Fleming College

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Course Outline

Course Title:	Chemistry for College Health Science I		
Course Number:	SCIE150	**Approval Date:**	2018/8/27
Course Hours:	45 hours	**Academic Year:**	2018
Academic School:	School of General Arts & Sciences		
Faculty:	Heather Cuthbert - Heather.Cuthbert@flemingcollege.ca Ben Warnock - Ben.Warnock@flemingcollege.ca		
Program Co-ordinator or Equivalent:	Susan Hyndman - susan.hyndman@flemingcollege.ca		
Dean (or Chair):	Sandra Dupret - sandra.dupret@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.

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

Textbook:

Timberlake, K. and Timberlake, W., **Basic Chemistry 5/E**. Pearson Education Ltd., Toronto; 2017
ISBN-13: 978-0-134-13804-6

Note: The text is packaged at the bookstore with a Study Guide and Selected Solutions Manual.

Lab Workbook:

The SCIE 150 Lab Workbook is available for purchase at the Fleming Bookstore

Course Page:

The course page on Desire 2 Learn (D2L) will contain the notes for the course, announcements, online quizzes, and all other course materials. It is **expected that you will print the lecture notes and bring them with you to class**. You are expected to check the course page regularly (minimum of 3 times per week) to stay current with course information and assessments.

Other Items (available for purchase at the bookstore):

Lab Coat
Safety Glasses
Scientific Calculator

Assessment Summary

Assessment Task	Percentage
In-class activities	6%
Labs	34%

Assessment Task	Percentage
Assignments	15%
Tests	45%

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)

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

Program Standards

The Ministry of Training, Colleges and Universities oversees the development and the review of standards for programs of instruction. 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 Training, Colleges and Universities (MTCU). 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 MTCU link (www.tcu.gov.on.ca/pepg/audiences/colleges/progstan/)

Detail Plan

Term:	2018 Fall
Faculty:	Ben Warnock - Ben.Warnock@flemingcollege.ca Heather Cuthbert - Heather.Cuthbert@flemingcollege.ca
Program Co-ordinator or Equivalent:	Susan Hyndman - susan.hyndman@flemingcollege.ca
Dean (or Chair):	Sandra Dupret - sandra.dupret@flemingcollege.ca
Academic Planning and Operations Department:	Cristina Sad - Cristina.Sad@flemingcollege.ca

Learning Plan

Wks/Hrs Units	Topics, Resources, Learning, Activities	Learning Outcomes	Assessment
Week 1	LECTURE/LAB: Course Overview and Expectations, Lab Safety	1, 2	Online Lab Safety Quiz
Week 2	LECTURE: Properties of Matter; Density & Temperature LAB: Workbook Part 1 Scientific Method & Observation Challenge	1, 2, 3, 4, 5	D2L Homework 1
Week 3	LECTURE: Atoms & Elements LAB: Workbook Part 2 Density & Energy Transfer	1, 2, 3, 4, 6, 10	Lab Workbook D2L Homework 2
Week 4	LECTURE: Periodic Trends LAB: Tutorial 1	1-4, 6, 10	Tutorial 1 D2L Homework 3
Week 5	LECTURE: Nomenclature LAB: Workbook Part 3 Periodic Trends	1-4, 7	Lab Workbook D2L Homework 4

