



**CAMOSUN COLLEGE**  
**School of Arts & Science**  
**Department of Chemistry & Geoscience**

**CHEM-110-D02**  
**General College Chemistry 1**  
**Winter 2021**

## **COURSE OUTLINE**

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The course description is online @ <http://camosun.ca/learn/calendar/current/web/chem.html>

Please note: This outline will *not* be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.

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### **1. Instructor Information**

**Instructor:** Diana Li

**Office Hours:** Minimum of two 50-minute Collaborate Sessions per week designated for Chem 110 which will be revised as needed to maximize utilization. Instructor's timetable will be updated & provided each time revision occurs.

**Office/Phone:** Fisher 344C/250-370-3444 (Instructor is working remotely, please email her.)

**Email:** [lid@camosun.bc.ca](mailto:lid@camosun.bc.ca)

**Website:** <http://camosun.ca/learn/programs/chem.html>

### **2. Intended Learning Outcomes**

Upon completion of this course the 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.

### **3. Required Materials**

Text	The \$115 package of Mastering Chemistry with eBook "Chemistry, The Central Science: a broad perspective" Access Code from the Bookstore: <a href="https://www.camosuncollegebookstore.ca/buy_access_codes.asp">https://www.camosuncollegebookstore.ca/buy_access_codes.asp</a>
Other	◆ Chem 110 Lab Manual —available on D2L or via email & scientific calculator ◆ Technological Requirements: <a href="http://camosun.ca/services/orientation/online-learning.html">http://camosun.ca/services/orientation/online-learning.html</a>

## 4. Course Content and Schedule

Unit	Topic (approx. # of lecture hours)	Chemistry: The Central Science, 3 <sup>rd</sup> Australian Custom Ed. (current text for Chem 120/121)
1	Thermochemistry (9)	Ch. 14
2	Chemical Kinetics (4)	Ch. 15
3	Chemical Equilibrium (5)	Ch. 16
4	Solution & Solubility (4)	Ch. 2, 4, 18
5	Acid-Base Equilibria (5)	Ch. 4, 17, 18
6	Ionization & Neutralization (3)	Ch. 4, 17, 18
7	Redox & Electrochemistry (5)	Ch. 4 & 19

Week	Lecture Activities
I	Unit 1: Thermochemistry
II	Unit 1 continued
III	Finish Unit 1 & start Unit 2: Chemical Kinetics
IV	Finish Unit 2 & Test I Preparation
V	<b>Test I (Units 1 &amp; 2) on Tue, Feb. 9, 14:30-17:20</b> ; Unit 3: Chemical Equilibrium
VI	<b>Family Day (Mon, Feb. 15) &amp; Reading Break</b>
VII	Finish Unit 3
VIII	Unit 4: Solution & Solubility
IX	Finish Unit 4 & Test II Preparation
X	<b>Test II (Units 3 &amp; 4) on Tue, Mar. 16, 14:30-17:20</b> ; Unit 5: Acid-Base Equilibria
XI	Finish Unit 5
XII	Unit 6: Ionization & Neutralization
XIII	Unit 7: Redox & Electrochemistry
XIV	Finish Unit 7; Final Exam Preparation

## 5. Basis of Student Assessment (Weighting)

Labs (up to 10 virtual experiments)	20%
Test I (Units 1 & 2)	20% (Week V Tue, Feb. 9 Lab Period, ~2.5 h)*
Test II (Units 3 & 4)	20% (Week X Tue, Mar. 16 Lab Period, ~2.5 h)*
Final Exam (comprehensive)	40% (TBA ~ Week VI, 3 hours in April)

\* Test dates to be confirmed during the first week of classes in January.

### Notes:

1. Student must pass the lab portion of the course to obtain credit for Chem 110. Your lab faculty will go over the lab component of Chem 110 and lab evaluation with you...
2. Students are required to check their emails (the email address associated with his/her Camlink profile must be up to date) and D2L regularly.
3. Each test will be emailed to students (or loaded on D2L) and students will be writing remotely. Student is encouraged to attempt both tests. Test 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. However, anyone who is caught cheating will receive zero for that test which will not be redistributed. For anyone who misses both tests, your final exam will then be 80% of the course grade!
4. **Student must write each test during the lab period as scheduled for his/her section. No one will be allowed to write late and there will be no makeup test, no exceptions.**

## 6. Grading System

- Standard Grading System (GPA)
- Competency Based Grading System

## 7. Recommended Materials to Assist Students to Succeed Throughout the Course

## 8. College Supports, Services and Policies



### Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ <http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

### College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

### College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence, Student Ancillary Fees, Academic Integrity, Grade Review & Appeals, Student Misconduct and Academic Accommodations for Students with Disabilities and Student Penalties and Fines.

### School of Arts & Science Academic Honesty Guidelines

<http://camosun.ca/learn/school/arts-science/images/Arts%20and%20Science%20Academic%20Honesty%20Guidelines.pdf>

## A. GRADING SYSTEMS <http://camosun.ca/about/policies/index.html>

The following two grading systems are used at Camosun College:

### 1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

### 2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

## B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at <http://camosun.ca/about/policies/index.html> for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.