

COURSE SYLLABUS



COURSE TITLE: CHEM-110: General College Chemistry 1

CLASS SECTION: 001

TERM: F2023

COURSE CREDITS: 3

DELIVERY METHOD(S): In-person Lectures and Labs

Camosun College campuses are located on the traditional territories of the Ləkʷəŋən and W̱SÁNEĆ peoples. We acknowledge their welcome and graciousness to the students who seek knowledge here.

Learn more about Camosun's [Territorial Acknowledgement](#).

INSTRUCTOR DETAILS

NAME:	Dr. Tatiana Sanz (Lecture)	Dr. Larry Lee (Lab)
EMAIL:	TatianaS@camosun.ca	LeeL@camosun.ca
OFFICE:	F350B	F344B
HOURS:	Thursday: 12:30-1:20 pm	

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

PREREQUISITE(S):

One of:

- C in Chemistry 11
- C in Camosun Alternative

One of:

- C in Apprenticeship and Workplace Math 11
- C in Workplace Math 11
- C in Foundations of Math 11
- C in Pre-calculus 11
- C in MATH 073
- C in MATH 075
- C in MATH 077

CO-REQUISITE(S):

EXCLUSION(S):

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) **Chem 110 Lab manual (required)**

(b) **CHEM 110 General College Chemistry 1, Edvantage Science (recommended)**

(c) **"Chemistry, The Central Science"** by Brown, LeMay & Bursten, 15th Edition. (Also required for students going on to CHEM 120/121). Other editions are also acceptable if you have a used book. **(recommended)**

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

Lecture	Wed, Thur	1:30 pm - 2:50 pm	Fisher 210
Lab	Mon	1:30 pm – 4:20 pm	Fisher 354
Term Test I	Thu Oct 12 th	1:30 – 2:50 pm	Fisher 210
Term Test II	Thu Nov 16 th	1:30 – 2:50 pm	Fisher 210

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 CHEM 110 General College Chemistry 1 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
3-4	Thermodynamics	Ch. 3
5 - 6	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 noticed is required. Deadlines can be reviewed on the [CAL exams page](http://camosun.ca/services/accessible-learning/exams.html). <http://camosun.ca/services/accessible-learning/exams.html>

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Laboratory component	25%
2 Term Tests: 20 % each.	40%
A 3-hour written final examination covering all the material in the course	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

The student **must pass both** the lecture portion and the laboratory portion in order to pass the course. **Minimum final score of 50% on laboratory work** is required.

In the event of the term test being missed due to illness/other commitments (excused absence) the weight of the missed test will be carried over to the final. **There are no make-up dates for term tests, no exceptions.** An excused absence will only be considered for **a maximum of one term test**.

If it is advantageous to the student, the weight of the single test that has the lowest score (that includes the zero score of the excused missed test, see above) will be redistributed to the final exam. The final exam **will not** contribute more than 55% towards the final grade.

SCHOOL OR DEPARTMENTAL INFORMATION

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](http://camosun.ca/services/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.