



# FOREST HILL CI

## SCH4U GRADE 12 UNIVERSITY CHEMISTRY COURSE OUTLINE

PREREQUISITE: GRADE 11 CHEMISTRY (SCH3U)

### Resources

Teacher: Mr. Naylor  
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**Textbook:** The grade 12 Chemistry textbook is "Chemistry 12" by Nelson. The replacement cost of the textbook is \$80.

### Tools for Success/Learning Skills

Responsibility	<ul style="list-style-type: none"><li>Understand and follow this course outline and the policies outlined in the <b>Student Agenda</b>.</li><li>Arrive on time</li><li>Come prepared to work with all necessary tools</li></ul>
Organization	<ul style="list-style-type: none"><li>Keep an organized notebook</li><li>Keep an organized calendar of important dates</li></ul>
Independent Work	<ul style="list-style-type: none"><li>Stay on task</li><li>Avoid disrupting the learning of others.</li><li>Do homework regularly and complete all assigned work</li><li>Review/study the work often</li></ul>
Collaboration	<ul style="list-style-type: none"><li>Be a responsible group member.</li><li>Help your peers succeed by sharing ideas, tutoring and studying together</li><li>Prepare for labs as a team with a focus on each other's safety</li></ul>
Initiative	<ul style="list-style-type: none"><li>Be active participants in the classroom</li><li>Ask questions when unsure of the material &amp; seek extra help when needed.</li><li>Ensure that you get any missed handouts and catch up on missed work</li></ul>
Self-Regulation	<ul style="list-style-type: none"><li>Set goals and make good choices regarding academic success.</li><li>Respect yourself, classmates and teachers.</li></ul>

#### Academic Honesty: Cheating and Plagiarism

Students are expected to submit only their own original work on evaluations done in class or out of class. Plagiarism is the passing off the ideas or writings of another as one's own. Cases of academic dishonesty (cheating and/or plagiarism) will be dealt with on a case-by-case basis, but each case will involve investigation, communication with the student and his/her parent/guardian, and a mark of zero for plagiarized work. Whether the student has an opportunity to demonstrate his/her learning in another assignment will be at the discretion of the teacher and/or Principal.

### Assessment and Evaluation

The primary purpose of assessment and evaluation is to improve student learning. Assessment can take on one of three forms (described below). See page 31 of *Growing Success* for a detailed description of assessment.

Diagnostic	Assessment <b>FOR</b> learning determines how learning should proceed at the beginning of a unit.
Formative	Assessment <b>AS</b> learning provides feedback for a student to determine where improvement is needed. An example of this is homework.
Summative	Assessment <b>OF</b> learning evaluates what a student has learned at the conclusion of a unit/course. An example of this is a test or exam.

Evaluation of student achievement will be defined by four broad **Achievement Categories** (described below). The category weighting for semester work is shown.

Semester Work		70%
Knowledge & Understanding	Specific content acquired in the course and the comprehension of its meaning and significance.	30%
Thinking & Investigation	The use of critical and creative thinking skills and inquiry, research, and problem-solving skills.	30%
Communication	The conveying of meaning through various forms.	20%
Application	The use of knowledge and skills to make connections within and between various contexts.	20%
Final Exam		30%

#### Academic Integrity: Missed Classes, Evaluations and Assignments

It is the **responsibility of the student** to notify **all** appropriate parties (teachers, office, coach, etc) **in advance** where appropriate and in compliance with school policies and procedures as per student agenda if the student will be absent. This allows for both the student and teacher to make alternative arrangements regarding missed assignments or evaluations. In the event that advance notice is not possible, students should seek out the teacher first thing (before school) with the appropriate documentation (e.g. Doctor's note, photocopied note from the office) in order to ensure that they have the opportunity to make-up the missed evaluation/assignment and course work.

# Overall Course Expectations

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Specific expectations can be found at the Ministry of Education's Website:

<http://www.edu.gov.on.ca/eng/curriculum/secondary/science.html>

## A. SCIENTIFIC INVESTIGATION SKILLS AND CAREER

### EXPLORATION

Throughout this course, students will:

- demonstrate scientific investigation skills (related to both inquiry and research) in the four areas of skills (initiating and planning, performing and recording, analyzing 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.

## B. ORGANIC CHEMISTRY

- Organic compounds have predictable chemical and physical properties determined by their respective structures.
- Organic chemical reactions and their applications have significant implications for society, human health and the environment.

By the end of this course, students will:

- 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;
- investigate organic compounds and organic chemical reactions, and use various methods to represent the compounds;
- demonstrate an understanding of the structure, properties, and chemical behaviour of compounds within each class of organic compounds.

## C. STRUCTURE AND PROPERTIES OF MATTER

- The nature of the attractive forces that exist between particles in a substance determines the properties and limits the uses of that substance.
- Technological devices that are based on the principles of atomic and molecular structures can have societal benefits and costs.

By the end of this course, students will:

- 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;
- investigate the molecular shapes and physical properties of various types of matter;
- 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

- Energy changes and rates of chemical reactions can be described quantitatively.
- Efficiency of chemical reactions can be improved by applying optimal conditions.
- Technologies that transform energy can have societal and environmental costs and benefits.

By the end of this course, students will:

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

## E. CHEMICAL SYSTEMS AND EQUILIBRIUM

- Chemical systems are dynamic and respond to changing conditions in predictable ways.
- Applications of chemical systems at equilibrium have significant implications for nature and industry.

By the end of this course, students will:

- analyze chemical equilibrium processes, and assess their impact on biological, biochemical, and technological systems;
- Investigate the qualitative and quantitative nature of chemical systems at equilibrium, and solve related problems;
- demonstrate an understanding of the concept of dynamic equilibrium and the variables that cause shifts in the equilibrium of chemical systems.

## F. ELECTROCHEMISTRY

- Oxidation and reduction are paired chemical reactions in which electrons are transferred from one substance to another in a predictable way.
- The control and applications of oxidation and reduction reactions have significant implications for industry, health and safety, and the environment.

By the end of this course, students will:

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