

# Chemistry

"All the world is a laboratory to the inquiring mind."

- Martin H. Fischer.

School Year 2023-2024

Room 3107

Instructor: Carlos A. De la Lama Garza

Conference Period: TBD

## I. The Importance of Chemistry:

Chemistry is essential for meeting our basic needs of food, clothing, shelter, health, energy, clean air, water, and soil. Chemical technologies enrich our quality of life in numerous ways by providing innovative solutions to problems in health, materials, and energy usage.

Chemistry is often referred to as the central science because it joins together physics and mathematics, biology and medicine, and the earth and environmental sciences. Knowledge of the nature of chemicals and chemical processes therefore provides insights into a variety of physical and biological phenomena. Knowing something about chemistry is worthwhile because it provides an excellent basis for understanding the physical universe, we live in. For better or for worse, everything is chemical!

## II. Course Aims and Outcomes:

### *Aims*

The aim for our high school chemistry course is to ensure students gain a general understanding of the chemical world around them. The course will not only focus on the principles of chemistry. The course will also bring light to the scientific process and the nature of science.

This chemistry course works as a gateway to more advanced scientific topics such as physics, biology, environmental and medical sciences. Various careers have a basis with chemistry. Chemistry can lead (but is not limited) to jobs in the following fields: forensics, environmental health and safety, law, engineering, medicine, quality control, biotechnology, and many more!

### *Specific Learning Outcomes*

By the end of this course, students will be able to:

- Use scientific practices to solve investigative questions
- Use critical thinking, and scientific reasoning, to make informed decisions within and outside the classroom
- Identify the characteristics of matter and can analyze the relationship between chemical and physical changes and properties.
- Understand the historical development of the periodic table and can apply its predictive power.
- Identify and understand the historical development of atomic theory.
- Explain how atoms form ionic, covalent, and metallic bonds.
- Quantify the changes that occur during chemical reactions.
- Explain the principles of ideal gas behavior, kinetic molecular theory, and the conditions that influence the behavior of gases.
- Identify and apply the factors that influence the behaviors of solutions.
- Explain the energy changes that occur during chemical reactions.

- Explain the basic processes of nuclear chemistry.

Aside from the academic information, students will be able to conduct appropriate, safe, and fun laboratory experiments.

Additionally, students will be able to:

- Draw inferences based on collected data
- Draw inferences based on data related to promotional materials for products and services.
- Evaluate the impact of research on scientific thought, society, and the environment.

### III. Format and Procedures:

The course will be conducted unit by unit as outlined below:

- Unit 1 – Investigating Matter
- Unit 2 – Atomic Structure and The Periodic Table
- Unit 3 – Chemical Bonding and Chemical Formulas
- Unit 4 – Chemical Equations and Reactions
- Unit 5 – The Mole and Avogadro's Number
- Unit 6 – Stoichiometry
- Unit 7 – Behavior of Gases
- Unit 8 – Behavior of Solutions
- Unit 9 – Acids and Bases
- Unit 10 – Thermochemistry
- Unit 11 – Nuclear Chemistry

Each unit will consist of varied learning activities, such as online simulations, online learning modules, lectures, quizzes, labs (for most units), exit tickets, pre and post assessments and group projects (for most units).

Students will be expected to follow all classroom procedures, unless there is special or medical reasons in which case there will be accommodations set in place in a case-by-case basis.

Student Behavioral expectations:

- **Be Responsible:** Arrive to class on time. Arrive to class with necessary materials. Be ready to learn. Finish and turn in work that has been started. Do not leave the classroom without permission, the bell does not dismiss you, the teacher does. Do not wait by the door when class time is almost done.
- **Be Respectful:** Respect yourself (respect your time, deadlines, and your work). Respect others (respect personal space, others' ideas, and identities). Respect your instructor (do not talk over your instructor, follow directives from your instructor. Remember the instructor has your best interest in mind).
- **Be Safe:** Follow safety procedures outlined by your teacher. No horseplaying in the classroom. Keep your hands and feet to yourself. Use materials properly. During lab, do not eat or drink ANY materials or chemicals.

