

Grade 12 Chemistry
University
SCH4U1 (credit value 1.0)

Prerequisite

SCH3U1

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.

Overall Expectations

- ❖ Scientific Investigation Skills and Career Explorations; integrated in every unit

Unit 1: Organic Chemistry

- 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.

Unit 2: Structure and Properties of Matter

- 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.

Unit 3: Energy Changes & Rates of Reaction

- 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;
- investigate and analyse 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.

Unit 4: Chemical Systems and Equilibrium

- 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.

Unit 5: Electrochemistry

- 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.

Course Delivery

Expectations for the course will be addressed through various approaches, including those that emphasize experiential learning, cooperative learning and Socratic learning.

Student Responsibilities

Attendance

Regular attendance is essential for success in this course. After an absence, students are expected to show the teacher a parent note on the day of their return. Please review the school's attendance/absence policy.

Punctuality

On-time arrival is expected as a courtesy to the rest of the class. When a student arrives late, it disrupts the class. Late arrivals will be noted. If they occur regularly, the situation will be discussed with the student and if the situation cannot be remedied, it will be discussed with a parent/guardian and possibly a school administrator.

Completion of Work

Students are responsible for the completion of all work that is missed during an absence. Full credit will be given for this work if it is completed and shown to the teacher during the class following the student's return. It is the student's responsibility to find out what was missed, what was expected and to show the teacher the completed work.

A parent note which explains an absence must be presented to the teacher upon return to class in order to write a makeup test.

Homework

It is expected that homework will be completed regularly. It will be checked periodically and, on occasion, will be graded. If it has not been attempted it will receive a mark of zero.

Classroom Behaviour

Behaviour appropriate to a high school class is expected, including demonstration of respect to self, fellow students and the teacher. Laboratory equipment must be used appropriately.

Extra Help

Learning assistance is available. It is the student's responsibility to review work regularly and to decide when such help is needed. If specific problems cannot be solved in class, then students should make an appointment for extra help. These sessions are only helpful if students come prepared in advance.

Assessment and Evaluation

All work submitted in this course will be assessed and evaluated using the standards set by the Ontario Ministry of Education and the policy of assessment and evaluation as described at the end of this document.

Evaluation Categories/weighting

The evaluation of all achievement demonstrated in this course is based on the following categories and weighting:

- Knowledge and Understanding..... 25%**
Subject-specific content acquired in each course (knowledge), and the comprehension of its meaning and significance (understanding).
- Thinking and Investigation..... 15%**
The use of critical and creative thinking skills and inquiry, research, and problem-solving skills and/or processes.
- Communication..... 15%**
The conveying of meaning through various forms.
- Application..... 15%**
Understanding connections among science, technology, society and environment.
- Final Exam..... 30%**

In each of those categories, achievement will be evaluated as described below.

Level/ Grade	Achievement
Level 4 80 -100%	Very high to outstanding level of achievement. Above provincial standards.
Level 3 70-79%	High level of achievement. At the provincial level.
Level 2 60-69%	Moderate level of achievement. Below, but approaching, the provincial standard
Level 1 50-59%	Passable level of achievement. Below the provincial standard
Below 50%	Insufficient achievement of curriculum expectations. Credit will not be granted.

Educational Resources

Chemistry 12: McGraw Hill

Replacement Cost: \$95.

Bur Oak Secondary School Assessment, Evaluation and Communication Policy

Reporting Achievement

For Grades 9 to 12, a final grade is recorded for every course. A report card grade should reflect the student's most consistent level of achievement, with special consideration given to more recent evidence. To determine a report card grade involves the professional judgement and interpretation of evidence by teachers. The final grade will be determined with 70% of the grade based on evaluation throughout the course and 30% of the grade based on final evaluation at or towards the end of the course throughout the course.

Students are responsible for:	Staff are responsible for:	Parents/Guardians are responsible for:
<ul style="list-style-type: none"> ● Completing a summative evaluation administered. ● Attending all final evaluations (exams, course culminating etc). ● Informing the school immediately if unable to attend due to illness, bereavement or court appearance. 	<ul style="list-style-type: none"> <input type="checkbox"/> In consultation with administration, provide a suitable method of evaluation. <input type="checkbox"/> Administering the final evaluation(s) no earlier than 3-4 weeks before the end of the course. <input type="checkbox"/> Providing feedback after examinations to support improvement of student learning. 	<ul style="list-style-type: none"> <input type="checkbox"/> Continuing to be active participants by working with the teacher, child and school to plan for the student's improvement. <input type="checkbox"/> Planning accordingly: booking vacations, appointments, etc., outside of the examination period.

Submission of Assessments and Evaluations

Students are responsible for providing evidence of their achievement of the overall expectations, both within the timeframe and format specified by the teacher. Please review the information below for details regarding the responsibilities of students, staff and parents with respect to specific assessment guidelines and policies.

Students, staff and parents/guardians are responsible for reviewing the full policy found on the school website/handbook.

