**COURSE SYLLABUS**

**AP Chemistry**

**2018-2019**

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| **Teacher: Shaka B. Gore**  **Email: shaka.gore@apsk12.org** | |  |
| **Room Number: 1413**  **Tutorial: Mondays**, 3:30-4:30 pm | |  |
| **Textbook:** Chemistry The Central Science | |  |
| **Useful Websites:**  USA Testprep.com  gorechem@weebly.com  Khanacademy.org | |  |
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**Course Description**

This AP Chemistry course is designed to be the equivalent of the general chemistry course usually taken during the first year of college. For most students, the course enables them to undertake, as a freshman, second year work in the chemistry sequence at their institution or to register in courses in other fields where general chemistry is a prerequisite. This course is structured around the six big ideas articulated in the AP Chemistry curriculum framework provided by the College Board. A special emphasis will be placed on the seven science practices, which capture important aspects of the work that scientists engage in, with learning objectives that combine content with inquiry and reasoning skills. AP Chemistry is open to all students that have completed a year of chemistry who wish to take part in a rigorous and academically challenging course.

**Big Idea 1:** Structure of matter

**Big Idea 2:** Properties of matter-characteristics, states, and forces of attraction

**Big Idea 3:** Chemical reactions

**Big Idea 4:** Rates of chemical reactions

**Big Idea 5:** Thermodynamics

**Big Idea 6:** Equilibrium

**Textbook**

Brown Lemay. Chemistry The Central Science, Elventh Edition.

**Grade Determination:**

The following calculations for the semester average will be used:

Summative Assessments . . . . . . . . . . . . . . . . . . . . . . . . 35%

Quizzes . . . . . . . . . . . . ….... . . . . . . . . . . . . . . . . . . . . . 10%

Assignments . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 15%

Laboratory work . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 20%

Final Exam . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 20%

**Formative and summative assessments**:

Written tests include information form class notes, the textbook, handouts, lab activities and demonstrations. You are expected to take a test even if you are absent the day before the test. The final exam will be cumulative, covering the major concepts of all units.

**AP Chemistry Unit Overview**

Unit 1: Introduction

Unit 2: Atomic Theory Structure, Quantum #'s, Periodic Table

Unit 3: Bonding Shapes, Polarity, Intermolecular Forces

Unit 4: Nomenclature, Balancing Equations

Unit 5: Mass/Mass, Concentrations, Mass/Volume

Unit 6: Gas Laws (MW of Gas, Charles Law)

Unit 7: Solutions, Colligative Properties

Unit 8: Kinetics

Unit 9: Equilibrium

Unit 10: Acid Base Part 1

Unit 11: Acids and Bases Part 2

Unit 12: Thermodynamics

Unit 13: Electrochemistry

AP Review

**Labs**

The labs completed require the following or developing processes and procedures, taking observations, and data manipulation. Students communicate and collaborate in lab groups; however, each student writes a laboratory report in a lab notebook for every lab they perform. A minimum of 25% of student contact time will be spent doping hands-on laboratory activities. Guided inquiry labs taken from the College Board lab manual are indicated by \*\*

**Advanced Placement Chemistry-The Laboratory Notebook**

A record of lab work is an important document, which will show the quality of the lab work that students have performed.

