

COURSE SYLLABUS



COURSE TITLE: CHEM-121: College Chemistry 2

CLASS SECTION: 001

TERM: 2024 F

COURSE CREDITS: 3

DELIVERY METHOD(S): Face-to-face

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:	Steve McKinnon (Lecture)	John Lee (Lab)
EMAIL:	Mckinnons@camosun.ca	LeeJohn@camosun.ca
OFFICE:	Fisher 350B	
HOURS:	Mon 11:00, Tues 11:30, Thurs 11:00, and by appointment	

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

This course is a continuation of CHEM 120 and covers the following: chemical kinetics, acids and bases, thermodynamics, electrochemistry and provides an introduction to organic chemistry. The laboratory experiments provide practical experience in each area covered in lectures.

PREREQUISITE(S): C in CHEM 120

COURSE LEARNING OUTCOMES / OBJECTIVES

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

- Utilize the specialized vocabulary and nomenclature based on the IUPAC system of organic compounds to name and draw structures for many simple organic compounds containing the common functional groups.
- Write chemical reactions to illustrate numerous transformations between organic functional groups.
- Draw structural and stereoisomers of organic compounds and name stereoisomers based upon the IUPAC system of nomenclature.
- Demonstrate an understanding of the factors that influence the rate of a chemical reaction, deduce the rate of a chemical reaction from time/concentration data, and utilize rate laws to perform kinetic calculations.

- Apply the laws of thermodynamics and account for the factors that lead to spontaneous physical and chemical changes.
- Explain how and why reactions attain equilibrium positions and perform calculations pertaining to equilibrium systems.
- Describe redox reactions, use electrochemical data to predict the spontaneity of redox reactions, and comprehend the structures of electrochemical cells.
- Describe various acid-base theories and apply these theories to acid-base reactions in aqueous solution.
- Perform experiments in the areas of preparative organic, preparative inorganic, physical and analytical chemistry and use the various associated pieces of laboratory equipment.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

Chem 121 Laboratory Manual (Bookstore)

Scientific calculator

Safety glasses and Lab coat

Recommended:

[Chemistry: The Central Science in SI Units, Expanded Edition, Global Edition \(pearson.com\)](http://www.pearson.com)

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	ACTIVITY or TOPIC	OTHER NOTES
1-4	Organic Chemistry - Alkane /Alkenes structure and properties, including naming alkanes / alkenes, reactions and stereochemistry, functional groups and some reactions.	
5-6	Chemical Kinetics - Reaction rates, change in concentration with time, temperature and rate, reaction mechanisms and catalysis	Midterm I Lab Week 6
7	Thermochemistry - Energy, 1 st law of thermodynamics, enthalpy, calorimetry, Hess' Law, enthalpies of formation	
8	Thermodynamics - Spontaneity, 2 nd law of thermodynamics, entropy, Gibbs Free Energy, free energy and temperature, free energy and equilibrium	
9-10	Equilibrium - Equilibrium constants, heterogeneous equilibria, working with equilibrium constants	
10-11	Acids and Bases - Acids and bases, pH scale, K _a and K _b , auto-ionization of water, acid strength of ions	Midterm II Lab Week 11
12	Aqueous Equilibria - Titrations, common ion effect, buffers, solubility equilibrium	
12-13	Electrochemistry - Redox reactions, balancing redox equations, half cells and the Nernst equation	

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
Midterm Test I (Lab week 6)	15
Midterm Test II (Lab week 11)	15
D2L Quizzes	15
Final Exam - Comprehensive	30
Laboratory	25
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>

*In order to pass the course, students must pass the laboratory with a score of 50%. There is an expectation that students complete all laboratory experiments, along with the associated assignments. In the event that you miss a laboratory session due to illness or extenuating circumstances (as outlined in the Academic Concessions Policy**), you must inform your instructor via email before the laboratory session. Your instructor may require you to complete the assignment using data provided, or an online version of the experiment. The laboratory assignment due dates are in the D2L calendar/assignments dropbox. No late assignments will be accepted unless you have prior accommodations through CAL, or you have requested an extension due to illness or extenuating circumstances (as outlined in the Academic Concessions Policy). Even though you may perform the experiments with a partner, and collect identical data, you must submit your own assignment. Duplicate assignments will not be accepted and may be subject to academic infraction. If you complete the practical part of an experiment but fail to upload an assignment by the due date without a granted extension, you may be given a participation mark only.*

As chemistry is a practical science, if you miss more than 2 experiments unexcused, you may not be able to gain the 50% passing mark to meet the learning outcomes of the course.

Your instructor expects you to be prepared for the laboratory experiment...arriving excessively late, not knowing which experiment is being performed, not abiding by safety procedures may result in being asked to leave the lab.

COURSE GUIDELINES & EXPECTATIONS

CHEM 121-001 Fall 2024 Tentative Lab Schedule

Lab Section 001	Fridays – F356	11:30 am – 2:20 pm
Week I	9/6	Lab Intro and Safety Briefing
Week II	9/13	Synthesis of Aspirin - EXPT 1
Week III	9/20	Synthesis of Banana Oil - EXPT 2
Week IV	9/27	Bleach and Blue Dye - EXPT 3
Week V	10/4	Thermochemistry - EXPT 4
Week VI	10/11	Midterm 1
Week VII	10/18	Determination of an Equilibrium Constant - EXPT 5
Week VIII	10/25	Analysis of an unknown acid - EXPT 6
Week IX	11/1	pH and pKa of Acetic Acid - EXPT 7
Week X	11/8	Gravimetric Chloride Analysis - EXPT 8
Week XI	11/15	Midterm II
Week XII	11/22	Determination of a Ksp - EXPT 9
Week XIII	11/29	Redox reactions - EXPT 10
Week XIV	12/6	Review

Important Dates

Sept 30 – College Closed – National Day For Truth and Reconciliation
Oct 14 – College Closed – Thanksgiving
Nov 11 – College Closed – Remembrance Day
Dec 9 to 17 - Final Exam Period (TBA)

SCHOOL OR DEPARTMENTAL INFORMATION

Chair of Chem and Geos: John Lee

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/>.

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.