Wks/Hrs Units	Topics, Resources, Learning, Activities	Learning Outcomes	Assessment
Week 6	LECTURE: Nomenclature continued LAB: Tutorial 2 Testing Centre (schedule will be posted): **Lab Quiz 1**	1-4, 7	Tutorial 2 Lab Quiz 1
Week 7	LECTURE: Review LAB: **Midterm TEST**	1-7, 10	D2L Homework 5 Midterm (15%)
Week 8	INDEPENDENT STUDY WEEK Nomenclature Practice Test becomes available on D2L	7	
Week 9	LECTURE: Conversion Factors LAB: Workbook Part 4 Measurement & Significant Figures	1-4, 9	Lab Workbook D2L Homework 5 Online Nomenclature Practice Test
Week 10	LECTURE: The Mole LAB: **Nomenclature TEST** and Group Case Study	1-4, 8, 9, 10	Nomenclature Test Group Case Study D2L Homework 6
Week 11	LECTURE: Percent Composition LAB: Workbook Part 5 Percent Composition	1-4, 8, 9, 10	Lab Workbook D2L Homework 7
Week 12	LECTURE: Chemical Reactions LAB: Full Lab Report #1 Types of Reactions	1-4, 8, 9, 10	Full Lab Report 1 D2L Homework 8
Week 13	LECTURE: Chemical Reactions continued LAB: Tutorial 3 Testing Centre (schedule will be posted): **Lab Quiz 2**	1-4, 8, 9, 10	Tutorial 3 Lab Quiz 2
Week 14	LECTURE: Energy & Calorimetry LAB: Full Lab Report #2 Food Calorimetry	1-5, 10	Full Lab Report 2 D2L Homework 9 & 10

Wks/Hrs Units	Topics, Resources, Learning, Activities	Learning Outcomes	Assessment
Week 15	LECTURE: Review LAB: **Final Exam**	1-10	Final Exam (20%)

Assessment Requirements

Assessment Task	Date/Weeks	Course Learning Outcome	Percentage
Lab Safety Quiz: After reviewing lab safety information in class and on D2L, you will complete a Lab Safety Quiz on D2L. You will not be allowed to begin laboratory work until the quiz is completed. (check posted schedule for exact dates of availability) This grade also includes working safely in the lab, wearing proper attire and PPE and keeping the lab clean and neat throughout the semester.	Week 1; Ongoing	2	2%
Lab Workbook: You will purchase a copy of the Lab Workbook at the Bookstore. Completion of the Lab Discussion notes and Lab Write-Up will be graded based on the rubric given. The entire Lab Report Workbook will be submitted at the end of the lab time. Completion of each Part of the workbook is worth 3% of your final grade.	Lab time in Weeks 3, 5, 9, 11 (Submission in week 2 is for feedback only)	All	12%
Group Case Study: You will complete a group case study during your lab time in week 10. <u>One completed case study will be submitted per group.</u> More details will be provided in class.	Lab time in Week 10	1-4, 9	2%
Full Lab Reports: Print off the lab handout before lab time. You will complete the lab experiment and full lab report during the lab time. Your full report will be submitted by the end of lab. <u>Although experimental data will often be shared, students are expected to complete their full lab report individually.</u>	Lab time in Weeks 12 and 14	1-5, 7, 8	8%
Lab Quizzes: Quizzes on lab materials (e.g. writing/reading lab reports, lab results and calculations, lab techniques and safety) will be completed in the Testing Centre. Information on the test content & schedule will be posted to D2L.	Weeks 6 and 13	All	10%

Assessment Task	Date/Weeks	Course Learning Outcome	Percentage
Online Nomenclature Practice Test: This practice test is open book and completed on D2L. It will be available starting in week 8 and due in Week 9. (check posted schedule for exact dates of availability). You are allowed unlimited attempts while this is open to practice.	Week 9	7	2%
Tests: Tests will be completed in your lab time. The Midterm Test (15%) and Final Exam (20%) are cumulative. The Week 10 Test focuses on Nomenclature (8%). Test information and practice test/solutions will be posted prior to each test.	Lab time in Weeks 7, 10, and 15	All	43%
Tutorials: Print the required materials from D2L before your lab time. Tutorial work will be submitted by the end of lab time.	Lab time in Weeks 4, 6, 13	1-6, 8	6%
D2L Homework (Quizzes): Homework "quizzes" will cover lecture content and problem solving with the goal that students make good use of their lecture notes, textbook, and study guide to practice chemistry problems and complete the homework "quiz". Homework "quizzes" are open book, with unlimited attempts. They will open the same week as the given lecture topic and close one week before either the Midterm Test or Final Exam. See D2L for further details on schedule and due dates/times. You will complete 10 homework "quizzes" worth 1.5% each.	Ongoing	All	15%

Cell phones, tablets, laptops, MP3 players, etc. are NOT permitted to be used as a calculator during assessments.