**Labs:**

|  |  |  |
| --- | --- | --- |
| Lab Number | Lab Name | Science Practices |
| 1 | Separation of a Solid Mixture | 2, 4, 5, 6 |
| 2 | Paper chromatography of Acid / Base Indicators | 1, 2, 3, 4, 5 |
| 3 | \*\*What Makes Hard Water Hard? | 1, 2, 3, 4, 5, 6, 7 |
| 4 | MW of a Volatile Liquid | 1, 2, 4, 5 |
| 5 | Charles’ Law | 1, 2, 4, 5, 6 |
| 6 | Cu to Cu | 1, 2, 3, 4, 6, 7 |
| 7 | Formula of Hydrate | 1, 2, 4, 5, 6, 7 |
| 8 | \*\*Sticky Question: How Do You Separate Molecules That Like to Stay Together? | 1, 2, 3, 4, 5, 6, 7 |
| 9 | Predicting Solubility Rules / Reactions | 1, 3, 4, 5, 6, 7 |
| 10 | \*\*What Is the Relationship Between the Concentration of a Solution and the Amount of Transmitted Light Through the Solution? | 1, 2, 3, 4, 5, 6, 7 |
| 11 | Rate Law | 1, 2, 3, 4, 5, 6, 7 |
| 12 | \*\*Can We Make the Colors of the Rainbow? An Application of Le Châtelier’s Principle | 1, 2, 3, 4, 5, 6, 7 |
| 13 | Standardization of NaOH and % KHP | 1, 2, 3, 4, 5, 6, 7 |
| 14 | \*\*How Much Acid Is in Fruit Juices and Soft Drinks? | 1, 2, 3, 4, 5, 6, 7 |
| 15 | Making a Copolymer | 1, 2, 3, 4, 5, 6, 7 |
| 16 | \*\*The Hand Warmer Design Challenge: Where Does Heat Come From? | 1, 2, 3, 4, 5, 6, 7 |
| 17 | Ksp and pH | 1, 2, 3, 4, 5, 6, 7 |
| 18 | Conjugate Acid / Base and pH of salts | 1, 2, 3, 4, 5, 6, 7 |
| 19 | \*\*How Can We Determine the Actual Percentage of H2O2 in a Commercial (Drugstore) Bottle of Hydrogen Peroxide? | 1, 2, 3, 4, 5, 6, 7 |
| 20 | Electrochemistry / reactivity series | 1, 2, 3, 4, 5, 6, 7 |
| 21 | \*\*The Preparation and Testing of an Effective Buffer: How Do Components Influence a Buffer’s pH and Capacity? | 1, 2, 3, 4, 5, 6, 7 |

**Activities for Big Idea #1 (non-lab**)

1. Students will graph and interpret several data sets on atomic properties (atomic radius, first ionization energy and electronegativity) in order to arrive at the periodic table from the jumps in the graphs

**Possible Activities for Big Idea #2 (non-lab)**

1. Students will prepare models of the various electron pair arrangements, and complete a table which shows the Lewis structure, electron pair geometry, molecular structure, and use that information to predict the presence or absence of a dipole moment.

**Possible Activities for Big Idea #3 (non-lab)**

1. Students will identify and balance chemical reactions using a variety of techniques on a series of quizzes from the reactions problem from previous AP exams. Old NIE’s quizzes

**Possible Activities for Big Idea #4 (non-lab)**

1. Students will demonstrate their knowledge of the determination of kinetics by displaying the solution to the following problem to the class.

The thermal decomposition of an organic nitrile produced the following data:

*t* / (103 s) 0 2.00 4.00 6.00 8.00 10.00 12.00 ∞

[nitrile] / (mol L-1) 1.10 0.86 0.67 0.52 0.41 0.32 0.25 0.00

Determine the order of the reaction and the rate constant.

**Possible Activities for Big Idea #5 (non-lab)**

1. Students will explore an animation on heating and cooling curves ([www.kentchemistry.com](http://www.kentchemistry.com), select heating curves) and answer a series of questions regarding their observations of particulate motion in the various phases.

**Possible Activities for Big Idea #6 (non-lab)**

1. Students take the data from the spreadsheet “Titrations” on pH against added acid or base, and interpret the data in terms of the types of acid or base present, endpoints, the presence or absence of a buffer system, and appropriate indicators with justification based on the data.

**Possible Activities for Societal or Technological Impact of Chemistry (lab or non-lab)**

1. Students solve a stoichiometry problem on the amount of carbon dioxide produced in the burning of a tankful of gasoline (assumed to be octane) with information of the size of the gas tank of the vehicle, the density of octane (0.7028 g mL-1), and a variety of other conversion factors. Following the solution of this problem, a discussion of what happens to this carbon dioxide will ensue encompassing the greenhouse effect, whether the burning of fossil fuels contributes to global climate change, and if something should be done about the burning of fossil fuels (especially given current estimates for the amount of fossil fuel remaining in the earth and the students estimated lifetime).

