|  |  | **Course Outline and Evaluation Summary**  **Course Code** | |  |
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|  | Title of Course: Grade 12 University Preparation Chemistry SCH4U1 | 416-395-3210 | |
|  | Department: Science |  | |

| **Course Description** |
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| In this course, students will 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. |

| **Course Evaluation**  Course evaluations incorporate one or more of the achievement categories (KICA). A brief description of each category can be found [here](https://www.dcp.edu.gov.on.ca/en/assessment-evaluation/categories-of-knowledge-and-skills). The final grade is calculated using the weighted percentages below. | | | | | |
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| **Term Work:** | **A variety of tasks where you show your learning and have marks assigned using the Achievement Categories/Strands** | | **Summative**  **Evaluation:** | **Marked summative tasks which assess your learning on the entire course** | |
| 70% | 20 % | Knowledge & Understanding | 30% | 15% | Summative project |
| 25 % | Thinking & Inquiry |
| 10 % | Application | 15% | Final Exam |
| 15 % | Communication |

| **Learning Skills** |
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| Learning skills provide Information to help students understand what skills, habits & behaviors are needed to work on to be successful. These are not connected with any numerical mark. A brief description of each skill can be found [here](http://www.edu.gov.on.ca/eng/policyfunding/growsuccess.pdf#page=17).  **Responsibility, Organization, Independent Work, Collaboration, Initiative and Self-Regulation**  E – Excellent G – Good S – Satisfactory N – Needs Improvement |

| **Required Materials:** Any educational resource required for this course will be provided by the school. It is the student’s responsibility to come to class with these materials. |
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| **School/Departmental/Classroom Expectations** |
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| **Attendance:** The student is expected to attend class on time. Parents/guardians will be contacted if lates/attendance becomes an issue/hindrance. If the student knows about an absence in advance, they should contact the teacher.  **Plagiarism/Cheating:** A mark of 0 will be assigned for any work submitted that does not belong to the student. A mark of 0 will be assigned to a student who was found to have cheated. Parents/guardians will be informed.  **Missed Work:** If a student is absent from class, (e.g. illness, sports team) it is **their** responsibility to find out what they have missed and to catch up. The student is responsible for completing all of the work that was missed due to an absence. If a student misses an assignment or test without a legitimate explanation and documentation, marks up to and including the full value of the evaluation may be deducted. Make-up tests must be arranged to be written.  **Late Work:** Late work may result in a deduction of marks up to and including the full value of the evaluation. |

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| **Course Assessment Tasks** | | | |
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| ***Unit/Topic/Strand*** | ***Big Ideas*** | ***Major Assignments / Evaluations*** | ***Estimated Duration*** |
| Unit 1:  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. | Organic chemistry lab  Uses of organic chemicals  Quiz  Unit test | 24 hours |
| Unit 2:  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 | VSEPR lab  Quiz  Unit test | 24 hours |
| Unit 3:  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. | Hess Law lab  Rates design a lab  Quiz  Unit test | 24 hours |
| Unit 4:  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. | Equilibrium lab (spectrophotometer)  Equilibrium titration lab (Ka or Ksp)  Quiz  Unit test | 24 hours |
| Unit 5:  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. | Quiz | 10  hours |
| Culminating Task(s) | Summative Project (done at home) | Exam | 2 hours |