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.

Your success in this course will be directly related to your **regular attendance** and **out-of-class practice and study.**

Student Attendance: Students are expected to attend all classes each week. Students are solely responsible for catching up on course work when absent. This includes collecting course materials (handouts, assignments, etc.) and catching up on missed classroom work. Individual instructors will provide more specific expectations for attendance early in the semester.

Student Lateness: Students who are late for class are a disruption to their classmates and have a negative impact on the learning environment. Your instructor will share his/her late policies early in the semester. For reasons relating to classroom management and/or laboratory safety, late students may be refused entry. Lateness in general is unacceptable and will be dealt with on an individual basis.

Due Dates: All assessments (quizzes, labs, tutorials, tests and exams) are due on their stated due date and time unless the student has made specific arrangements with the instructor **prior** to the due date. Assessments that are not completed or submitted on time will result in a grade of zero.

Students may submit their work via email (as an file or picture attachment) in advance of the due date and time to avoid penalties; however, a hard copy must be provided for assessment.

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 at the discretion of the instructor. It is the responsibility of the student to communicate with the instructor about any missed assessments in a timely manner.

Laboratory Guidelines: Below are some of the guidelines for working in the lab. More information about laboratory safety and protocol will be provided in class.

1. Students must attend the laboratory session they are registered in. If a student must be absent from a lab for a valid reason (ie. illness, emergency) the student should contact the instructor **prior** to the missed lab.

Alternate arrangements (such as writing up the lab using provided data, prorating the lab grade, etc.) may be provided as per the Class Absence Operating Procedure. Documentation may be required at the instructor's discretion.

In the case of unexcused and/or undocumented absences, a grade of zero will be posted for any missed lab assessments (e.g. lab report, tutorials).

2. Students will purchase safety glasses/goggles and a lab coat. These will be worn during ALL lab sessions.

- If a student forgets their safety glasses OR lab coat, they may rent them from the instructor for a cost of $1 each. Students may make use of this rental twice per semester.
- If a student forgets their safety glasses OR lab coat more than twice, they will be required to speak to the program coordinator/chair about lab safety protocol. They may be refused entry into the lab.

3. Proper attire must be worn in the lab. This means closed-toed shoes (no sandals, ballet flats etc.), socks and long pants - No bare skin below the waist. Students who are not appropriately dressed will not be allowed into the lab room.

4. No food or drink is permitted in the laboratory. Food and drink must be left outside the lab room or packed away in a backpack.

5. No cell phones are permitted in the lab. They should be turned off or put on silent and packed away in a backpack.

6. Students are responsible for maintaining the condition of their laboratory work space. Lab spaces should be left clean, neat and tidy, and may be inspected by the instructor.

7. Neatness and legibility of lab reports is required. Although experimental data will sometimes be shared, students are expected to complete their lab reports individually unless otherwise instructed.

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 or plagiarism including borrowing, 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 not be tolerated. Students have a responsibility to support academic integrity. Breaches of academic integrity, such as cheating and plagiarism, will normally result in a grade of zero for the assessment component involved. For details, see Section 6 of the Academic Regulations.

Academic Assistance: Students are encouraged to discuss academic concerns, learning needs and challenges with their instructors 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.

If you are experiencing difficulties in any course, Fleming College has many services available to help you. The Tutoring and Academic Skills Centre is located in Rm. C1 203. It provides a range of free services to support students who need assistance to reach their academic potential. Some of the services that students find helpful: peer tutoring, drop-in Math tutorials, and more.

For questions, or to book an appointment with a tutor contact Angie Premate in the Tutoring and Academic Skills Centre, Room C1 203.2. Tel.: 705-749-5530 Ext. 1607 email: angie.premate@flemingcollege.ca

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 assessments to individual students beyond those cited in this course outline.

In order to meet the needs of the student group as per their section schedules, the instructor reserves the right to modify the course sequence. Any changes will be discussed with the class and a revised learning sequence will be posted.