**The 10 Parts of a Laboratory Report**

A specific format will be given to the student for each lab. Students must follow that format and label all sections very clearly. AP Chemistry lab reports are much longer and more in depth than the ones completed in the first year chemistry course. Therefore, it is important that students don't procrastinate when doing pre-lab and post-lab work. Late labs will not be accepted. Labs not completed in class must be done at lunch or before/ after school by appointment.

**Pre-Lab Work**

Pre-lab work is to be completed and turned in on the day the lab is performed.

**1. Title**

The title should be descriptive. For example, "pH Titration Lab" is a descriptive title and "Experiment 5"is not a descriptive title.

**2. Date**

This is the date the student performed the experiment.

**3. Purpose**

A purpose is a statement summarizing the "point" of the lab.

**4. Procedure Outline**

Students need to write an outline of the procedure. They should use bulleted statements or outline format to make it easy to read. If a student is doing a guided inquiry lab, they may be required to write a full procedure that they develop.

**5. Pre-Lab Questions**

Students will be given some questions to answer before the lab is done. They will need to either rewrite the question or incorporate the question in the answer. The idea here is that when someone (like a college professor) looks at a student's lab notebook, they should be able to tell what the question was by merely looking at their lab report. It is important to produce a good record of lab work.

**6. Data Tables**

Students will need to create any data tables or charts necessary for data collection in the lab.

**During the Lab**

**7. Data**

Students need to record all their data directly in their lab notebook. They are NOT to be recording data on their separate lab sheet. They need to label all data clearly and always include proper units of measurement. Students should underline, use capital letters, or use any device they choose to help organize this section well. They should space things out neatly and clearly.

**Post-Lab Work**

**8. Calculations and Graphs**

Students should show how calculations are carried out. Graphs need to be titled, axes need to be labeled, and units need to be shown on the axis. To receive credit for any graphs, they must be at least 1h page in size.

**9. Conclusions**

This will vary from lab to lab. Students will usually be given direction as to what to write, but it is expected that all conclusions will be well thought out and well written.

**10. Post Lab Error Analysis Questions**

Follow the same procedure as for Pre-Lab Questions.

**Assignments**

This grade includes class participation, working problems on the board, do now/exit ticket activities and homework assignments. Homework should be submitted at the beginning of the class period an/or notebook checks. Homework submitted after the first fifteen minutes will be penalized. NO CREDIT WILL BE GIVEN FOR HOMEWORK THAT HAS BEEN MISPLACED LEFT AT HOME OR IN YOUR LOCKER. Homework is checked for accuracy and completion.

**Portfolio**

Your portfolio should be at least a 5 subject 200 pg spiral notebook. All work done in class should be in the notebook (notes, worksheets, labs, class work, homework, quizzes, formula sheets, study organizers ad information sheets) and organized into five sections: Your portfolio will be graded.

**General Information**

There is no extra credit in this class and your lowest grade is not dropped at the end of the semester. It is therefore important that your assignments be completed and turned in on time. Be prepared and seek help early.

***Extra Help:*** Science is a demanding subject. If you are having difficulty with your assignments, you are encouraged to make arrangements for extra help.

***Attendance:*** It is essential that you attend class and complete the assignments. Information is presented in class every day and you are expected to review each day’s work so that any difficulties can be resolved during class the following day.

***Fines:*** Students are responsible for textbooks, study guides and any other nonexpendable materials checked out or used by them. Fines for damaged/lost books, guides or materials must be paid for before students are issued grades for the semester.

**Class Policies & Procedure**

It is the student’s and parent’s/guardian’s responsibility to make arrangements for make-up work. These arrangements should be made before or after school and should not disrupt the instructional period. ALL work is expected to be turned in on time. Assignments are due during the scheduled class period and must be turned in when requested by the teacher; failure to submit assignments when requested, will result in a late penalty.