## IV. Course Requirements:

This course will require students to exercise their brains. Critical thinking skills will be essential for this course. Materials that will be required from students will be:

- School Assigned Laptops (ESSENTIAL TO BRING IT CHARGED EVERY DAY!!)
- Pencils
- Black/Blue Pen
- Erasers
- Composition Journal (Single Subject, NO SPIRALS)
- Scissors
- Glue

Aside from materials, students will also be required to wear proper laboratory attire during lab day, these include:

- Close toes shoes (no sandals or crocs)
- Hair ties (for long hair)
- Long bottoms (jeans, capris. But no joggers.)

## V. Grading Procedures

Grades will be split between major and minor grades. Assignments not completed due to attendance will be available for pick up.

Late work for minor grades can have a maximum grade of a 75 after it has been due.

Late work for major grades will be accepted for full credit.

Major grades from lab experiments that are missed due to attendance will automatically be marked down as 75's and can only be made up with arrangements with the teacher to complete the experiments after school, or through alternative assignments.

Minor grades assignment types **(40% of marking period grade)**:

- Learning Modules (Canvas)
- Assignment Sets
- Unit Reflections
- Journal Checks

Major grade assignment types **(60% of marking period grade)**:

- Exit Tickets
- Labs
- Exams
- Unit Projects

Marking period grades are calculated as follows:

$$\text{Report Card Grade} = (0.6 \times \text{Major Grade Average}) + (0.4 \times \text{Minor Grade Average})$$

Every semester there will be Semester Exams. Semester exams make up 15% of the semester grade.

Semester grades are calculated as follows:

$$\text{Semester 1 Grade} = \left(0.9 \times \frac{\text{Report Card 1} + \text{Report Card 2}}{2}\right) + (0.1 \times \text{Semester 1 Exam})$$

Semester 2 grade is calculated the same way but replacing Report Card 1 with Report Card 3; replacing Report Card 2 with Report Card 4; and replacing Semester Exam 1 with Semester Exam 2).

The final grade for the class is calculated as follows:

$$\text{Final Grade} = \left(\frac{\text{Semester 1 Grade} + \text{Semester 2 Grade}}{2}\right)$$

## **VI. Academic Integrity**

You are encouraged to study together and to discuss information and concepts covered in lecture and the sections with other students. One great way to assess what you know is to teach the idea to a peer! You may also work together on problem sets and give "consulting" help to or receive "consulting" help from your peers. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in any form (e.g., email, Word doc, Box file, Google sheet, or a hard copy).

Should copying occur, both the student who copied work from another student and the student who gave material to be copied will both automatically receive a zero for the assignment.

During examinations, you must do your own work. Talking or discussion is not permitted during the examinations, nor may you compare papers, copy from others, or collaborate in any way. Any collaborative behavior during the examinations will result in failure of the exam, and a parent conference.

## **VII. Accommodations for Students with Disabilities**

I am available to discuss appropriate academic accommodations that may be required for student with disabilities.

Any 504, IEP or SpED accommodations will be made note of. No student shall be treated any different than a student without disabilities in the classroom, unless otherwise recommended by and ARD committee. Should an accommodation no be met by me, please contact me as soon as possible, and I will make sure that the error is corrected.

## **VIII. Inclusivity Statement**

While working together to build this community I ask all students to:

- share their unique experiences, values, and beliefs.
- be open to the views of others.
- honor the uniqueness of their colleagues.
- appreciate the opportunity that we have to learn from each other in this community.
- value each other's opinions and communicate in a respectful manner.

The following coursework will not be identical to what will be available for our course.

# Let's have a wonderful year!

Return this portion of the syllabus to Mr. De la Lama signed by you and your parent or guardian before the end of the week!

**I have read and understand the requirements and expectations of this class.**

Student Name (Printed): \_\_\_\_\_ Period: \_\_\_\_\_

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

Parent Name (Printed): \_\_\_\_\_

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

Parent Phone Number(s): (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_  (check preferred contact number)

(\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

Parent E-Mail(s): \_\_\_\_\_ @ \_\_\_\_\_ .com  (check preferred email)

\_\_\_\_\_ @ \_\_\_\_\_ .com