Philippine Science High School-Main Campus
Chemistry Unit
SY 2024-2025

Chemistry 2

General Inorganic Chemistry 2

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Course Description

Chemistry 2 (General Inorganic Chemistry 2) is a one (1) unit subject for Grade 10 students at Philippine Science High School. Chemistry 2 introduces the topics in Inorganic Chemistry, which includes thermochemistry, chemical kinetics, chemical equilibrium, chemistry of acids and bases, and electrochemistry.

Course Outline

FIRST QUARTER

TOPIC 1: Thermochemistry
- First Law of Thermodynamics
- Enthalpy
- Hess's Law
- Second Law of Thermodynamics
- Gibbs Free Energy
- Spontaneity of Reactions

TOPIC 2: Chemical Kinetics
- Collision Theory
- Factors Affecting Rates of Reaction
  - Nature of Reactants and Concentration
  - Surface Area of Reactants and Presence of Catalysts
- The Rate Law
  - First Order Reaction
  - Second Order Reaction
- Applications of Chemical Kinetics (Reaction Mechanism)

SECOND QUARTER

TOPIC 3: Chemical Equilibrium

- The Equilibrium Condition
- Le Chatelier's Principle
  - Common Ion Effect
- The Equilibrium Constant
- Predicting the Direction of Reaction, K vs. Q
- K_c and K_p for Gaseous Systems
- Calculating Equilibrium Concentration Using Equilibrium Constant

THIRD QUARTER

TOPIC 4: Acid-Base Equilibria and Solubility Equilibria

- Definition of Acid and Base
  - Arrhenius Theory
  - Bronsted-Lowry Concept
  - Lewis Concept
- Chemical Structure Effects on Acidity
- Acid-Base Equilibrium
- Self-Ionization of Water (K_w)
- Buffer Solutions
- The Solubility Product Constant

FOURTH QUARTER

TOPIC 5: Electrochemistry

- Introduction to Electrochemistry
- Galvanic Cell
- Cell Potential
- Standard Electrode Potential
- Cell Potential and Reaction Gibbs Free Energy
- Batteries
- Electrolytic Cells
- Faraday's Law
- Practical Applications of Electrochemistry

Course Requirements and Grade Distribution

Grade Component	% Weight
Long/ Summative Exam	35%
Alternative Assessments	40%
Formative Assessment	25%
TOTAL	100%

A **SUMMATIVE EXAM (35%)** will be conducted by the end of each quarter. This is to assess student learning, knowledge, and proficiency in all topics covered throughout the duration of the instructional period.

ALTERNATIVE ASSESSMENTS (40%) may be, but not limited to, laboratory worksheets, problem sets, and other creative outputs. Alternative assessments may consist of at most three (3) activities per quarter. The specific assessment components, criteria, and other measures to be used in evaluating student performance shall be communicated to students before the alternative assessments are administered.

FORMATIVE ASSESSMENTS (25%) are the graded exercises and short drills assigned for the given lessons. The deadline for each formative assessment will be announced by the teacher at the start of each quarter.

Materials to Bring

Per Group:

- Liquid Hand Soap
- Two (2) rolls of tissue paper
- Pentel Pen
- Three (3) Rags
- Masking Tape

Individual:

- Lab Gown
- Lab Goggles

Consultation

You may consult through various means your teacher agreed on (Google chat, email, etc). Use proper online etiquette when communicating with your teacher. Your teacher may or may not entertain your questions if raised beyond your class schedule and/or after 6:00 PM.

Class Policies on Submission of Course Requirements

Submissions are done in class unless stated otherwise by the teacher. Submissions done after class may be considered late depending on the nature of the requirement.

Cut-off time for submission of requirements to be done outside class hours (e.g. submission is done via KHub) is **7:00 PM** of the specified deadline. Such requirements submitted after 7:00 PM will already be regarded as 1 day late. To avoid getting demerits due to unexpected problems (e.g. power loss, sudden fluctuation in internet signal, file size too large thus upload takes time) for online submissions, it is highly recommended to submit your work at least 60 minutes before the cut-off time (i.e., 6:00 PM). If KHub is down, submit your work through your teacher's email or any learning management system you use aside from KHub. Submission during weekends is highly discouraged.

Late requirements EXCEPT for Pre-Laboratory Reports* (e.g. MSDS and/or Schematic Diagram of the Experiment) will still be accepted for grading but will be subjected to the following demerits. Note that 'days' referred to in the table include weekends:

Submitted 1-7 days after the deadline	Submitted 8-14 days after the deadline	Submitted 15 days onward after the deadline
Score: 0.90 multiplier	Score: 0.50 multiplier	Score: Zero

**The pre-laboratory report will only be accepted with the applicable late multiplier UNTIL THE END OF THE PERIOD of the experiment for which the said report was written. Non-submission of the said requirement by the end of the experiment period will merit a grade of zero for BOTH the pre-laboratory report and the laboratory performance component of the activity. These requirements are not subject to make-up activities.*

Missed Alternative Assessment milestones due to EXCUSED ABSENCES which were done in class and submitted within the same class day will be excluded from the denominator of the AA grade for that quarter. These assessments include, but are not limited to, the raw data table worksheets and the Lab Performance grade. For missed Alternative Assessment milestones due to EXCUSED ABSENCES which were done outside class hours, students will be allowed to submit a make-up AA on a deadline discussed with the respective subject teacher.

For missed Formative Assessments due to EXCUSED ABSENCES, **one (1) post-quarter exam** will be administered in place of all the missed FAs for that quarter, regardless of the number of FAs missed. The coverage of the said exam would be **all the topics covered in the quarter.** The raw score to be recorded for each missed FA would be the percentage score acquired in the post-quarter exam multiplied by the denominator of the missed FA.

Missed assessments due to UNEXCUSED ABSENCES will automatically be recorded with a score of ZERO.

The following requirements may differ for each section: formative assessments and bonuses, deadline of requirements, distribution of PowerPoint copies, among others. Only the lab activities and quarter exams are assured to be consistent for all students taking the same subject.

Deadline of requirements found in the matrix may be subject to change depending on the pace of the class, scheduled class interruptions, or unforeseen circumstances. Any change will be communicated to the class by the subject teacher.

Chem Tips!

1. Keep a separate notebook for Chem 2.
2. Secure your own lab gown and goggles (No lab gown, no experiment).
3. Have your own calculator.
4. Make sure you have the Chem 2 textbooks.
5. Read the topics in advance.
6. Take notes in class and from your readings.
7. Practice on assigned problems.
8. Don't hesitate to ask if you have any questions.
9. For lab activities, read the procedure in advance.
10. Practice safe handling of chemicals and materials in the lab
11. Have fun!!!

Textbooks

Chemistry *by Silberberg*
General Chemistry *by Petrucci*
Chemistry *by Brown, LeMay, and Burnsten*

ACKNOWLEDGEMENT SLIP

This is to acknowledge that I have read and understood the contents of the Chemistry 2 Course Outline, Requirements, Grade Distribution, and Policies for SY 2024-2025.

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Signature over Printed Name

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Section