

COURSE SYLLABUS



COURSE TITLE: CHEM-110-General College Chemistry 1

CLASS SECTION:

TERM: 2024F

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.

INSTRUCTOR DETAILS

NAME: Blair Surridge

EMAIL: surridgeb@camosun.ca

OFFICE: F348C

HOURS: Thursday 11:30am – 12:20pm & Friday: 11:30 to 12:20

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:

- 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.
- Utilize solution terminology, account for and compare the solubilities of ionic and molecular compounds, and describe the impact of temperature and pressure on solubility.
- Describe the characteristics of solubility equilibria and use mathematical techniques employed in dealing with this phenomenon.
- Describe and account for the colligative and osmotic properties of aqueous solutions.
- Account for differences in the rates of chemical reactions, apply Le Chatelier's Principle to equilibrium processes, and explain how catalysts influence reaction rates.
- Apply mathematics and equilibrium constant expressions to descriptions of reversible reactions and chemical equilibria.
- Identify Arrhenius, Bronsted and Lewis acids and bases, and describe the chemical properties of each type of substance.
- Describe the ionization of water, the pH scale, weak and strong acids and bases, neutralization and the actions of buffer solutions.
- Perform mathematical calculations involving pH, hydronium ion concentrations and acid-base titrations.
- 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.
- Demonstrate an understanding of electrochemistry and account for the characteristics and uses of the standard hydrogen electrode, standard reduction potentials, electrolytic and voltaic cells.
- 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

All items can be purchased from the Lansdowne bookstore

(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

<https://www.camosuncollegebookstore.ca/>

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

Lecture Times: Tuesday 3:30 to 4:20 in E344

Thursday 12:30 to 1:20 in WT103

Friday 10:30 to 11:20 in E344

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)
11	Acid-Base Applications	Ch. 6 Sec 6.1 and 6.2
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 notice is required. Deadlines can be reviewed on the [CAL exams page](https://camosun.ca/services/academic-supports/accessible-learning/academic-accommodations-exams). <https://camosun.ca/services/academic-supports/accessible-learning/academic-accommodations-exams>

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

(This Schedule is Subject to Change)

Week	Lab Date	Experiment
I	Sept 4 th	Lab Orientation and Safety
II	Sept 11 th	Exp # 1, Precipitation Reactions
III	Sept 18 th	Exp # 2, Acid Base Titration
IV	Sept 25 th	Exp # 3, Energy Changes
V	Oct 2 nd	Exp # 4, Reaction Rates
VI	Oct 9 th	Exp # 5, Shifting Equilibria
VII	Oct 16 th	Tutorial and Review
VIII	Oct 23 rd	Midterm
IX	Oct 30 th	Exp # 7 Titration Curves
X	Nov 6 th	Exp # 8 Oxidation-Reduction Reactions
XI	Nov 13 th	Tutorial and Review
XII	Nov 20 th	Exp # 9, Oxidation of Iron
XIII	Nov 27 th	Exp # 10 Electrochemistry
XIV	Dec 4 th	Final Exam Review

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Labs	20
In Class Quizzes	20
Midterm ^{3,4}	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](http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf) policy for more information.
<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf>

COURSE GUIDELINES & EXPECTATIONS

- (1) Student must pass the lab and lecture component of the course to obtain credit for Chem 110. All labs are to be attended, individual lab reports completed following your instructor's guidelines, and the report format provided in the lab manual.
- (2) As chemistry is a practical science, if you miss more than 3 experiments unexcused, you may not be able to gain the 50% passing mark to meet the learning outcomes of the course.
- (3) Immediate contact must be made with instructor for missed labs due to illness or family emergencies for arrangements to be made. This should be done by email. For more information, see lab manual.
- (4) A midterm score that is not as high as that of the December 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!
- (5) This will be written in one of the classes. No one is allowed to write exams late and there will be no exceptions. Early exam is a privilege and not a right; thus, at full discretion of the instructor. In the event that the midterm is missed the marks will be weighted to the final exam as per point 3) above.

SCHOOL OR DEPARTMENTAL INFORMATION

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

Week

VI Oct.14: Thanksgiving-College Closed

X November 11: Remembrance Day

XV Exam Period for Fall 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 camosun.ca/services.

Support Service	Website
Academic Advising	camosun.ca/services/academic-supports/academic-advising
Accessible Learning	camosun.ca/services/academic-supports/accessible-learning
Counselling	camosun.ca/services/health-and-wellness/counselling-centre
Career Services	camosun.ca/services/co-operative-education-and-career-services
Financial Aid and Awards	camosun.ca/registration-records/financial-aid-awards
Help Centres (Math/English/Science)	camosun.ca/services/academic-supports/help-centres
Indigenous Student Support	camosun.ca/programs-courses/iecc/indigenous-student-services
International Student Support	camosun.ca/international
Learning Skills	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills
Library	camosun.ca/services/library
Office of Student Support	camosun.ca/services/office-student-support
Ombudsperson	camosun.ca/services/ombudsperson
Registration	camosun.ca/registration-records/registration
Technology Support	camosun.ca/services/its
Writing Centre	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills

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 Integrity

Students are expected to comply with all College policy regarding academic integrity; which is about honest and ethical behaviour in your education journey. The following guide is designed to help you understand your responsibilities: <https://camosun.libguides.com/academicintegrity/welcome>
Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.13.pdf> for Camosun's Academic Integrity policy and details for addressing and resolving matters of academic misconduct.

Academic Accommodations for Students with Disabilities

Camosun College is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging appropriate academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a documented disability and think you may need accommodations, you are strongly encouraged to contact the Centre for Accessible Learning (CAL) and register as early as possible. Please visit the CAL website for more information about the process of registering with CAL, including important deadlines: <https://camosun.ca/cal>

Academic Progress

Please visit <https://camosun.ca/sites/default/files/2023-02/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 <https://camosun.ca/sites/default/files/2021-05/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <https://camosun.ca/registration-records/tuition-fees#deadlines>.

Grading Policy

Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.5.pdf> for further details about grading.

Grade Review and Appeals

Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

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 (see [Medical/Compassionate Withdrawals policy](#)). Please visit <https://camosun.ca/services/forms#medical> to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence

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 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 Policy: <https://camosun.ca/sites/default/files/2021-05/e-2.9.pdf> and camosun.ca/services/sexual-violence-support-and-education.

To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-370-3841

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 <https://camosun.ca/sites/default/files/2021-05/e-2.5.pdf> to understand the College's expectations of academic integrity and student behavioural conduct.

Looking for other policies?

The full suite of College policies and directives can be found here: <https://camosun.ca/about/camosun-college-policies-and-directives>

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.