Students are responsible for:	Staff are responsible for:	Parents/Guardians are responsible for:
Before an Assessment		
<ul style="list-style-type: none"> ● Taking an active role in determining how they would like to demonstrate their learning. ● In collaboration with the teacher, identify the learning goals and success criteria for assessments. ● Planning for assignments to be completed in stages and to prepare ahead of time to receive feedback from the teacher about their progress. ● Notifying their teacher of difficulty in submitting on time at least 48 hours in advance of the due date to discuss resolution strategies. ● Accessing supports when necessary (peer-tutoring, extra help sessions, Special Education, student success) 	<ul style="list-style-type: none"> ● Collaborating with students, clearly identifying learning goals and success criteria. ● Applying a variety of tools to communicate requirements of in-class assessments to students and parents/guardians. ● Providing a variety of types of assessments that allow students to demonstrate their learning in different ways. ● Encouraging peer to peer support in the classroom. ● Communicating with the parents/guardians. 	<ul style="list-style-type: none"> <input type="checkbox"/> Engaging their child to share what they are learning and what criteria will be used to assess their progress. <input type="checkbox"/> Remaining informed about the various tools that their child can access learning resources and materials from home (ie. Google Classroom, moodle). <input type="checkbox"/> Encouraging their child to share their work and explain how they are using the feedback in class to improve their learning and determine next steps. <input type="checkbox"/> Communicating with the teacher to learn about the student's progress throughout the semester (Parent Interviews, report cards, emails, calls).

During an Assessment		
<ul style="list-style-type: none"> ● Seeking support and learning from their peers and/or teachers ● Pursuing all learning opportunities (peer-editing, conferences, online feedback) leading up to a summative assessment. 	<ul style="list-style-type: none"> <input type="checkbox"/> Providing specific and timely feedback to help students succeed. <input type="checkbox"/> Maintaining timely and ongoing communication with students and/or parents about due dates and late assignments. <input type="checkbox"/> Referring students who regularly have difficulty in completing assignments on time to student services (Student Success, Special Ed, ELL etc). 	<ul style="list-style-type: none"> <input type="checkbox"/> Engaging their child to share what they are learning and what criteria will be used to assess their progress. <input type="checkbox"/> Communicating with the teacher <input type="checkbox"/> Ensuring students plan for major assignments to be completed in stages.
After an Assessment & Timely Submission		
<ul style="list-style-type: none"> ● Submitting assessments/evaluations on the predetermined due date ● Attending the day of an in-class assessment. ● Understanding there are consequences if an assessment is missed or is submitted after the due date. ● Reflecting on their learning and setting individual goals for future success 	<ul style="list-style-type: none"> <input type="checkbox"/> Ensuring late mark deductions on an assessment/evaluation will not result in a midterm or final percentage mark that misrepresents the student's actual achievement. <input type="checkbox"/> Possible assigning a zero for a final evaluation that is missed. <input type="checkbox"/> Recording submissions of late assessments/evaluations in the evaluation of the student's learning skills. 	<ul style="list-style-type: none"> <input type="checkbox"/> Understanding that there are consequences for not completing assignments for evaluation or for submitting those assignments late <input type="checkbox"/> Informing the teacher if there are extenuating circumstances inhibiting the submission of assessment on due date.

Late Assessments & Missing Assessments

In the scenario that student work is submitted late, teachers may keep the following in mind:

- Discuss with student and use professional judgment to address extenuating circumstances and the needs of the student.
- Special Education students and English Language Learners are entitled to extra time on all assessments and any decisions regarding deductions on late submissions for these students should be addressed with the SERT, the Student Success Team, or an administrator.
- If deducting late marks a teacher can deduct up to 3% per day to a maximum of 15%.
- **Please review the full policy found on the school website/handbook.**

Academic Honesty

Bur Oak students are expected to think independently and honestly. It is in the best interest of each student to build habits which contribute to genuine academic, personal and social growth. True learning in an intellectually stimulating environment is enhanced when students consistently demonstrate respect for the intellectual property rights of others. Whether intentional or through ignorance of the rules, acts of academic dishonesty can lead to severe consequences for students.

Instances of suspected cheating or plagiarism:

Students are responsible for:	Staff are responsible for:	Parents/Guardians are responsible for:
<ul style="list-style-type: none"> • Understanding there are consequences for submitting assessments that are plagiarized or with instances of cheating. • Demonstrating that the work is their own. 	<ul style="list-style-type: none"> • Dealing with incidences of cheating and/or plagiarism on a case-by-case basis. • In collaboration with administration will use professional judgement to use any of the following steps/consequences: <ul style="list-style-type: none"> • the teacher will interview the student regarding the incident; • parents or legal guardians will be contacted; the department head and administrator will be informed; • oral and/or written warning or reprimand; • a make-up assignment or rewrite may be given; • a deduction in marks, a failing grade or mark of zero may be assigned; and/or suspension. 	<ul style="list-style-type: none"> • Understanding there are consequences for submitting assessments that are plagiarized or with instances of cheating.

