acids and Bases
- Unit 9: Applications of Thermodynamics

Each unit ranges in 7 to 14 subtopics. In total there are 91 subtopics covered through all 9 units.

#### **Course Materials**

Curriculum Resources: AP Curriculum from College Board AP Classroom Additional resources will be provided by classroom teacher.

#### **Grading**

To keep things organized all of the work you will be responsible for in a given week will be posted as one assignment on google classroom. However this "one" weekly assignment consists of multiple tasks, of which you will be working on a different one each day. Below is a description of the tasks you will engage in for a different chemistry topic each week.

Preparation Quizizz - There will be an open book quiz based off notes that you will read prior to class each week. When finished, you must submit a screenshot of the score you received(copy and paste onto the weekly course document), with the date/time in the screenshot. Typically we will cover 3 sections per week, so there will be 3 quizizz's per week. These must be turned in **BEFORE** we cover the section in class. This will help prepare you so you can get the most out of each lesson in class. In class it will be expected that you have studied the notes and completed the quizizz for the particular section being covered already.

Problem Set - There will be a problem set which you will apply what you learned in class each week. There will typically be 3 to 7 problems per section. Usually 3 sections are covered per week so there will be 3 problem sets to complete each week. You will complete the problems in your notebook and then upload a picture of your work to the weekly course document. Please refer to the rubric for how the problem set will be graded.

Lab Writeup - One day a week students will work on a chemistry lab in class. This could consist of designing an experiment, conducting an experiment, collecting data, or summarizing and analyzing results. The lab writeup should be typed on the weekly course document and include all items mentioned on the rubric.

Participation - You will be evaluated based on your participation in class. The more you participate, the higher your grade for this task.

Below is the rubric that will be used each week for grading the weekly assignment. The rubric results will give you targetted feedback for areas of strength and areas for improvement which will help you develop/refine your skills over time.



In the case of a shortened week due to snow days, holiday breaks, or standardized testing, the workload will remain the same for the week and some of the assignments may need to be completed for homework instead of inside the classroom.

Any work not finished in class will be the responsibility of the student to finish for homework.Being absent does not exempt a student from the required assignments.

All of the week's assignments are due on google classroom on Friday 11:59 pm of the week in which they are assigned(with exception of the quizizz which must be completed before the class in which that lesson topic is covered). Work that is turned in after the teacher has already graded the assignment will not be accepted for credit.

#### **Required Supplies**

Each student is responsible for coming to class everyday with the following:

- Multiple pencils
- Chromebook(fully charged) with charger if needed.
- Notebook

#### **Rules of Conduct & Guidelines**

• Be respectful to yourself, your classmates, and your teacher(s).

• **Do not become a disruption or a distraction** in class. This will not be tolerated. We are all in school to learn. Every student has the right to an environment in which learning can take place. Any action that prevents others from learning is not fair to those who want to learn and will result in disciplinary action for those causing the disruption which could range from discussion after class, lunch detention, calling of parents, or even suspension depending on the situation.

- Be on time. Everyone should be inside the classroom before the bell rings.
- Follow proper start up procedure. A song will play at the start of each class. By the time the song is over it is expected for all students to be at their assigned desk, have required materials out for the day(either notebook and pencil or chromebook), and be prepared to start learning when the teacher begins instruction at the end of the song. Conversations should end when the teacher begins instruction so everyone can learn.
- Do your class work with purpose and urgency. Complete all classwork with the intention to LEARN something, not to just check it off a list. Every minute counts. Even a few minutes a day adds up to many minutes over a year. Be intentional and purposeful everyday in trying to meet your learning goals.
- ALL Orange High School Rules and Procedures MUST be followed in class and out of class. Please visit our Orange High School Website to review the Student/Parent Handbook.

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### **To Students and Parents**

With hard work and accountability, we can have all of our students succeed in AP Chemistry.

I have read the AP Chemistry Syllabus and its guidelines. I understand that I am responsible for upholding all requirements and guidelines in order to succeed in this course. I know what I have to do in order to receive the grade I want.

Student Name	Student Signature	Student Signature	
Parent Name	Parent Signature	Date	Parent Email Address