COURSE SYLLABUS

COURSE TITLE: CHEM-110: General College Chemistry 1

CLASS SECTION: 001

TERM: Winter 2025

COURSE CREDITS: 3

DELIVERY METHOD(S): In Class

Camosun College respectfully acknowledges that our campuses are situated on the territories of the Lək̓ʷəŋən (Songhees and Kosapsum) and WSÁNEĆ peoples. We honour their knowledge and welcome to all students who seek education here.
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INSTRUCTOR DETAILS

NAME: Blair Surridge

EMAIL: surridgeb@camosun.bc.ca

OFFICE: F348C

HOURS: HOURS: Wednesday & Friday: 12:30 to 1:20

As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.

CALENDAR DESCRIPTION

The first part of a college level package for students in the life sciences and non-science programs. Learners will be able to describe the factors that govern the rate of a chemical reaction and how chemistry can be used to do useful work in the form of energy and electrical potential. Aqueous solution chemistry including the dynamic equilibria of acid-base reactions and solubility will be highlighted. Applied learning will involve practicing the key laboratory techniques and data interpretation required for successful transition to first-year post-secondary majors chemistry courses or careers in the life sciences. Emphasis will be placed upon how the learned concepts are related, and real world examples will be examined.

PREREQUISITE(S):

One of:

C in Chemistry 11

C in Chemistry 11 Camosun Alternative

And one of:

C in Apprenticeship and Workplace Math 11 or Workplace Math 11 or Foundations of Math 11 or Pre-calculus 11

C in MATH 073
C in MATH 075
C in MATH 077

CO-REQUISITE(S):
EQUIVALENCIES:

COURSE LEARNING OUTCOMES / OBJECTIVES

Upon completion of this course a student will be able to:

1. Identify, describe and account for the general characteristics of gases, liquids and solids - interionic and intermolecular forces; vaporization and condensation; melting and freezing; specific characteristics of water.
2. Utilize solution terminology, account for and compare the solubilities of ionic and molecular compounds, and describe the impact of temperature and pressure on solubility.
3. Describe the characteristics of solubility equilibria and use mathematical techniques employed in dealing with this phenomenon.
4. Describe and account for the colligative and osmotic properties of aqueous solutions.
5. Account for differences in the rates of chemical reactions, apply Le Chatelier's Principle to equilibrium processes, and explain how catalysts influence reaction rates.
6. Apply mathematics and equilibrium constant expressions to descriptions of reversible reactions and chemical equilibria.
7. Identify Arrhenius, Bronsted and Lewis acids and bases, and describe the chemical properties of each type of substance.
8. Describe the ionization of water, the pH scale, weak and strong acids and bases, neutralization and the actions of buffer solutions.
9. Perform mathematical calculations involving pH, hydronium ion concentrations and acid-base titrations.
10. Define oxidation and reduction and assign oxidation numbers to the elements of substances involved in oxidation-reduction reactions. Demonstrate the ability to use oxidation numbers in balancing redox reactions.
11. Demonstrate an understanding of electrochemistry and account for the characteristics and uses of the standard hydrogen electrode, standard reduction potentials, electrolytic and voltaic cells.
12. Describe the characteristics of the major types of organic compounds – alkanes, alkenes, alkynes, aromatic hydrocarbons, alcohols, ethers, aldehydes and ketones, carboxylic acids and esters, amines and amides.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

(a)	Textbook	Chemistry 110 General College Chemistry 1 Edvantage Science
(b)	Lab Manual	Chem 110 Laboratory Manual
(c)	Loose leaf paper & 3-ring binder	To be used for study notes, note taking, and homework problems
(d)	Basic Scientific Calculator	No Graphing function needed
(e)	Lab Work	Lab Coat and Safety Glasses

*all items can be purchased from the Lansdowne bookstore,

https://www.camosuncollegebookstore.ca/

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

Lecture Times: Wednesday 1:30 to 2:50 in WT103 Friday 1:30 to 2:50 in F216

The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

WEEK	ACTIVITY or TOPIC	Readings Course book OR D2L*
1-2	**REVIEW TOPICS:** Units of measure Uncertainty Matter Atomic Theory Subatomic Particles, Atom and Isotopes Periodic Table Atomic Mass, Molecular Mass Mole Naming Molecules and Ions, Stoichiometry Solutions and Molarity, Ionic Equations	PDF File on D2L Sec 1.1 Sec 1.2 Sec 1.3 Sec 1.4 Sec 1.6, 1.7 Sec 1.8 Sec 1.9, 1.10 Sec 1.11, 1.12 Sec 1.13 Sec 1.19 Sec 1.22, 1.23 Sec 1.24
3	Electrolytes and Solubility	Ch. 4.1 and 4.2
4-5	Chemical Kinetics	Ch. 1 Plus extra material on Rate Laws
6-7	Chemical Equilibrium	Ch. 2 Focus on Equilibrium Constant Problems
8	Solubility Equilibrium	Ch. 4.3 Ksp Problems
9-10	Acid-Base Equilibrium	Ch. 5 (Inclusive)

WEEK	ACTIVITY or TOPIC	Readings Course book OR D2L*
11	Acid-Base Applications	Ch. 6 Sec 6.1 and 6.2 (If time)
12-13	Oxidation/Reduction and Electrochemistry	Ch. 7 Sec 7.5 may not be covered

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced noticed is required. Deadlines scan be reviewed on the CAL exams page. http://camosun.ca/services/accessible-learning/exams.html

Chem 110-001 Lab Schedule, Thursday 1:30 – 4:20, F356

You will be working in groups of two for most experiments. You will be required to read the lab experiment and complete the pre-lab questions before attending.

