P35 M, Manhattan High School

Marta Barnett, Principal

REGENTS CHEMISTRY SYLLABUS

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Course Description

This is a Regents level chemistry course designed to make chemistry interesting, accessible and understandable. Learning chemistry can be very rewarding because it provides explanations for real world observations. The goal of this course is to provide you with the ability to apply scientific concepts, principles and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

Course Content

The following is a list of units and their topics that we will cover throughout the course of this year:

I. Atomic Concepts
- Models for Atoms
- Electron Excitation
- Structure of the Atom
- Arrangement of Electrons

II. Periodic Table
- Origins of the Periodic Table
- Structure of the Periodic Table
- Groups Trends in the Periodic Table
- Chemical Properties within Groups

III. Moles / Stoichiometry
- The Mole Concept
- Stoichiometry
- Types of Reactions
- Gram Formula mass

IV. Chemical Bonding
- Nature of Chemical bonding
- Types of bonds between atoms
- Polar and non-polar bonds
- Creating formulas

V. Physical Behavior of Matter
- Solubility guidelines
- Energy output of reactions
- Gas laws

VI. Kinetics / Equilibrium
- Kinetics
- Equilibrium types
- Entropy and heat of reaction
- Collision theory

VII. Organic Chemistry
- Characteristics of Organic Compounds
- IUPAC and Functional group
- Isomers
- Kinds of Organic Compounds
- Reactions of Organic Compounds

VIII. Oxidation – Reduction
- Changes in Charge
- Balancing Simple Redox

Electrochemistry
- Voltaic and Electrolytic Cells

IX. Acids, Bases and Salts
- Electrolytes
- Acid- Base Reactions
- pH and other theory

X. Nuclear Chemistry
- Radioactivity
- Transmutation
- Balancing nuclear decay reactions
- Fission and Fusion, half life
- Benefits and Hazards of Nuclear isotopes

Classroom Policies and Procedures

Methods

- We will do this by having class discussions based on Do-Now, followed by instruction and group work and hands-on activities. ***What I want to see is student participation, engagement and following classroom protocols.***
- The class also does frequent observations of chemistry phenomena, either in class or in the lab. These observations match up with what you are supposed to be learning very closely, and as such *are taken very seriously*. These labs and observations have a major impact on your grade and on your ability to take the Regents Examination. A total of (1200 minutes of lab time) are required in order to take the Regent's Examination.
- We also do in class and out of class projects and activities that you will hopefully find fun and interesting.

Electronic devices: Electronic devices (cell phones, wireless earbuds etc.) may **NOT** be used anywhere in class, at any time unless used for research during projects. If they are seen, used, or heard; students will be reminded, and devices may be confiscated and held by the dean or assistant principal for repeat offenses. Parents/guardians will be informed.

Materials

There are several materials that you will be given

- We will be using a wide variety of different apparatus and chemicals in the lab
- We will also be using technology in the lessons, including simulations of atomic models, molecular modeling on the computer, and sketching molecules suing computer programs.

Class Expectations: This is an advanced level science class, and my expectations of you will be very high.

Preparation: you are expected to be prepared for class every time you enter. This means that you are

- Arriving on time. Go directly to your seats. If you are late, you miss the beginning of the lesson which impacts your learning and participation.
- You must have a **Chemistry folder** clearly defined in your bag containing **the Reference table.**
- As a science student, you are responsible for having your notebook, pens, pencils and your **Chemistry folder** in class when needed.
- Open your folder, find the assignment on table and begin the **Do Now**.
- Food, beverages, hats, electronic devices such as iPod, cellular phones, etc. are **prohibited**. Cellphone will be taken away by the dean for repeat offense in same period.

Before leaving the classroom/Lab:

- Be sure to turn in all assignments if they are due.
- Clear your tables of trash/mess.
- Remember to be mindful of your folder and Reference Table so that you don't lose them.
- Pick up all your trash off the floor and dispose of it in the trash bin.

