

# COURSE SYLLABUS



COURSE TITLE: CHEM-120: College Chemistry 1

CLASS SECTION: 003

TERM: Winter 2024

COURSE CREDITS: 3

DELIVERY METHOD(S): Fisher Classroom and Lab in person

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](#).

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## INSTRUCTOR DETAILS

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NAME: Dr. Larry Lee

EMAIL: leel@camosun.ca

OFFICE: F344B

HOURS: Posted on F344 B and on D2L. Other office help, please arrange date and time by email.

*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

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For both university and technology students, this course starts with atomic structure and periodic properties and leads to a discussion of chemical bonding, thermochemistry, molecular structure, intermolecular structure, colligative properties, intermolecular forces of attraction and their role in environmental issues. The experiments include chemical synthesis and analysis by titration and spectroscopy.

### PREREQUISITE(S):

One of:

- C in Chemistry 12
- C in Camosun Alternative

### CO-REQUISITE(S):

### EXCLUSION(S):

Not applicable

## COURSE LEARNING OUTCOMES / OBJECTIVES

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

1. Utilize nomenclature rules to name ionic and covalent compounds.
2. Demonstrate an understanding of stoichiometry by balancing chemical equations and performing mathematical calculations involving chemical reactions.
3. Describe the electronic structure of any atom in the periodic table and apply it to explain many of the physical and chemical properties of the elements.
4. Utilize simple bonding theories to explain why elements combine to form the compounds they do and also to explain many of the properties of compounds.
5. Apply knowledge of intermolecular interactions to rationalize many important physical properties of bulk matter in the gas, liquid and solid phases.
6. Use standard chemistry lab equipment, including burets, pipets, Buchner filters, and volumetric glassware in the correct manner.
7. Perform many standard laboratory procedures, such as titrations, preparation of standard solutions, the preparation, isolation, and purification of compounds, as well as use spectrophotometers to make analytical measurements.

## REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

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- (a) Free textbook – Chemistry, 2<sup>nd</sup> edition (Openstax)  
<https://openstax.org/details/books/chemistry-2e>
- (b) Lab Experiments: Chemistry 120 Laboratory Manual (In-house), 2020 Edition. Printed copy available at the Camosun Bookstore (\$9.85)
- (c) Lab safety glasses (\$25.99 at the Camosun Bookstore) (d) Lab coat
- (d) Camosun Learning Management system: Desired to Learn (D2L) to access information (course outline, lecture slides, quizzes, laboratory schedule and relevant laboratory information): <http://online.camosun.ca>
- (e) Aktiv Learning (STEM) access through D2L or <https://aktiv.com/chemistry/>

## 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.

WEEK or DATE RANGE	ACTIVITY or TOPIC	OTHER NOTES
1	Chapter 1 Matter and Measurement	
2	Chapter 2 Atoms, Molecules, and Ions Chapter 3 Composition of Substances and Solutions	
3	Chapter 4 Chemical Stoichiometry Chapter 4 Reactions in Aqueous solutions	
4	Chapter 6 Electronic Structure of Atoms	
5	Chapter 6 Electronic Structure of Atoms and Electronic Configurations	
6	Chapter 6 Periodic Properties of Elements	
7	Reading week – no classes during reading week	
8	Chapter 7 Covalent Bonding and Molecular Geometry (Covalent bonding, ionic bonding, Lewis structures	
9	Chapter 7 Covalent Bonding, Molecular Geometry Formal charges, Resonance structures, Molecular structure and Polarity.	
10	Chapter 8 Advanced Theories of Covalent Bonding	Of
11	Chapter 9 Gases	
12	Chapter 11 Liquids and Solids	
13	Chapter 12 Solutions	
14	Environmental Chemistry (handout)	
15	Final Exam period	

a) 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>

b) **Scheduled lectures** are 50 minutes (in person)  
**Scheduled labs** are 170 minutes per week (2h and 50 min)

