

# COURSE SYLLABUS



COURSE TITLE: CHEM-110: General College Chemistry 1

CLASS SECTION: 001

TERM: Fall 2022

COURSE CREDITS: 4

DELIVERY METHOD(S): In class Lectures and Labs

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

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

---

For COVID-19 information please visit <https://legacy.camosun.ca/covid19/index.html>.

*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 explanation in advance, you will be removed from the course and the space offered to the next waitlisted student.*

## INSTRUCTOR DETAILS

---

NAME: Dr. Larry Lee

EMAIL: [leel@camosun.bc.ca](mailto:leel@camosun.bc.ca)

OFFICE: F344B

HOURS: Tues 11-12:20 and Friday 11:30 – 13:20 All other times by appointment only

*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. The topics comprise chemical energetics, chemical equilibrium, acids and bases and oxidation/reduction chemistry.

### PREREQUISITE(S):

One of:

- C in Chemistry 11
- C in Camosun Alternative

### 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

---

- |   |         |   |
|---|---------|---|
| 1 | Texts   | Top hat: e-textbook <a href="https://app-ca.tophat.com/">https://app-ca.tophat.com/</a> |
| 2 | On-line | Desire to Learn (D2L) <a href="http://www.online.camosun.ca">www.online.camosun.ca</a>  |
| 3 | Lab     | Chemistry 110 lab manual (in house)   |
| 4 | Lab     | Laboratory Safety Glasses and lab coat  |

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

---

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

Unit	Topic
1	Review (3) Measurement and matter Periodic Table Chemical compounds Quantity of compounds Chemical equations
2	Chemical solution and properties
3	Chemical bonding
4	Thermochemistry
5	Chemical Kinetics
6	Chemical Equilibrium
7	Acid-Base Equilibria
8	Solubility equilibria
9	Oxidation & Reduction Electrochemistry

a) **Scheduled lectures** are 50 minutes per class on Monday, Tues, Thurs

<b>Class schedule:</b>	<b>M</b>	<b>15:30 – 16:20</b>	<b>F 268</b>	<b>In class face-to-face</b>
	<b>Tues</b>	<b>15:30 – 16:20</b>	<b>F 206</b>	<b>In class face-to-face</b>
	<b>Thurs</b>	<b>10:30 – 11:20</b>	<b>F 206</b>	<b>In class face-to-face</b>

b) **Scheduled laboratory experiments** are in F354. The instructions for these experiments are available in a laboratory manual that you can purchase from the Camosun College Lansdowne bookstore. It is best practice to read and prepare for the experiment before attempting to do it. Preparation for the lab can be done by answering the prelab questions (to be submitted for grading at the beginning of the lab period) and also a flow diagram containing drawings of the steps involved (not to be submitted)

hours per week.

<b>Lab schedule:</b>	<b>Thursday</b>	<b>14:30 – 17:20</b>	<b>In class face-to-face</b>
----------------------	-----------------	----------------------	------------------------------

c) **Assignments:** end of each unit questions are assigned as worksheets and available on Tophat. They are not marked so hand-in on paper is not required. However, students are strongly encouraged to do them because the tests will **relate strongly** to these assignment questions. Solutions will be on Tophat

d) Weekly quizzes through D2L (Desired to Learn) – There will be weekly quizzes 10–20 questions with specific due dates. These question will mainly be multiple choice based.

WEEK	DATE RANGE	ACTIVITY or TOPIC	OTHER NOTES
1	Sept 6 – 9	Lab orientation: expectations and safety, safety quiz.	Safety video
2	Sept 12 – 16	Precipitation reactions	Expt 1
3	Sept 19– 23	Acid–base titration reactions	Expt 2
4	Sept 26 – 30	Energy changes	Expt 3
5	Oct 3 – 7	Reaction rates	Expt 4
6	Oct 10– 14	Shifting Equilibria	Expt 5
7	Oct 17– 21	TEST 1 (October 13, 2022)	In Lab
8	Oct 24 – 28	Vitamin C, ASA, and $\text{Mg}(\text{OH})_2$ titrations	Expt 6
9	Oct 31 – Nov 4	Titration curves	Expt 7
10	Nov 7 – 11	Oxidation of Iron	Expt 8
11	Nov 14 – 18	Test 2 (November 17, 2022)	In Lab
12	Nov 21–25	Redox reactions	Expt 9
13	Nov 28 – Dec 2	Electrochemistry	Expt 10
14	Dec 5 – 9	Review	
Final	Dec 12 – 20	Final exam week	

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](http://camosun.ca/services/accessible-learning/exams.html). <http://camosun.ca/services/accessible-learning/exams.html>

## EVALUATION OF LEARNING

---

DESCRIPTION	WEIGHTING
<b>Midterm 1 (in-class during lab period <b>October 13, 2022</b>)</b> Written exam containing fill in the blanks, multiple choice, and questions requiring proof of calculation and answers with units.	15 %
<b>Midterm 2 (in-class during lab period <b>November 17, 2022</b>)</b> Written exam containing fill in the blanks, multiple choice, and questions requiring proof of calculation and answers with units.	15 %
<b>On-line D2L quizzes (All quizzes must be completed)</b>	15 %
<b>Final exam</b>	30%
<b>Laboratory work</b>	25%
<b>TOTAL</b>	<b>100%</b>

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

---

**All lectures and labs will be face-to-face, unless otherwise noted in the lab schedule or given an order by Camosun College (BC Health Officer).** Class attendance is highly recommended. It is not mandatory, but a higher success rate is obtainable by showing up to class, taking written notes, asking questions and staying engaged.

**Term tests are compulsory** and the mark for any single term test or combination of term tests is **not** replaced by the final exam mark except as described below.

A zero is given as the mark for any quiz or final exam not written and for which no official medical excuse is provided. The medical excuse must be dated within the week of the exam and must be handed in within two weeks of the exam date. Students need not disclose their medical condition to the instructor. This information may be required by the Center for Accessible Learning.

The final exam at the end of the course will cover all course material.

During the experimental work, students are expected to wear safety glasses and closed toe footwear. No sandals, flip-flops, or bare feet allowed in the labs. It is highly recommended that students wear a lab coat to protect you from acids and bases, and odorous chemicals. All students must abide by laboratory safety rules.

You will be expected to show up for the lab on time. At the beginning of the lab, I will go over safety precautions and any demonstration of experimental techniques.

All labs are due within one week of completion of lab work, unless otherwise noted by the instructor and posted on D2L. The format of the report will be post-lab questions or completing a datasheet including calculations with units and correct number of significant figures or providing a video format of your report. **All work must be submitted in D2L assignment folder.**

Late labs will be penalized at 10% for each week late. Normally, the end date for submitting labs will be three weeks, except for last lab where the last date to submit work will be the last day of classes on Dec 10, 2021. Once lab reports are returned to students, no late work can be submitted for grading.

All D2L quizzes will be due two weeks from the posted date. There will be one additional opportunity to redo a D2L quiz, and the highest grade obtained for that quiz will be awarded. Answers will be available at the end of the due date. No redoing of quizzes can be done after this period.

Final exam is scheduled Dec 13-21, 2021. Do not make travel arrangements during this period unless you know your exam schedule.

## SCHOOL OR DEPARTMENTAL INFORMATION

---

The Science Help Centre in F264 begins week 3. Details will be posted on D2L and throughout the Fisher building. Chemistry help will be available Monday to Friday; 9:00 to 4:30 (closed for lunch 12:30 to 1:00).

Camosun is a scent free environment

## 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	<a href="http://camosun.ca/advising">http://camosun.ca/advising</a>
Accessible Learning	<a href="http://camosun.ca/accessible-learning">http://camosun.ca/accessible-learning</a>
Counselling	<a href="http://camosun.ca/counselling">http://camosun.ca/counselling</a>
Career Services	<a href="http://camosun.ca/coop">http://camosun.ca/coop</a>
Financial Aid and Awards	<a href="http://camosun.ca/financialaid">http://camosun.ca/financialaid</a>
Help Centres (Math/English/Science)	<a href="http://camosun.ca/help-centres">http://camosun.ca/help-centres</a>
Indigenous Student Support	<a href="http://camosun.ca/indigenous">http://camosun.ca/indigenous</a>
International Student Support	<a href="http://camosun.ca/international/">http://camosun.ca/international/</a>
Learning Skills	<a href="http://camosun.ca/learningskills">http://camosun.ca/learningskills</a>
Library	<a href="http://camosun.ca/services/library/">http://camosun.ca/services/library/</a>

---

Office of Student Support	<a href="http://camosun.ca/oss">http://camosun.ca/oss</a>
Ombudsperson	<a href="http://camosun.ca/ombuds">http://camosun.ca/ombuds</a>
Registration	<a href="http://camosun.ca/registration">http://camosun.ca/registration</a>
Technology Support	<a href="http://camosun.ca/its">http://camosun.ca/its</a>
Writing Centre	<a href="http://camosun.ca/writing-centre">http://camosun.ca/writing-centre</a>

---

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](http://camosun.ca/sexual-violence). To contact the Office of Student Support: [oss@camosun.ca](mailto: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.