Grading Policy:

Grades will be calculated according to the following formula:

1. **Exams: 30%**
2. **Homework: 20%**
3. **Projects: 15%**
4. **Class work: 35%**

Chemistry Assignments Timeline

Unit 0: Introduction to Chemistry	**Unit 1: Atomic Structure**	**Unit 2: Periodic Table**	**Unit 3: Stoichiometry**
-Day 1 activity -Physical Change 0.5 -Naming-1 -Compounds-2 -% Error-2.5 -Mixture-3	Atomic Structre-1 Atomic Packet-2 Atomic Models-3 Bohr-4 Subatomic-5 Excited State-6 Isotopes-7 Abundance-8 Ions-9	Periodic Table-1 Valence-2 Ionization Energy-3 Electronegativity-4 Halogens-5	Reactions-1 GFM-2 Percentage Composition-3 Empirical Formulas-4 Balancing-5
Unit 4: Bonding	**Unit 5: Physical Properties of Matter**	**Unit 6: Kinetics**	**Unit 7: Acids and Bases**
Bonding-0 Crisscross-1 Ionic vs Covalent-2 Polarity-3	Heat-1 KMT-2 Gas Law-3 Solubility-4 Molarity-5	Collision Theory-0 Enthalpy-1 PE Diagrams-2 Equilibrium-3 Entropy-4	Electrolyte-1 pH-2 Arrhenius-3 Other theory-4 Neutralization-5

Unit 8: Nuclear Chemistry	**Unit 9: Electrochemistry**	**Unit 10: Organic Chemistry**
Nuclear decay-1 Fission and Fusion-2 Half-life -3 Radioisotopes-4	ON-0.5 Redox-1 Half-rxn- 2 Voltaic-3	Organic-0 Hydrocarbon-1 Naming-2 Naming-2.5 Functional Group-3 Isomers-4

Classwork:

If you are absent on the day an assignment is due, you *must* turn it in the day after you return to school. **Please speak to me if you won't attend school due to medical/emergency reasons and I will accommodate your needs and make sure you don't fall behind. Come to SGI on Friday or After School Tutoring and I will assist you with missing/incomplete classwork/homework/lab reports.**

Assignments are comprised of Do Now, Cooperative Learning, Aloha Misconceptions, Peer evaluation, Self Evaluation and Exit Ticket. Each question is worth one point as per Regents. One point is **deducted** for not engaging with each question and/or not completing peer evaluation. In **Aloha Misconception** part of the assignment; an incorrect answer is underlined. You are supposed to explain why is it wrong or why your answer choice is the correct one. **Failure** in explaining the answer warrants half a point, 0.5 out of 1.

Many assignments have projects built in as I believe in Project based learning, as one gets to conduct research and analysis of the concepts in a thorough manner which helps in learning using scaffolds. If a rubric is assigned, choose the project of your choice and follow the rubric accordingly. Each project ranges from **12 points-20 points**, and points are awarded based on the quality of the work done. Points are deducted for not completing the project or not meeting the rubric requirements.

Labs: Your labs will be completed during your scheduled lab class, but I will be grading them. You are expected to participate in 1200 minutes of lab as required by Board of Regents.

Projects: There will be at least one project or independent research paper assigned per unit. These are given several days, if not weeks, in advance of their due date. Make sure that everything you hand in has your name, teacher's name, date, and topic in the heading. Credit will not be given for work handed in without a name.

PupilPath: It is our online grading system. It allows students to monitor their progress throughout the school year. It is highly recommended that parents/student's logon to periodically to monitor progress. Information on how to access PupilPath will be given to you during the first week of classes.

PLEASE RETURN THIS PORTION TO YOUR TEACHER

I have read the attached course outline, goals, expectations, and evaluation criteria for CHEMISTRY and have discussed these requirements and responsibilities with my parents/guardians.

In a Regent's level class, every student is expected to complete a minimum of 1200 minutes of satisfactory laboratory time in order to be admitted into the Regents Examination. Failure to complete the required 1200 minutes will result in the student being barred from taking the Regents Examination and subsequent failure.

Student Signature_____ Date_____ Class_____

Parent/Guardian Signature: