PORT CREDIT S.S. COURSE OVERVIEW

SCIENCE DEPARTMENT

COURSE: Grade 11 University Chemistry **COURSE CODE**: SCH3U0

OVERARCHING LEARNING GOALS

Scientific Investigation and Skills and Career Exploration • Demonstrate scientific investigation skills in four areas: initiating and planning, performing and recording, analysing and interpreting and communicating. • Identify and describe a variety of careers related to the fields of science under study, and identify scientists, including Canadians, who have made contributions to those fields.	**Quantities in Chemical Reactions** • Describe the quantitative relationships involving the mole chemical reactions. • Analyse chemical compounds and chemical reactions using different methods of quantitative analysis and solve related problems.
Matter, Chemical Trends, and Chemical Bonding • Identify the scientists and experiments that led to the development of different models of the atom. • Understand periodic trends in the periodic table and how elements combine to form chemical bonds. • Investigate properties of chemicals and chemical bonds.	**Solutions and Solubility** • Describe qualitative and quantitative properties of solutions and solve related problems. • Analyse the distribution, purification, and use of drinking water.
Chemical Reactions • Describe different types of chemical reactions. • Investigate chemical reactions using different methods of qualitative analysis.	**Gases and Atmospheric Chemistry** • Describe qualitative and quantitative properties of gases and solve related problems. • Investigate gas laws that explain the behaviour of gases, and solve related problems.

SUCCESS CRITERIA

Matter, Chemical Trends, and Chemical Bonding

- I can describe the components of an atom and discuss the experimental evidence and theory that supports their existence, charge and location.
- I can describe what isotopes are and calculate the average atomic mass of an element.
- I can identify and explain the general trends in the periodic table.
- I can explain the difference between the ionic bonds and the covalent bonds.
- I can draw Lewis structures to represent the bonds in ionic and molecular compounds.
- I understand and use qualitative analysis to investigate samples and test for the presence of ionic or molecular compounds.
- I can name the compounds using the International Union of Pure and Applied Chemistry (IUPAC) nomenclature system.

Chemical Reactions

- I can describe the different types of chemical reactions.
- I can predict the products and write the balanced chemical equation including states for synthesis, decomposition, single displacement, double displacement and combustion reactions.
- I can investigate chemical reactions using different methods of qualitative analysis.

Quantities in Chemical Reactions

- I can determine the number of particles, moles or mass of a chemical sample given another of these values and can convert between the number of molecules and atoms in a sample.
- I can investigate and solve problems related to empirical formulae and molecular formulae of various chemical compounds,
- I can change information about one chemical into another using stoichiometry including finding the limiting reactant if necessary.
- I can determine the percent yield and discuss sources of error in experiments.

Solutions and Solubility

- I can describe the properties of water and explain the effects of changes in temperature and pressure on the solubility of solids, liquids and gases.
- I can solve problems related to the concentration of solutions in various units and can predict the amounts needed to prepare a solution of known concentration accurately.
- I can use stoichiometry to solve problems related to chemical reactions involving solutions.
- I can describe Arrhenius theory and the strength of acids and bases, solve problems related to acid-base titrations and determine the concentration of an acid or a base in a solution using the acid–base titration.
- I can describe the wastewater treatment processes and the effectiveness of municipal wastewater treatment processes.

Gases and Atmospheric Chemistry

- I can use the kinetic molecular theory to explain the properties and behaviour of gases.
- I can investigate and solve quantitative problems related to gas laws.
- I can use stoichiometry to solve problems related to chemical reactions involving gases.

ASSESSMENT & EVALUATION

Assessment and evaluation in this course will be based on provincial curriculum expectations. Evaluation throughout the course and the final evaluation will incorporate four broad categories:

Knowledge and Understanding	Thinking/ Inquiry	Communication	Application	Final Summative Evaluation
-knowledge of content -understanding of content	-planning and performing lab investigations -problem solving, critical thinking processes and skills	-expression and organization of ideas and information -use of conventions and terminology	-making connections to society, technology and the environment -transfer of knowledge and skills to unfamiliar contexts	-in-class practical (culminating task) -formal written

***A final grade will be calculated: Term Work = 70%; Final Evaluation = 30%**

Students will also receive descriptive feedback as part of the learning process which may not be assigned a mark. More detailed information regarding the Port Credit Secondary School Assessment and Evaluation policy can be found in the Student Agenda.

LEARNING SKILLS

The following learning skills will be taught and assessed throughout the course and rated on the report card:

***Responsibility**	***Independent Work**	***Initiative**
***Organization**	***Collaboration**	***Self-regulation**

These skills will not be included in the final numeric mark. However, it is important to remember that the development of these skills is critical to academic achievement and does have a direct bearing on the final mark.