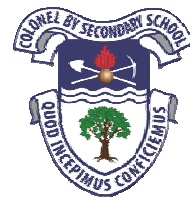


Colonel By Secondary School
Ottawa-Carleton District School Board
Science Department



Course Title: University Chemistry

Course Code: SCH 4U

Grade Level: 12

Teacher:

Course Overview:

This course enables students to deepen their understanding of chemistry through the study of organic chemistry, the structure and properties of matter, energy changes and rates of reaction, equilibrium in chemical systems, and electrochemistry. Students will further develop their problem-solving and investigation skills as they investigate chemical processes, and will refine their ability to communicate scientific information. Emphasis will be placed on the importance of chemistry in everyday life and on evaluating the impact of chemical technology on the environment.

Curriculum: Students will be evaluated using the major strands and overall expectations summarized below.

By the end of the course students will:

A. Scientific Investigation Skills and Career Exploration

1. demonstrate scientific investigation skills (related to both inquiry and research) in the four areas of skills (initiating and planning, performing and recording, analysing and interpreting, and communicating);
2. identify and describe careers related to the fields of science under study, and describe the contributions of scientists, including Canadians, to those fields

B. Organic Chemistry

1. assess the social and environmental impact of organic compounds used in everyday life, and propose a course of action to reduce the use of compounds that are harmful to human health and the environment;
2. investigate organic compounds and organic chemical reactions, and use various methods to represent the compounds;
3. demonstrate an understanding of the structure, properties, and chemical behaviour of compounds within each class of organic compounds.

C. Structure and Properties of Matter

1. assess the benefits to society and evaluate the environmental impact of products and technologies that apply principles related to the structure and properties of matter;
2. investigate the molecular shapes and physical properties of various types of matter;
3. demonstrate an understanding of atomic structure and chemical bonding, and how they relate to the physical properties of ionic, molecular, covalent network, and metallic substances.

D. Energy Changes and Rates of Reaction

1. analyse technologies and chemical processes that are based on energy changes, and evaluate them in terms of their efficiency and their effects on the environment;
2. investigate and analyse energy changes and rates of reaction in physical and chemical processes, and solve related problems;
3. demonstrate an understanding of energy changes and rates of reaction

E. Chemical Systems and Equilibrium

1. analyse chemical equilibrium processes, and assess their impact on biological, biochemical, and technological systems;
2. investigate the qualitative and quantitative nature of chemical systems at equilibrium, and solve related problems;

3. demonstrate an understanding of the concept of dynamic equilibrium and the variables that cause shifts in the equilibrium of chemical systems.

F. Electrochemistry

1. analyse technologies and processes relating to electrochemistry, and their implications for society, health and safety, and the environment;
2. investigate oxidation-reduction reactions using a galvanic cell, and analyse electrochemical reactions in qualitative and quantitative terms;
3. demonstrate an understanding of the principles of oxidation-reduction reactions and the many practical applications of electrochemistry.

Prerequisite: SCH 3U; Grade 11 University Chemistry

students who achieved at least 70% can be confident they are well prepared for SCH 4U

Text: Chemistry 12, van Kessel, et. al. Replacement cost: \$100.

EVALUATION

Assessment and Evaluation will be based on the provincial curriculum expectations. Level 3 represents the provincial standard for achievement of the expectations (70-79%). Level 1 identifies achievement that falls much below the provincial standard while still reflecting a passing grade (50-59%). Level 2 identifies achievement that approaches the standard (60- 69%). Level 4 identifies achievement that surpasses the standard (80-100%).

The weighting of the final mark is as follows:

COURSE WORK

Tests, investigations, assignments

70%

FINAL EVALUATION

Summative, Exam

30%