(This Schedule is Subject to Change)

Week	Lab Date	Experiment
I	Jan 9th	**Lab Orientation and Safety**
II	Jan 16th	Exp # 1, Precipitation Reactions
III	Jan 23rd	Exp # 2, Acid Base Titration
IV	Jan 30th	Exp # 3, Energy Changes
V	Feb 6th	Exp # 4, Reaction Rates
VI	Feb 13th	Exp # 5, Shifting Equilibria
VII	Feb 20th	Reading Week
VIII	Feb 27th	**Midterm**
IX	Mar 6th	Exp # 6, Vitamin C, Aspirin, Milk of Magnesia
X	Mar 13th	Exp # 7 Titration Curves
XI	Mar 20th	Tutorial and Review
XII	Mar 27th	Exp # 8, Oxidation/Reduction Reactions
XIII	Apr 3rd	Exp # 10 Electrochemistry
XIV	Apr 10th	**Final Exam Review**

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Labs	20
In Class Quizzes	20
Midterm	25
Final Exam	35
TOTAL	100%

If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the Grade Review and Appeals policy for more information. http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf

COURSE GUIDELINES & EXPECTATIONS

Class Attendance

To get the most out of this course, students are expected to attend all classes and be on time. It is your responsibility to acquire all information given during a class missed, including notes, hand-outs, changed exam dates etc.

Laboratory Attendance

Laboratory participation is essential to the course learning outcomes, and largely involves practical exploration of the core topics. It is also an opportunity for students to practice key skills that will be required for further chemistry courses. Punctual attendance of all laboratory classes is mandatory, however it is recognized that circumstances such as illness, may prevent this from being possible. In these cases, you should provide an email as a courtesy to your instructor if you know you are going to be unable to attend a laboratory class, (or meet a laboratory assignment deadline). Without this, the instructor reserves the right to assign you a mark of zero for a missed lab, or deduct marks for a late submission. A passing grade of 50 % is required on the laboratory section of the course in order to pass the course. This requires attending at least 6 of the 9 practical laboratory experiments.

Exam Procedures

The midterm must be written at the scheduled times with the exception of students requiring an accommodation by CAL. It is understood that emergency circumstances do occur (e.g. illness or family emergency), in which case the weight of the missed test will be carried over to the final, unless you are able to arrange an alternate time with your instructor, or the Assessment Centre. https://camosun.ca/apply/how-apply/assessment-and-testing/rescheduled-camosun-course-exams

A midterm score that is not as high as that of the April final exam will be dropped automatically and its weight redistributed to the final exam. For example, if a low score is obtained on your midterm then your final exam will then be 60% of the course grade!

SCHOOL OR DEPARTMENTAL INFORMATION

IMPORTANT DATES (see https://camosun.ca/dates)

Week
VII Reading Week
XV Exam Period for Winter 2024 begins

STUDENT RESPONSIBILITY

Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

SUPPORTS AND SERVICES FOR STUDENTS

Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit http://camosun.ca/students/.

Academic Advising	http://camosun.ca/advising
Accessible Learning	http://camosun.ca/accessible-learning
Counselling	http://camosun.ca/counselling
Career Services	http://camosun.ca/coop
Financial Aid and Awards	http://camosun.ca/financialaid
Help Centres (Math/English/Science)	http://camosun.ca/help-centres
Indigenous Student Support	http://camosun.ca/indigenous
International Student Support	http://camosun.ca/international/
Learning Skills	http://camosun.ca/learningskills
Library	http://camosun.ca/services/library/
Office of Student Support	http://camosun.ca/oss
Ombudsperson	http://camosun.ca/ombuds
Registration	http://camosun.ca/registration

Technology Support	http://camosun.ca/its
Writing Centre	http://camosun.ca/writing-centre

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

Academic Accommodations for Students with Disabilities

The College is committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e. physical, depression, learning, etc). If you have a disability, the Centre for Accessible Learning (CAL) can help you document your needs, and where disability-related barriers to access in your courses exist, create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate academic accommodations you need without disclosing your diagnosis or condition to course instructors. Please visit the CAL website for contacts and to learn how to get started: http://camosun.ca/services/accessible-learning/

Academic Integrity

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf for policy regarding academic expectations and details for addressing and resolving matters of academic misconduct.

Academic Progress

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

Course Withdrawals Policy

Please visit http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit http://camosun.ca/learn/fees/#deadlines.

Grading Policy

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf for further details about grading.

Grade Review and Appeals

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf for policy relating to requests for review and appeal of grades.

Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the

course and the space offered to the next waitlisted student. For more information, please see the "Attendance" section under "Registration Policies and Procedures" (http://camosun.ca/learn/calendar/current/procedures.html) and the Grading Policy at http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf.

Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal. Please visit http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence and Misconduct

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun's Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence or misconduct occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student's right to choose what is right for them. For more information see Camosun's Sexualized Violence and Misconduct Policy: http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.9.pdf and camosun.ca/sexual-violence. To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-3703841

Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College's Student Misconduct Policy at http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf to understand the College's expectations of academic integrity and student behavioural conduct.

Changes to this syllabus: Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.