***Phillip O. Berry STEM Academy***

***Chemistry I Course Syllabus***

*“Where students explore, investigate, hypothesize, experiment, collect data, analyze, reflect, and report while building an understanding of the intricate compositions of matter.*

WE ARE CHEMIST!

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**Chemistry**

Chemistry is the [science](http://en.wikipedia.org/wiki/Science) of [matter](http://en.wikipedia.org/wiki/Matter), especially its properties, structure, composition, behavior, [reactions](http://en.wikipedia.org/wiki/Chemical_reaction), interactions and the changes it undergoes. Chemistry is sometimes called "[the central science](http://en.wikipedia.org/wiki/The_central_science)" because it connects physics with other [natural sciences](http://en.wikipedia.org/wiki/Natural_science) such as [astronomy](http://en.wikipedia.org/wiki/Astronomy), [geology](http://en.wikipedia.org/wiki/Geology) and [biology](http://en.wikipedia.org/wiki/Biology). Chemistry uses quantities like [energy](http://en.wikipedia.org/wiki/Energy) and [entropy](http://en.wikipedia.org/wiki/Entropy) in relation to the [spontaneity](http://en.wikipedia.org/wiki/Spontaneous_reaction) of [chemical processes](http://en.wikipedia.org/wiki/Chemical_process). It also explains the structure and properties of matter as a consequence of the physical properties of chemical substances and their interactions. For example, [steel](http://en.wikipedia.org/wiki/Steel) is [harder](http://en.wikipedia.org/wiki/Hardness_%28materials_science%29) than iron because its atoms are bound together in a more rigid [crystalline lattice](http://en.wikipedia.org/wiki/Crystalline_lattice); wood burns or undergoes rapid [oxidation](http://en.wikipedia.org/wiki/Oxidation) because it can react spontaneously with [oxygen](http://en.wikipedia.org/wiki/Oxygen) in a [chemical reaction](http://en.wikipedia.org/wiki/Chemical_reaction) above a certain [temperature](http://en.wikipedia.org/wiki/Temperature); sugar and salt dissolve in water because their molecular/ionic properties are such that dissolution is preferred under the ambient conditions. [Synthesis](http://en.wikipedia.org/wiki/Synthesis) is the major aspect that separates Chemistry from Physics and Biology as sciences. Chemistry includes the knowledge (science) to ***design*** and make more complex substances from simpler ones. These new substances might then be analyzed for their physical or biological properties. (Wikipedia, 2012)

**Course Goals**

The North Carolina Essential Standards for Chemistry are designed to enhance the student’s understanding of the science content that is vital for success in the twenty-first century. The process of scientific inquiry, experimentation and technological design should not be taught nor tested in isolation of the core concepts drawn from physical science, earth science and life science. A seamless integration of science content, scientific inquiry, experimentation and technological design will reinforce in students the notion that "what" is known is inextricably tied to "how" it is known. Phillip O. Berry’s Chemistry Team developed a well-planned science curriculum that provides opportunities for inquiry, experimentation, and technological design. When teaching science, our teachers provide opportunities for students to engage in “hands-on/minds-on” activities that are exemplars of scientific inquiry, experimentation, and technological design.

* Describe, explain, and predict natural phenomena.
* Understand articles about science.
* Engage in non-technical conversation about the validity of conclusions.
* Identify scientific issues underlying national and local decisions.
* Pose explanations based on evidence derived from one's own work.

**ESSENTIAL STANDARDS**

Chm 1.1 Analyze the structure of atoms.

Chm 1.2 Understand the bonding that occurs in simple compounds in terms of bond type, strength, and properties.

Chm 1.3 Understand the physical and chemical properties of atoms based on their position in the Periodic Table.

Chm 2.1 Understand the relationship among pressure, temperature, volume and phase.

Chm 2.2 Analyze chemical reactions in terms of quantities, product formation, and energy.

Chm 3.1 Understand the factors affecting rate of reaction and chemical equilibrium.

Chm 3.2 Understand solutions and the solution process.

For more information regarding state objectives for chemistry visit: <http://www.ncpublicschools.org/curriculum/science/>

**TEXTBOOK:** Glencoe Chemistry Matter and Change, 2004

An online version of the textbook is available. Refer to the chemistry website.

**COURSE REQUIREMENTS**

All prospective Honors Chemistry I students should have successfully passed Algebra I and Algebra II prior to Honors Chemistry I enrollment.

|  |  |
| --- | --- |
| **1st Quarter** | **2nd Quarter** |
| Atomic StructureElectrons in AtomsPeriodic Table & Periodic LawThe ElementsChemical BondingChemical Formulas & NomenclatureThe Mole\*Chemical Equations & Composition Stoichiometry\*Nuclear Chemistry | Gas Laws\*Gases and the Mole\*SolutionsAcids, Bases, Salts\*Reaction RatesNuclear ChemistryEquilibrium |

**Course Outline**

**\*Math Chapters**

* **Midterm Exam** – October 19 - October 22
* **Report Cards** – November 6 & February 2
* **Final Exams -** January 11 - January 15
* **STEM Project** – November 9

**PROGRESS REPORT DATES:**

* + **September 14 - September 18**
	+ **November 16 - November 20**

**\*\*All dates are subject to change.**

**REQUIRED COURSE MATERIALS**

The following materials are required for each student to bring to class.

