

COURSE SYLLABUS



COURSE TITLE: CHEM-121: College Chemistry 2

CLASS SECTION: 001

TERM: Summer 2022

COURSE CREDITS: 4

DELIVERY METHOD(S): In-person Lecture 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](#).

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. Tatiana Popa
EMAIL: PopaT@camosun.ca
OFFICE: F350B
HOURS: Tuesday 12:00-1:20 pm and 5:00-5:50 pm
Thursday 5:00 – 5:50 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

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

CO-REQUISITE(S):

EXCLUSION(S):

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

(a) **My Lab and Mastering Course Code.** A My Lab and Mastering Access Code can be purchased from the Camosun Bookstore. https://www.camosuncollegebookstore.ca/buy_access_codes.asp

Your Course code is valid for multiple courses for 2 years from purchase. So, if you already have a code (from Chemistry 120) there is no need to get another. If you have previously purchased a new textbook (Custom Camosun Edition) or ebook, then this includes a My Lab Mastering Chemistry Course Code.

(b) **Chemistry 121 Laboratory Manual**

Other Recommended Materials for the Course

Chemistry, The Central Science, Brown, le May, Bursten. *Custom Camosun Edition*. The 2nd and 1st Australian editions of this textbook are also acceptable. **Note: New textbooks come with a My Lab Mastering Chemistry Code.**

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

Lecture	Mon, Wed	1:30 pm - 3:20 pm	Fri 11:30 am - 1:20 pm
Lab	Tue, Thu	1:30 pm – 4:20 pm	
Term Test I	Thu May 19 th	1:30 – 3:30 pm	F354
Term Test II	Tue June 7 th	1:30 – 3:30 pm	F354

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

WEEK	ACTIVITY or TOPIC	Material covered
1-2	Organic Chemistry	Alkane/Alkenes structure and properties, including naming simple cycloalkanes/ cycloalkenes, reactions and stereochemistry, functional groups and some reactions. Polymers depending on schedule.
3	Chemical Kinetics	Reaction rates, change in concentration with time, temperature and rate, reaction mechanisms and catalysis
4	Thermochemistry	Energy, first law of thermodynamics, enthalpy, calorimetry, Hess' Law, enthalpies of formation
4	Thermodynamics	Spontaneity, second law of thermodynamics, entropy, Gibbs Free Energy, free energy and temperature, free energy and equilibrium
5	Equilibrium	Equilibrium constants, heterogeneous equilibria, working with equilibrium constants
5-6	Acids and Bases	Acids and bases, pH scale, K_a and K_b , auto-ionization of water, acid strength of ions
6	Aqueous equilibria	Titration, buffers
6-7	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>

Lab Schedule S2022 (This Schedule is Subject to Change)

	Date of Lab (1:30 – 4:30 pm)	Activity
Week I	Tuesday, May 3 rd	<i>Safety in the Laboratory: Videos and Quiz. Outline of Lab requirements</i>
	Thursday, May 5 th	<i>Expt. 1 – Synthesis of Aspirin Lab Safety Quiz due</i>
Week II	Tuesday, May 10 th	<i>Expt. 2 – Extraction of Caffeine Expt. 1 – Synthesis of Aspirin: report due</i>
	Thursday, May 12 th	<i>Expt. 3 - Synthesis of Banana Oil Expt. 2 – Extraction of Caffeine: report due</i>
Week III	Tuesday, May 17 th	<i>Expt. 5 - Analysis of an Unknown Acid Expt. 3 - Synthesis of Banana Oil: report due</i>
	Thursday, May 19 th	TERM TEST I
Week IV	Tuesday, May 24 th	<i>Expt. 6 - The Rate of Reaction between Bleach and Blue Dye Expt. 5 - Analysis of an Unknown Acid: report due</i>
	Thursday, May 26 th	<i>Expt. 4 - Saponification</i>
Week V	Tuesday, May 31 st	<i>Expt. 7 – Thermochemistry Expt. 6 - The Rate of Reaction: report due</i>
	Thursday, June 2 nd	<i>Lab discussion and test review</i>
Week VI	Tuesday, June 7 th	TERM TEST I
	Thursday, June 9 th	<i>Expt. 9 - pH measurements and the pKa of Acetic Acid Expt. 7 – Thermochemistry: report due</i>
Week VII	Tuesday, June 14 th	<i>Expt. 10 - Redox Reactions Expt. 9 - pH measurements and the pKa: report due</i>
	Thursday, June 16 th	<i>Review Session Expt. 10 - Redox Reactions: report due</i>

To write the final exam you must achieve a minimum final score of 50% on laboratory work.

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
a) Online Mastering Assignments Homework 1 - 8 : total of 196 points	20%
b) Laboratory component	25%
c) 2 Term Tests: 12.5 % each.	25%
d) A 3-hour written final examination covering all the material in the course	30%
	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>

COURSE GUIDELINES & EXPECTATIONS

- a) Online assignment marks may not be carried over so you must **complete these before the due date. You usually have a week or more to do these assignments so no excuses will be accepted, no exceptions.**
- b) To write the final exam you must achieve a **minimum final score of 50% on laboratory work**, and **you must pass both** the lecture portion and the laboratory portion in order to pass the course. Lab reports/assignments need to **be written electronically and submitted as pdf on D2L**, otherwise a mark of zero will be given. Each student must hand in their own work. Plagiarized work is subject to academic penalties –see “Academic Integrity” below.
- c) In the event of a term test being missed due to illness/other commitments the weight of the missed test will be carried over to the final. **There are no make-up dates for term tests, no exceptions.**
- d) If it is advantageous to the student the theory mark will solely be derived from the final examination, or a combination of term test(s) and final.

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.