FLEMING

Course Outline

Course Title:	Chemistry for College Health Science I		
Course Number:	SCIE150	**Approval Date:**	2025/6/4
Course Hours:	45 hours	**Academic Year:**	2025
Academic School:	School of General Arts & Sciences		
Program Co-ordinator or Equivalent:	Susan Hyndman - susan.hyndman@flemingcollege.ca		
Dean (or Chair):	Emily Root - Emily.Root@flemingcollege.ca		

Course Description

This introductory chemistry course will prepare students for further study and future employment in the health science field. Students will have an opportunity to gain knowledge and understanding of the basic principles of chemistry as they study matter, energy, chemical reactions and how these topics relate to the health sciences. The applied laboratory component of the course will allow students to deepen their understanding of theoretical concepts using scientific investigation. Successful completion of this course will prepare students to continue on to the more comprehensive chemistry course offered in the second semester.

Prerequisites: None.

Corequisites: None.

Course Delivery Type

Face to face.

All course hours are delivered in person at the delivery location specified on the academic timetable.

Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Select and use appropriate numeric, symbolic, graphical, and linguistic modes of representation to clearly communicate scientific ideas and experimental results.
2. Perform scientific experiments based on an understanding of chemical principles and lab safety protocol.
3. Express the results of calculations with appropriate significant figures and units.
4. Determine proper measurement techniques for precise and accurate collection of quantitative data

5. Discuss fundamental concepts of matter and energy and perform associated calculations such as density, specific heat and average atomic mass.
6. Apply fundamental knowledge of the periodic table to discuss periodic trends and describe the chemical and physical properties of elements and compounds
7. Use IUPAC nomenclature to write names and formulas of chemical compounds
8. Apply knowledge of reaction types to predict products of a reaction, describe the nature of a balanced chemical equation and perform calculations using a balanced chemical equation
9. Calculate chemical quantities and associated percents by using knowledge of unit conversions and the quantitative relationships in chemical reactions, including the mole concept
10. Describe the relationship between chemistry and the health of the human body

Learning Resources

- IT Support¿s **minimum computer requirements & reliable Internet**.
- **D2L Course Page:** The course page on Desire 2 Learn (D2L) will contain the notes, announcements and all other other course materials. It is the main method of communication for this course. **You should visit the course page at least 3 times/week, so you do not miss important information or due dates.**

- **Textbook (Open Source):** Ball, D. and J. Key. (2014). *Introductory Chemistry ¿ 1st Canadian Edition*. Victoria, B.C.: BCcampus. Retrieved from https://opentextbc.ca/introductorychemistry.This is a FREE resource available through the provided link. You may also download it digitally or for printing.

Other Course Items:

- Scientific Calculator (*from your Math course*)
- Lab coat & safety glasses or goggles (details will be provided in lab)
- **Required Certification:** To ensure laboratory safety and awareness, it is mandatory that all Pre-Health students complete Workplace Hazardous Materials Information System (WHMIS) training through our provider, YOW Canada, prior to using our laboratory facilities. Instructions will be provided during your class.

Other Learning Technologies:

- **Additional software** (Microsoft Office 365, Respondus, etc.) is also available to Fleming students: https://department.flemingcollege.ca/its/important-info/ to complete coursework.
- You will need a way to complete your work and **submit handwritten work electronically.** Options include: completing work electronically (e.g. with a stylus in a Word document) or completing work on paper and taking a picture/scanning with a mobile device. Support for this will be provided as needed.
- It is helpful, but not necessary, for you to have a **printer.**

Costs for learning resources can be found on the Campus Store website, using the links below, or by visiting the Campus Store location at your campus.

- Sutherland: https://www.bkstr.com/sfleming-sutherlandstore/home
- Frost: https://www.bkstr.com/sfleming-froststore/home

Assessment Summary

Assessment Task	Percentage
Labs	16%
Quizzes	14%
Assignments	20%
Tests	50%

Student Success: Policies and Procedures

Mutually, faculty and learners will support and adhere to college Academic Regulations, and Student Rights and Responsibilities. The following policies and guidelines have been developed to support the learning process.

Please click on the link for information about:

- Academic Integrity (2-201A) (https://department.flemingcollege.ca/hr/attachment/7750/download)
- Accessibility for Persons with Disabilities (3-341) (https://department.flemingcollege.ca/hr/attachment/5619/download)
- Grading and Academic Standing (2-201C) (https://department.flemingcollege.ca/hr/attachment/7752/download)
- Guidelines for Professional Practice: Students and Faculty (https://flemingcollege.ca/PDF/guidelines-for-professional-practice-students-faculty.pdf)
- Student Rights and Responsibilities (5-506) (https://department.flemingcollege.ca/hr/attachment/269/download)

If you will need academic accommodations (for example if you have a learning disability, mental health condition such as anxiety or depression or if you had an IEP in high school), please contact the Accessible Education Services (AES) department (https://department.flemingcollege.ca/aes/) to meet with a counsellor.

Alternate accessible formats of learning resources and materials will be provided, on request.

Program Standards

The **Ministry of Colleges and Universities** oversees the development and the review of standards for programs of instruction. The **Ministry of Labour Training and Skills Development** oversees the development and the review of standards for programs of instruction for Apprenticeship training in the province of Ontario. Each college is required to ensure that its programs and program delivery are consistent with these standards, and must assist students to achieve these essential outcomes.

This course contributes to Program Standards as defined by the Ministry of Colleges and Universities (MCU). Program standards apply to all similar programs of instruction offered by colleges across the province. Each

program standard for a postsecondary program includes the following elements:

- **Vocational standards** (the vocationally specific learning outcomes which apply to the program of instruction in question);
- **Essential employability skills** (the essential employability skills learning outcomes which apply to all programs of instruction); and
- **General education requirement** (the requirement for general education in postsecondary programs of instruction that contribute to the development of citizens who are conscious of the diversity, complexity and richness of the human experience; and, the society in which they live and work).

Collectively, these elements outline the essential skills and knowledge that a student must reliably demonstrate in order to graduate from the program. For further information on the standards for your program, follow the MCU link (www.tcu.gov.on.ca/pepg/audiences/colleges/progstan/).

Detail Plan

Term:	2025 Fall
Program Co-ordinator or Equivalent:	Susan Hyndman - susan.hyndman@flemingcollege.ca
Dean (or Chair):	Emily Root - Emily.Root@flemingcollege.ca
Academic Planning and Operations Department:	Gwyneth Huggins - gwyneth.huggins@flemingcollege.ca

Learning Plan

Wks/Hrs Units	Topics, Resources, Learning, Activities	Learning Outcomes	Assessment
Introduction to Course & Scientific Method ~6 hours	Course Overview & Expectations Scientific Method & Observations	1-4	D2L Lab Safety Quiz, WHMIS Certification Lab 1 Pre-Lab & Lab Report
Matter and the Periodic Table ~15 hours	**Topic 1:** Properties of Matter; Density & Temperature **Topic 2:** Atoms & Elements **Topic 3:** Periodic Trends	1-3, 5, 6	Homework 1-3 Lab 2 & 3 Pre-Lab & Lab Report Assignment 1 Midterm

Wks/Hrs Units	Topics, Resources, Learning, Activities	Learning Outcomes	Assessment
Bonding & Reactions ~21 hours	**Topic 1:** Nomenclature **Topic 2:** The Mole and Molar Mass **Topic 3:** Types of Reactions & Balancing Equations **Topic 4:** Energy & Calorimetry	1-10	Homework 4-7 Lab 4 & 5 Pre-Lab & Lab Report Assignments 2 & 3 Tutorial 1 Final Exam

Assessment Requirements

Assessment Task	Date/Weeks	Course Learning Outcome	Percentage
D2L Lab Safety Quiz & WHMIS Certification: After reviewing the lab safety information in your first class, you will complete a Lab Safety Quiz on D2L. The D2L Safety Quiz and WHMIS Certification both need to be completed by the due dates stated in class	See D2L for details	2	N/A
Pre-Lab Quizzes (4 @ 2% each) & Lab Reports (4 @ 2% each) for labs 2-5: Print out and read through the entire Lab Handout posted on D2L. Complete the pre-lab quiz before the due date indicated on your section calendar. These are completed individually on D2L. You will have a single attempt with a 60 minute time limit. The lab reports are submitted (1 report per group) by the due date stated. Lab reports are submitted electronically via Gradescope. All group members will receive the same grade on the lab report. Lab 1 is submitted for feedback only.	Ongoing Throughout Course	All	16%
Assignments (3 @ 5% each) & Tutorial (1 @ 5%): Assignments 1 & 3 will provide review before the midterm and exam. Assignment 2 will cover nomenclature. Tutorial 1 will cover types of reactions. Details about due dates, permitted resources and individual/group work will provided with each assignment/tutorial.	Ongoing Throughout Course	All	20%
Exams: Details about each exam and any resources that will be allowed and/or provided will be posted to D2L at least one week before the exam date. The midterm and final exam are each worth 25% of your final grade.	Specific Days/Times See Course Calendar	All	50%

Assessment Task	Date/Weeks	Course Learning Outcome	Percentage
Homework (7 @ 2% each) Homework for each topic will be completed on D2L. See your course calendar for due dates. Homework questions may be re-attempted multiple times before the due date. Your highest grade will be recorded.	Ongoing Throughout Course	All	14%

A detailed schedule of the timing of assessments will be provided in the first week of classes. **In order to meet the needs of the student group, the course schedule may change. Any changes will be discussed with the class and a revised learning sequence will be posted.**

Unless otherwise specified, **ALL WORK submitted for assessment must be your own INDEPENDENT WORK**. Breaches of Academic Integrity will be reported as outlined in the College's Academic Integrity policy: https://department.flemingcollege.ca/academic-integrity/.

Some assessments will be submitted electronically allow for detailed feedback and grading. Details will be posted to the course page early in the semester. Students may be required to scan their work (using a phone, scanner, etc.) in order to submit electronically.