* Homework: No late work accepted. Make-up work only accepted for excused absences within one day of return.
* Lab Make-up: Teacher selected topic that corresponds to the missed lab. Lab make-up assignment must be submitted within one week of your return to school.
* Projects: Due dates are given in advance, this is the last day the project will be accepted.  Projects may be turned in early.
* Test Make-up: Will be done the day of return after the documented excused absence.

**Late Work**

It is important that students learn to honor and meet due dates and deadlines for class assignments. Students must adhere to due dates and deadlines published in the syllabus or otherwise assigned by the teacher. If a student misses a published due date as a result of an unexcused absence, his or her grade for that assignment can be reduced at the teacher’s discretion. A student who misses a due date that was previously assigned because of an approved excused absence must submit the assignment the next notebook check. **Teachers cannot refuse to accept students’ work that is late because of an excused absence. Suspensions are excused absences.**

**Daily Assignments and Makeup**

Students who fail to turn in daily assignments due to unexcused absences are not entitled to make up the work for credit. This includes class cuts. Students who miss daily assignments due to excused absences are allowed to make up the work **within three class periods upon his or her return to school.** Arrangements for making up tests, class work, and other assignments after absences are the responsibility of the student.

\* *Quiz/Make Up*- Students must make up any quiz or test the following Monday after school of his/her absence after school during tutorial.

\* Notebook checks - All notebooks are checked on quiz and test days. If the student is absent on the day of the notebook check, the notebook will be checked the next test or quiz whichever comes first.

\* *Notebook check make up* - If a student does not have his/her assignment in the notebook, the assignment is not completed, or the student does not have the notebook in class the student will receive a **zero** on that assignment. The student will have the opportunity to complete the assignment and get the assignment rechecked on the next test or quiz day which ever one comes first. The student will receive a 30 pt. deduction form the missing assignment(s) until the assignment(s) is/are completed.

**\*\*Inclement Weather Plan\*\***

In preparation for both the hurricane season and winter weather, Atlanta Public Schools must think about inclement weather and the potential for school closings. Weather days can add up quickly and valuable learning opportunities for our students can be lost. For this reason, Atlanta Public Schools will use teacher created Inclement Weather Plans in the event of school closings. Students will be able to access the plans via their assigned Google Classroom account.

If students do not have internet access and are unable to complete the assignments at home, they will have up to *three weeks* to complete them *after returning to school*.

Should inclement weather occur, Google Hangouts will be enabled for ALL students and staff. Students will have the option to chat with their teachers about assignments should they need assistance.

**Academic Honesty**

Students are expected to adhere to the highest standards of academic honesty. Plagiarism occurs when a student uses or purchases ghost-written papers or products. It also occurs when a student utilizes ideas or information obtained from another person without giving credit to that person. If plagiarism or another act of academic dishonesty occurs, it will be dealt with in accordance with the academic misconduct policy as stated in the Atlanta Public Schools Handbook and the Benjamin E. Mays High School Handbook.

**Parent-Teacher Confrences**

Parents-Teachers conferences are held **monthly on 1st and 3rd Wednesdays from 3:45 p.m. until 4:45 p.m. in the cafeteria.** Parents and guardians do not need to make an appointment to attend. The purposes of a parent-teacher conference are:

1. To give parents and teachers a better understanding of the child’s performance,
2. To promote close cooperation between the home and school in fostering the growth of the whole child,
3. To give a more accurate picture of the child’s school growth as shown by achievement, and
4. To promote a better understanding of the objectives of the school

**Infinite Campus Access**

Parents can access their student’s grades, schedule, and attendance online via Infinite Campus Parent Portal <https://ic.apsk12.org/portal>. To activate your account, visit the school registrar to receive your login (activation key).

**Progress Reports and Deficiency Notices**

In an effort to keep parents abreast of their student’s academic standing, progress will be issued the last two days of each month and deficiency notices will be issued in accordance with the Atlanta Public Schools dates.

(*Please see the APS 2018-19 Calendar for specific dates*.)