You will need:

1. Scientific calculator (not graphing)
2. 3-subject spiral notebook. **Be sure to get the 8 ½ “ x 11” size.**
3. Highlighters
4. Pencils are required for all assignments with the exception of written lab data.Pens(blue/black **only**)
5. Colored pencils and/or markers
6. Scotch tape or glue stick
7. Loose-leaf paper
8. Tissue-male students
9. Hand sanitizer-female students
10. Graph paper
11. Lysol wipes

**Some materials will need to be replenished throughout the semester.**

**EXPECTATIONS DURING TEACHER ABSENCE**

1. Students should sit in their assigned seat.
2. Unless is there is an emergency, passes will not be written.
3. All assignments are due at the end of the class period. Failure to turn in part or all of the assignment will result in a zero (0). There will not be an opportunity to make up this grade.

**ASSIGNMENTS**

1. At the beginning of class each day, there will be a warm-up/focus activity. Students should begin the task without prompting from the teacher. All assignments should be labeled with the student’s name, period, and date in the top right corner of the paper.

Example:

 Amjay Rice

 2nd period

 August 24, 2015 Assignment Name

1. When taking notes, the day’s topic should be written at the top of the paper.
2. All work should be neatly done. All non-math answers should be answered in complete sentences. Show all work for math problems **and** circle your answers.
3. All assignments should be written in pencil. Assignments written in pen (**only** exception…lab reports) will not be graded.

**HANDOUTS**

Each student will be provided with **one** copy of a handout. If the handout is misplaced or needs to be replaced, the student should print the handout from the wiki/Google drive.

**GRADE DISTRIBUTION**

The nine-week class grades will be calculated based upon the following:

**Formal Assignments: 70%**

* Test
* Projects/Reports
* Stem Project

**Informal Assignments: 30%**

* Quiz
* Homework
* Classwork

A semester final exam will be given. The exam will count as **20%** of your grade.

**GRADING SCALE**

A 90 - above

B 80-89

C 70-79

D 60-69

F 59- below

**HOMEWORK**

Homework checks will be randomly conducted, in one of the following ways:

1. Full grade may be given for doing all the assigned questions. Effort counts here.
2. Full grade may be given for answering all questions correctly.
3. Homework QUIZ

**CLASSWORK**

Classwork is due at the time specified by the teacher. Failure to turn in classwork will result in the grade of zero(0). Late classwork assignments will loose 10% each day after the assignment is due. Students who arrive late to class without a note excusing their tardy, will **not** receive additional class time to complete the assignment. The assignment must be made up after regular school hours.

**MAKE-UP WORK**

Make-up work from any absence is the student’s responsibility. There will be a folder that contains handouts from the missed day. I also suggest exchanging phone numbers with other students whom you may call to get missed assignments. Students will receive **five** school days to complete missed assignments. Late assignments will loose 10% of the earned grade each day after the assignment is due.

**CHEATING POLICY**

Any student involved in cheating on any assignment will receive a grade of zero (0). The participants may also receive a discipline referral to the administrative team and/counselors.

**ATTENDANCE**

1. Any student with more than ten (10) absences per semester for 4x4 classes, excused or unexcused, other than a principal-approved absence will receive a grade of “F” for the course based on CMS Regulation JHBB-R.
2. An absence prior to test day does not automatically excuse you from the test. This also applies to class assignments and quizzes. An extension of the test/due date for assignments will only be granted if a note is provided on the day you return to school excusing the absence. The absence must be considered an excused absence based on district policy.

**DISMISSAL**

When the bell rings at the end of class, students should remain seated. The teacher, including the substitute, will dismiss the class.

**PASSES**

Passes will not be written within the first or last 15 minutes of class. If a student needs to go to the restroom during class, the student should ask **only** during independent work time.

**AFTERSCHOOL TUTORING**

Tutoring will be offered to after school on Tuesday and Thursday afternoons from 2:30-3:30. In order to participate, you must arrive on time. Late arrivals will not be allowed to enter without an excused pass from and administrator or teacher. Upon entering, sign-in on the online tutorial log. You must stay for the entire time to receive credit towards attendance recovery.

**TARDY POLICY**

Tardiness is defined as students not being in the classroom when the late bell rings. Late students will be required to sign the Tardy Log upon entering class.

**INCLEMENT WEATHER**

If school is cancelled due to weather or other circumstances beyond control, check the Weebly for assignments. It is the expectation that the assignment(s) are completed and turned in upon our return to school.

**Consequences**

1st tardy verbal warning

2nd tardy note sent to parent/guardian by student

3rd tardy call to parent and assigned a classroom consequence

4th or more tardiness referral to the appropriate administrator

**COMMUNICATION**

Both students and parents are encouraged to discuss any questions or concerns with me. I am able to accommodate communication by email, telephone, and conferences. You can also find information at pobchemteam.weebly.com. Grades are updated weekly on Parent Assist.

**DISCIPLINE PLAN**

**The EOC’s of Good Behavior**

**E**nter the room quietly and on time.

**O**rganize materials for the start of class.

**C**ourtesy & respect for others.

**‘s**tay in your seat until you are dismissed.

**Consequences**

1. Verbal Warning

2. Parent Contact

3. Parent Contact & classroom consequence

4. Referral to Administrator

**Rewards**

* Praise
* Positive Notes Home
* Various other positive perks
* The joy of learning