Exemption Contact

Information about the Transfer Credit process can be accessed through your myCampus Portal under the Registrar's Office and Resources Tabs or by contacting the Transfer Credit Coordinator, (transfercredit@flemingcollege.ca) in the Registrar's Office.

Prior Learning and Assessment and Recognition (PLAR)

PLAR uses tools to help learners reflect on, identify, articulate, and demonstrate past learning which has been acquired through study, work and other life experiences and which is not recognized through formal transfer of credit mechanisms. PLAR options include authentic assessment activities designed by faculty that may include challenge exams, portfolio presentations, interviews, and written assignments. Learners may also be encouraged and supported to design an individual documentation package that would meet the learning requirements of the course. Any student who wishes to have any prior learning acquired through life and work experience assessed, so as to translate it into a college credit, may initiate the process by applying through the Registrar's office. For more information please click on the following link: http://flemingcollege.ca/admissions/prior-learning-assessment-and-recognition

Course Specific Policies and Procedures

It is the responsibility of the student to retain this course outline for future reference. Course outlines may be required to support applications for advanced standing and credit transfer to other educational institutions, portfolio

development, PLAR and accreditation with professional associations.

Synchronous sessions may be recorded. As a result, your image, voice, name, personal views and opinions, and course work may be collected under legal authority of section 2 of the Ontario Colleges of Applied Arts and Technology Act, 2002. This information will be used for the purpose of supporting student learning. Any questions about this collection can be directed to the Privacy and Policy Officer at freedomofinformation@flemingcollege.ca or by mail to 599 Brealey Drive, Peterborough, ON K9J 7B1.

All course materials and news items are found on the Brightspace (D2L) course page. It is expected that students are **checking the course page and their Fleming College email a minimum of three times per week**.

Your professor may also contact you using your Fleming College email account. When emailing your professor, please use your Fleming College email account. Messages sent from other email addresses may not be received.

Academic Assistance: Students are encouraged to discuss academic concerns, learning needs and challenges with their instructor as soon as possible. Students are also encouraged to meet with Accessible Education Services (AES) staff to determine which services are available to assist students with learning needs. Find details at https://flemingcollege.ca/student-experience/accessible-education-services

If you are experiencing difficulties in any course, Fleming College has many services available to help you, including:

- **Help from your Instructor**. If you have a question or concern, email to arrange a meeting or drop into office hours.
- **Tutoring and Academic Skills.** Available for online tutoring, assistance from Learning Strategists and Drop-In help (through WebEx). For more information, see https://flemingcollege.ca/student-experience/tutoring-and-learning-skills

Due Dates/Missed Assessments: Refer to the Class Absence Operating Policy 2-205.

Unapproved missed tests, quizzes, assignments or other assessments will be given a grade of ZERO. Students are required to follow course norms for submission requirements; alternate forms of submission will not be accepted. In the event of illness or other emergencies which prohibit the student from completing or submitting an assessment on time, alternate arrangements may be provided as per the Class Absence Operating Procedure. **Documentation may be required**. It is the responsibility of the student to communicate with faculty about any missed assessments in a timely manner (ideally, before missing it).

Academic Integrity: The principle of academic honesty requires that all work submitted for evaluation and course credit be the original, unassisted work of the student. Cheating, including sharing resources or information about quizzes/tests, copying, purchasing or collaborating on work, except for group projects arranged and approved by the faculty member, or otherwise submitting work that is not the student's own violates this principle and will result in initiation of the College¿s Academic Integrity Policy (Operating Procedure #2-201A). Full details of the policy, procedure, violation types and forms can be found at: https://department.flemingcollege.ca/academic-integrity/.

Final Grades: Final grades in this course are assigned based on the level of academic achievement which corresponds to the assessment components as cited in this course outline. Faculty members will not offer additional

evaluation activities beyond those cited in this course outline.

The teaching staff reserves the right to modify the course sequence to better meet the needs of the student group and to facilitate student learning.

Your success in this course will be directly related to your study and practice of course material.

Calculators: Students must have an appropriate calculator for their course. Students are responsible for knowing how to use their calculator independently on assessments.

Laboratory Guidelines: Additional complete, comprehensive information about lab safety & protocol will be provided in class.

- Students must attend their designated lab session **ON TIME**.
- All students **MUST** complete mandatory WHMIS training. Failure to complete the training by the assigned due date will lead to removal from the lab until the training is complete. If the instructor feels it is unsafe for the student to proceed with the experiment at any time, the student must leave the lab and no make-up opportunity will be given.
- Proper attire, such as close-toed shoes, high socks, long pants (**no bare/visible skin below the waist**) **MUST** be worn in the lab space **AT ALL TIMES**. **NO food or drink** is permitted in the lab space, and **cellphones** should be put on silent and packed away. **These rules apply regardless of the activity**.
- Proper PPE (**safety glasses, lab coat**) **MUST** be worn during all experiments. Limited rentals may be available for a cost on occasion, but frequent forgetfulness will require a meeting to discuss lab safety.
- All lab spaces **MUST** be kept clean, tidy, and safe: materials, chemicals stored or disposed of properly