



## CHEMISTRY 12 UNIVERSITY



<b>COURSE NAME</b>	Chemistry	<b>GRADE</b>	12
<b>COURSE CODE</b>	SCH4U	<b>CREDIT VALUE</b>	1.0
<b>TEACHER</b>	Haidle	<b>DEPARTMENT</b>	Science
<b>PREREQUISITE</b>	SCH 3U		

### COURSE DESCRIPTION:

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.

### UNITS OF STUDY:

1. Organic Chemistry
2. Structure and Properties of Matter
3. Energy Changes and Rates of Reaction
4. Chemical Systems and Equilibrium
5. Electrochemistry

### COMMUNICATION

Please direct all questions or concerns regarding student progress or program of study to the course teacher. Please call the main office to leave a message at 416-395-3240.

### CONCRETE LEARNING RESOURCES

Nelson Chemistry 12 (Replacement Cost: \$120)

### DIGITAL LEARNING RESOURCES

My School Day App - An app that allows you to stay up-to-date with in-class tasks and receive reminders about upcoming evaluations.

Apps such as Kahn Academy or Ed Puzzle, etc.

### GEORGE S. HENRY ACADEMY'S COURSE WORK POLICY

For each evaluation, the teacher will inform students of the **due date** and the **ultimate deadline**. The ultimate deadline is the last opportunity for students to submit an assignment for evaluation. Teachers may also use a variety of other methods for dealing with late and missed assignments at their discretion.

#### Strategies to assist students in meeting deadlines include:

- Peer tutoring
- Using the school app
- Using a personal agenda

- Seeking extra help from teachers
- Requesting for assistance with time management and organizational skills
- Getting help from parents/guardians
- Getting help from a caring adult in the school

## ASSESSMENT AND EVALUATION OF STUDENT ACHIEVEMENT

Each course follows an achievement chart which enables teachers to make judgements about student work that are based on clear performance standards and on a body of evidence collected over time. Additional information can be found on the Ministry of Education website noted within the course description.

## ACHIEVEMENT CHART CATEGORIES

**Knowledge and Understanding (K & U):** Subject-specific content acquired in each course (knowledge), and the comprehension of its meaning and significance (understanding)

**Thinking (T):** The use of critical and creative thinking skills and/or processes

**Communication (C):** The conveying of meaning through various forms

**Application (A):** The use of knowledge and skills to make connections within and between various contexts

## COURSE WORK (70% of your overall grade)

Categories	%	Possible Assessments of Learning
K & U	30%	<ul style="list-style-type: none"> <li>• knowledge of content (e.g., facts, terminology, definitions, safe use of equipment and materials)</li> <li>• understanding of content (e.g., concepts, ideas, theories, principles, procedures, processes)</li> </ul>
T	20%	<ul style="list-style-type: none"> <li>• use of initiating and planning skills and strategies (e.g., formulating questions, identifying the problem, developing hypotheses, selecting strategies and resources, developing plans)</li> <li>• use of processing skills and strategies (e.g., performing and recording, gathering evidence and data, observing, manipulating materials and using equipment safely, solving equations, proving)</li> <li>• use of critical/creative thinking processes, skills, and strategies (e.g., analysing, interpreting, problem solving, evaluating, forming and justifying conclusions on the basis of evidence)</li> </ul>
C	20%	<ul style="list-style-type: none"> <li>• expression and organization of ideas and information (e.g., clear expression, logical organization) in oral, visual, and/or written forms (e.g., diagrams, models)</li> <li>• communication for different audiences (e.g., peers, adults) and purposes (e.g., to inform, to persuade) in oral, visual, and/or written forms</li> <li>• use of conventions, vocabulary, and terminology of the discipline in oral, visual, and written forms (e.g., symbols, formulae, scientific notation, SI units)</li> </ul>
A	30%	<ul style="list-style-type: none"> <li>• application of knowledge and skills (e.g., concepts and processes, safe use of equipment, scientific investigation skills) in familiar contexts</li> <li>• transfer of knowledge and skills (e.g., concepts and processes, safe use of equipment, scientific investigation skills) to unfamiliar contexts</li> </ul>

	<ul style="list-style-type: none"> <li>• making connections between science, technology, society, and the environment (e.g., assessing the impact of science on technology, people and other living things, and the environment)</li> <li>• proposing courses of practical action to deal with problems relating to science, technology, society, and the environment</li> </ul>
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FINAL EVALUATION (30% of your overall grade)		
Type	Description	%
Exam	Written and/or Practical Lab Exam	30%

UNITS OF STUDY/COURSE ROAD MAP (subject to change)
<p><b>OVERALL CURRICULUM EXPECTATIONS</b></p> <p>Scientific Investigation Skills and Career Exploration By the end of the course, students will:</p> <ul style="list-style-type: none"> <li>• 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)</li> </ul> <p>Structure and Properties of Matter By the end of this course, students will:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• investigate the molecular shapes and physical properties of various types of matter</li> <li>• 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.</li> </ul> <p>Organic Chemistry By the end of this course, students will:</p> <ul style="list-style-type: none"> <li>• 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;</li> <li>• investigate organic compounds and organic chemical reactions, and use various methods to represent the compounds;</li> <li>• demonstrate an understanding of the structure, properties, and chemical behaviour of compounds within each class of organic compounds.</li> </ul> <p>Energy Changes and Rates of Reaction By the end of this course, students will:</p> <ul style="list-style-type: none"> <li>• 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;</li> <li>• investigate and analyse energy changes and rates of reaction in physical and chemical processes, and solve related problems;</li> <li>• demonstrate an understanding of energy changes and rates of reaction.</li> </ul> <p>Chemical Systems and Equilibrium</p>

By the end of this course, students will:

- analyse 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.

### Electrochemistry

By the end of this course, students will:

- analyse 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 analyse electrochemical reactions in qualitative and quantitative terms;
- demonstrate an understanding of the principles of oxidation-reduction reactions and the many practical applications of electrochemistry.

In this course you will complete several labs and inquiries, in addition to appropriate computer simulations, including:

- ✓ Model a variety of chemical compounds using concrete materials
- ✓ Investigate organic reactions, such as synthesizing esters
- ✓ Calculate enthalpy from experimentally determined conditions
- ✓ Perform Acid-Base titrations and determine  $K_a$  experimentally
- ✓ Construct a galvanic cell and determine potential difference experimentally

## GEORGE S. HENRY ACADEMY'S LATE & MISSED EVALUATION POLICY

It is the responsibility of the student to make arrangements with their teacher for any missed course material and/or assignments. Extenuating circumstances will be considered on a case-by-case basis.

## GEORGE S. HENRY ACADEMY'S ACADEMIC DISHONESTY POLICY

Cheating and plagiarism will not be condoned. For more information, refer to the Academic Honesty Policy found in the Student Handbook. The Student Handbook can be found in the George S. Henry Academy app.

## SPECIALIST HIGH SKILLS MAJOR (SHSM) REQUIREMENTS

GRADE 11 AND 12 CREDITS	ENVIRONMENT	HEALTH & WELLNESS	HOSPITALITY & TOURISM
Major Credits	4	4	4
English ( <i>including a CLA*</i> )	2	1	1
Mathematics ( <i>including a CLA</i> )	1	1	1
Science or Social Sciences and Humanities ( <i>including a CLA</i> ) ( <i>May be substituted with 1 coop credit</i> )	-	1	-

Business Studies or Science <i>(including a CLA) (May be substituted with 1 coop credit)</i>			1
Cooperative Education	2	2	2
<b>TOTAL</b>	<b>9</b>	<b>9</b>	<b>9</b>

\*Contextualized Learning Activity