

COURSE SYLLABUS



COURSE TITLE: CHEM-110: General College Chemistry 1

CLASS SECTION: 001

TERM: Winter 2024

COURSE CREDITS: 3

DELIVERY METHOD(S): In Class

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](#).

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: Blair Surridge

EMAIL: surridgeb@camosun.bc.ca

OFFICE: F348C

HOURS: Monday & Wednesday: 1:00 to 2:00 Friday: 10:30 to 11:20

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

| | | |
|-----|----------------------------------|--|
| (a) | Textbook | Chemistry 110 General College Chemistry 1 Edvantage Science |
| (b) | Lab Manual | Chem 110 Laboratory Manual |
| (c) | Loose leaf paper & 3-ring binder | To be used for study notes, note taking, and homework problems |
| (d) | Basic Scientific Calculator | No Graphing function needed |
| (e) | Lab Work | Lab Coat and Safety Glasses |

*all items can be purchased from the Lansdowne bookstore,

<https://www.camosuncollegebookstore.ca/>

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

Lecture Times: Wednesday 11:30 to 12:50 in F206 Friday 11:30 to 12:50 in E344

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

| WEEK | ACTIVITY or TOPIC | Readings Course book OR D2L* |
|-------|---|---|
| 1-2 | REVIEW TOPICS: Units of measure Uncertainty Matter Atomic Theory Subatomic Particles, Atom and Isotopes Periodic Table Atomic Mass, Molecular Mass Mole Naming Molecules and Ions, Stoichiometry Solutions and Molarity, Ionic Equations | PDF File on D2L Sec 1.1 Sec 1.2 Sec 1.3 Sec 1.4 Sec 1.6, 1.7 Sec 1.8 Sec 1.9, 1.10 Sec 1.11, 1.12 Sec 1.13 Sec 1.19 Sec 1.22, 1.23 Sec 1.24 |
| 3 | Electrolytes and Solubility | Ch. 4.1 and 4.2 |
| 4-5 | Chemical Kinetics | Ch. 1 Plus extra material on Rate Laws |
| 6-7 | Chemical Equilibrium | Ch. 2 Focus on Equilibrium Constant Problems |
| 8 | Solubility Equilibrium | Ch. 4.3 Ksp Problems |
| 9-10 | Acid-Base Equilibrium | Ch. 5 (Inclusive) |
| 11 | Acid-Base Applications | Ch. 6 Sec 6.1 and 6.2 |
| 12-13 | Oxidation/Reduction and Electrochemistry | Ch. 7 Sec 7.5 may not be covered |

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 scan be reviewed on the [CAL exams page](http://camosun.ca/services/accessible-learning/exams.html). <http://camosun.ca/services/accessible-learning/exams.html>

You will be working in groups of two for most experiments. You will be required to read the lab experiment and complete the pre-lab questions before attending.

(This Schedule is Subject to Change)

| Week | Lab Date | Experiment |
|------|----------------------|---|
| I | Jan 10 th | Lab Orientation and Safety |
| II | Jan 17 th | Exp # 1, Precipitation Reactions |
| III | Jan 24 th | Exp # 2, Acid Base Titration |
| IV | Jan 31 st | Exp # 3, Energy Changes |
| V | Feb 7 th | Exp # 4, Reaction Rates |
| VI | Feb 14 th | Exp # 5, Shifting Equilibria |
| VII | Feb 21 st | Reading Week |
| VIII | Feb 28 th | Midterm |
| IX | Mar 6 th | Exp # 6, Vitamin C, Aspirin, Milk of Magnesia |
| X | Mar 13 th | Exp # 7 Titration Curves |
| XI | Mar 20 th | Tutorial and Review |
| XII | Mar 27 th | Exp # 8, Oxidation/Reduction Reactions |
| XIII | Apr 3 rd | Exp # 10 Electrochemistry |
| XIV | Apr 10 th | Final Exam Review |

EVALUATION OF LEARNING

| DESCRIPTION | WEIGHTING |
|------------------|-------------|
| Labs | 25 |
| In Class Quizzes | 20 |
| Midterm | 20 |
| Final Exam | 35 |
| 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

Class Attendance

To get the most out of this course, students are expected to attend all classes and be on time. It is your responsibility to acquire all information given during a class missed, including notes, hand-outs, changed exam dates etc.

Laboratory Attendance

Laboratory participation is essential to the course learning outcomes, and largely involves practical exploration of the core topics. It is also an opportunity for students to practice key skills that will be required for further chemistry courses. Punctual attendance of all laboratory classes is mandatory, however it is recognized that circumstances such as illness, may prevent this from being possible. In these cases, you should provide an email as a courtesy to your instructor if you know you are going to be unable to attend a laboratory class, (or meet a laboratory assignment deadline). Without this, the instructor reserves the right to assign you a mark of zero for a missed lab, or deduct marks for a late submission. A passing grade of 50 % is required on the laboratory section of the course in order to pass the course. This requires attending at least 6 of the 9 practical laboratory experiments.

Exam Procedures

The midterm must be written at the scheduled times with the exception of students requiring an accommodation by CAL. It is understood that emergency circumstances do occur (e.g. illness or family emergency), in which case the weight of the missed test will be carried over to the final, unless you are able to arrange an alternate time with your instructor, or the Assessment Centre.

<https://camosun.ca/apply/how-apply/assessment-and-testing/rescheduled-camosun-course-exams>

A midterm score that is not as high as that of the April final exam will be dropped automatically and its weight redistributed to the final exam. For example, if a low score is obtained on your midterm then your final exam will then be 55% of the course grade!

SCHOOL OR DEPARTMENTAL INFORMATION

IMPORTANT DATES (see <https://camosun.ca/dates>)

Week

VII Reading Week

XII Easter Weekend

XV Exam Period for Winter 2024 begins

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.

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.