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| ***1st Sem. Deficiency Notice*** | ***Report Card*** | ***Progress Reports*** |
| 9/4/18 |  | 8/31 and 9/28 |
| Midsemester  10/4-5/18 | 10/15/18 |  |
| Deficiency Notice  11/12/18 |  | 10/31 and 11/30 |
| End of Semester  12/2/18 | 1/7/19 |  |
| ***2nd Semester Deficiency Notice*** | ***Report Card*** | ***Progress Reports*** |
| 2/4/19 |  | 1/31 and 2/28 |
| Midsemester |  |  |
| 3/14-15/19 | 3/19/19 |  |
| Deficiency Notice |  |  |
| 4/22/19 |  | 3/29 and 4/30 |
| End of Semester |  |  |
| 5/24/16 | 5/28/19 |  |

**2018-2019 Syllabus Agreement Form**

I am VERY excited to get to know all of my students and their families. I believe any student can learn physical sciences. However, some students will have to work harder than others and will need more support to master the content. I will offer any support students need to succeed. I encourage students and parents/guardians to contact me with all questions and concerns anytime. You can leave a voice message or written message at the school and I will also check my e-mail several times every day. Please do not hesitate to contact me. Let’s have a great year!

I, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have received and read this syllabus. I understand all course policies, and I know that I can reach Ms. Gore by phone or email at any time.

Student Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Date: \_\_\_\_\_\_\_\_\_

I, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the parent/guardian of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, have received and read this syllabus. I understand all course policies, and I know that I can reach Ms. Gore by phone or email at any time.

Parent/Guardian Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_

Parent/Guardian’s BEST contact number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*(circle one)* Home Cell Work

Parent/Guardian email address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How do you prefer to be contacted? *(Circle all that apply)*

Phone Call Text Message Email Doesn’t matter

*(Optional)* Is there anything about your child that I should be aware of? This includes medical issues/allergies, personality traits/interests, past performance in science, or ways to motivate/inspire.

**Chemistry Safety Contract**

(Attached to the syllabus and must remain in the Academic Portfolio at all times)

***STUDENT AGREEMENT***

| Do you wear contact  Lenses?  o Yes    o No | Are you color blind?  o Yes    o No | Do you have allergies?  o Yes    o No | Do you have asthma?  o Yes    o No | Do you have other medical conditions?  o Yes    o No |
| --- | --- | --- | --- | --- |
| If “yes” to allergies and/or medical conditions, list here. | | | | |

I, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (student's name) have read and agree to follow all of the safety rules set forth in this contract. I realize that I must obey these rules to insure my own safety, and that of my follow students and instructors. I will cooperate to the fullest extent with my instructor and fellow students to maintain a safe lab environment. I will also closely follow the oral and written instructions provided by the instructor. I am aware that any violation of this safety contract that results in unsafe conduct in the laboratory or misbehavior on my part, may result in being removed from the laboratory, detention, receiving a failing grade, and or dismissal from the course. ***Since laboratory work is addressed in course standards, any unsafe behavior on my part that requires disciplinary action may negatively impact my grade.***

|  |  |
| --- | --- |
| **Student Name (printed)** | |
| **Student Signature** | **Date** |

Dear Parent or Guardian:

We feel that you should be informed regarding the school's effort to create and maintain a safe science classroom/laboratory environment. With the cooperation of the instructors, parents, and students, a safety instruction program can eliminate, prevent, and correct possible hazards. You should be aware of the safety instructions your son/daughter will receive before engaging in any laboratory work. Please read the list of safety rules on the attached Chemistry Safety Contract.

No student will be permitted to perform laboratory activities unless this contract is signed by both the student and parent/guardian and on file with the teacher. Your signature on this contract indicates that you have read this Student Safety Contract, are aware of the measures taken to insure the safety of your son/daughter in the science laboratory, and will instruct your son/daughter to uphold his/her agreement to follow these rules and procedures in the laboratory.

|  |  |
| --- | --- |
| **Parent/Guardian Name (printed)** | |
| **Parent/Guardian Signature** | **Date** |