

COURSE SYLLABUS



COURSE TITLE: CHEM-121: College Chemistry 2

CLASS SECTION: 001

TERM: 2023 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 348A	
HOURS:	Mon 12:30, Tues 11:30, Wed 9:30, Fri 11:30 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):

All of:

- C in CHEM 120

COURSE LEARNING OUTCOMES / OBJECTIVES

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

1. 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.
2. Write chemical reactions to illustrate numerous transformations between organic functional groups.
3. Draw structural and stereoisomers of organic compounds and name stereoisomers based upon the IUPAC system of nomenclature.
4. 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.
5. Apply the laws of thermodynamics and account for the factors that lead to spontaneous physical and

chemical changes.

6. Explain how and why reactions attain equilibrium positions and perform calculations pertaining to equilibrium systems.
7. Describe redox reactions, use electrochemical data to predict the spontaneity of redox reactions, and comprehend the structures of electrochemical cells.
8. Describe various acid-base theories and apply these theories to acid-base reactions in aqueous solution.
9. 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	
7	Thermochemistry - Energy, 1 st law of thermodynamics, enthalpy, calorimetry, Hess' Law, enthalpies of formation	Midterm I Lab Week 7
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	
12	Aqueous Equilibria - Titrations, common ion effect, buffers, solubility equilibrium	Midterm II Lab Week 12
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 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
Midterm Test I	15
Midterm Test II	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](#) policy for more information.

<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf>

1. Students must complete a minimum of 70% of the laboratory work to pass the laboratory component of Chem 121. Students must pass the laboratory portion (>50%) of the course in order to obtain credit for Chem 121.
2. Test score that is not as high as that of the final exam will be dropped automatically and its weight redistributed to the final exam. For anyone who misses both tests, your final exam will then be 75% of the course grade.

COURSE GUIDELINES & EXPECTATIONS

CHEM 121-001 Fall 2023 Tentative Lab Schedule

Lab Section 001	Mondays – F356	9:30 am – 12:20 pm
Week I	9/4	Labour Day College Closed
Week II	9/11	Synthesis of Banana Oil EXPT 2
Week III	9/18	Bleach and Blue Dye EXPT 3
Week IV	9/25	Thermochemistry EXPT 4
Week V	10/2	TRC Day – College Closed
Week VI	10/9	Thanksgiving – College Closed
Week VII	10/16	Midterm I
Week VIII	10/23	Determination of an Equilibrium Constant EXPT 5
Week IX	10/30	Analysis of an unknown acid EXPT 6
Week X	11/6	Gravimetric Chloride Analysis EXPT 8
Week XI	11/13	Remembrance Day – College Closed
Week XII	11/20	Midterm II
Week XIII	11/27	Determination of a K _{sp} EXPT 9
Week XIV	12/4	Redox activity series EXPT 10

Important Dates

Oct 2 – College Closed – National Day For Truth and Reconciliation

Oct 9 – College Closed – Thanksgiving

Nov 13 – College Closed – Remembrance Day

Dec 11 to 19 - 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/>.

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](#) (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.

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.