Class schedule:	Lectures	Tu, Thurs	10:30 – 11:20 pm	F334
	Lecture	Thurs	10:30 – 11:20 am	F200
	Lab	Tuesday	9:30 – 12:20 pm	F356

**Laboratory schedule (tentative)**

WEEK	Date	ACTIVITY or TOPIC	OTHER NOTES
1	Jan 9	Safety orientation and Lab expectations	Student must attend
2	Jan 16	Expt 3. Stoichiometry of reactions (GROUP A)*	
3	Jan 23	Expt 3. Stoichiometry of reactions (GROUP B)*	
4	Jan 30	Expt 4. Spectroscopic Determination of Nickel	
5	Feb 6	Expt 5. Colorimetric Determination of Iron in a Vitamin	
6	Feb 13	Test 1 (Maybe in Lab or Classroom TBA)	
7	Feb 19 week	Reading week – no classes during reading week	
8	Feb 27	Expt 6. Determination of Copper using Atomic Absorption	
9	Mar 5	Expt 7. Determination of Total Hardness of Water	
10	Mar 12	Expt 8. Molecular shapes (VSEPR)	
11	Mar 19	Test 2 (Maybe in Lab or Classroom TBA)	
12	Mar 26	Expt 9. Preparation of Potassium Tris(oxalate)Ferrate(III)	
13	Apr 2	Expt 10. Analysis of Potassium Tris(oxalate)Ferrate(III)	
14	Apr 9	No Lab – Lecture/Review	
15	April 15 week	Final Exam period	

Note \* Week 2 and 3 are the only two weeks that the lab is split into two groups. All other weeks, students must attend the normal weekly schedule.

**EVALUATION OF LEARNING**

DESCRIPTION	WEIGHTING
Assignments (online) – 50% participation 50% correct	15%
Term Test 1 Feb 13, 2024	15%
Term Test 2 Mar 19, 2024	15%
Laboratory Assignments	25%
Final Exam	30%
<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

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Students must attend the first laboratory meeting which is on safety in the laboratory and general laboratory procedure.

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 not be allowed to perform an experiment if you are not wearing the required safety equipment.

As Chemistry is a practical science, there are expectations that you attend all the lab periods. No more than one lab maybe missed without a medical excuse as this will compromise the learning outcomes. You must notify the instructor regarding your absence within the same week of the missed lab, otherwise a zero is given to that lab period.

Students must read the lab and answer the prelab questions (as a pre-laboratory requirement). To be more familiar with the experiment, a preparation of a flow chart will make the lab experience more enjoyable as you become efficient and confident with the hand-on work in the lab.

If you miss an experiment you will be given a mark of zero for the experiment unless you have a valid medical reason or family emergency, in which case supporting documentation must be supplied.

You must submit a minimum of SIX laboratory reports in order to pass the laboratory portion of the course.

You must pass both the lecture and laboratory portions of the course separately in order to obtain a passing grade overall. A score of 50% on the lab is needed to pass the course.

If you miss a term test the weighting from that test will be transferred to the final exam.

It is advantageous to the student, if either, or both, the term test marks are inferior to the final exam mark, the weighting will be replaced by an equal weighting from the final exam.

All labs are due within one week of completion of lab work, unless otherwise noted by the instructor or posted on D2L or prior instructor permission has been granted, or an accommodation is in-place. The format of the report will be post-lab questions or video format or a full written report of the experimental work and summary of the data. **All work must be submitted in D2L assignment folder.**

**Student may share data when working in partners, but each student must submit their own report. In the event, that reports are too similar, a warning or a zero will be given to the report.**

Late submissions of laboratory reports and/or assignments will be penalized and none accepted if more than five days past the deadline.

The Final exam is cumulative (It will cover all course material).

Final exam is schedule April 15-24, 2024 Do not make travel arrangements during this period unless you know your exam schedule.

## SCHOOL OR DEPARTMENTAL INFORMATION

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Science Help Centre:

All day 9 – 4:30 F262

## STUDENT RESPONSIBILITY

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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

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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

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### 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.