



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

**CHEM-110-001**  
**General College Chemistry 1**  
**Summer 2019**

**COURSE OUTLINE**

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

Ω 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:	Tue & Thu 2:00-3:20 pm, Fri 2:30-3:20 pm, or by appointment.
Location:	Fisher 344C
Phone:	250-370-3444
Email:	<a href="mailto:lid@camosun.bc.ca">lid@camosun.bc.ca</a>
Website:	<a href="http://camosun.ca/learn/programs/chem.html">http://camosun.ca/learn/programs/chem.html</a>

\*To avoid class interruptions & cancellations, please refrain from wearing fragrance or other strongly scented products to class!\*

**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

Texts	<ul style="list-style-type: none"><li>◆ “Chemistry, The Central Science: a broad perspective” by Brown et al., 2014—a.k.a. 3<sup>rd</sup> Australian Custom Edition for students who plan to take Chem 120 &amp; Chem 121.</li><li>◆ Camosun Chem 110 Text by Edvantage for pre-nursing students.</li></ul>
Other	<ul style="list-style-type: none"><li>◆ Scientific calculator</li><li>◆ Chem 110 Lab Manual (Eye protection is mandatory &amp; lab coat is highly recommended!).</li></ul>

### 4. Course Content and Schedule

Lecture Plan:

Unit	Topic (approx. # of lecture hours)	2 <sup>nd</sup> Australian Ed.	3 <sup>rd</sup> Australian Ed.	Camosun Text
1	Thermochemistry (9)	Ch. 4	Ch. 14	Ch. 3
2	Chemical Kinetics (4)	Ch. 12	Ch. 15	Ch. 1
3	Chemical Equilibrium (5)	Ch. 13	Ch. 16	Ch. 2
4	Solution & Solubility (4)	Ch. 1, 3, 15	Ch. 2, 4, 18	Ch. 4
5	Acid-Base Equilibria (5)	Ch. 3, 14, & 15	Ch. 4, 17, 18	Ch. 5
6	Ionization & Neutralization (3)			Ch. 6
7-I	Oxidation & Reduction (4)	Ch. 3 & 16	Ch. 4 & 19	Ch. 7
7-II	Electrochemistry (2)			

*Students may not use recording devices in the classroom without the prior permission of the instructor. However, the instructor's permission is not required when the use of a recording device is sanctioned by the College's Centre for Accessible Learning in order to accommodate a student's disability and when the instructor has been provided with an instructor notification letter which specifies the use of a recording device. Recordings made in the classroom are for the student's personal use only, and distribution of recorded material is prohibited.*

### 5. Basis of Student Assessment (Weighting)

Labs (up to 9 experiments)	20%
Test I (Units 1)	17% (Week III May 23 (Thu) Lab Period; approx. 2 hours)*
Test II (Units 3 & 4)	18% (Week VI June 13 (Thu) Lab Period; approx. 2.5 hours)*
Final Exam (comprehensive)	45% (TBA ~Week IV, 3 hours in June)

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

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) Student is encouraged to attempt both tests. Test score that is not as high as that of the June 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!
- (3) Student must write each test in the lab period as scheduled for his/her section. No one is allowed to write late and there will be no exceptions. Early exam is a privilege and not a right; thus, at full discretion of the instructor.

### 6. Grading System

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

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

Hard copies of the 1<sup>st</sup>, 2<sup>nd</sup>, & 3<sup>rd</sup> Australian Editions of B-L-B are available in the Library Reserve Room.

**Note:** Short answers to all red numbered exercises are at the back of the text, and a hard copy of the Solutions Manual for the 1<sup>st</sup> Australian Edition is in the library. Answers to red & black numbered exercises in the 3<sup>rd</sup> Australian edition will be available for Chem 120 & 121 students.

## 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 and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

### 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.

## Di's Summer 2019 Chem 110 Preliminary Lecture & Lab Plans (updated on May 6)

Di's office/phone/email: F344C, 370-3444, [lid@camosun.bc.ca](mailto:lid@camosun.bc.ca)

Lab Faculty: John Lee, F348D ([leejohn@camosun.bc.ca](mailto:leejohn@camosun.bc.ca))

Wk	Monday	Tuesday	Wednesday	Thursday	Friday
I	12 <sup>30</sup> -2 <sup>20</sup> Lec in E201	1 <sup>30</sup> -4 <sup>20</sup> Lab in F354	12 <sup>30</sup> -2 <sup>20</sup> Lec in E201	1 <sup>30</sup> -4 <sup>20</sup> Lab in F354	12 <sup>30</sup> -2 <sup>20</sup> Lec in E201
I	5/6 General Course Info & Unit 1	5/7 Lab Orientation—attendance mandatory for all registered & waitlisted students!	5/8 Unit 1	5/9 Expt. 4 Precipitation Reactions	5/10 Unit 1
II	5/13 Unit 1	5/14 Expt. 6 Acid-Base Titrations	5/15 Unit 1	5/16 Expt. 1 Energy Changes	5/17 Test I Review
III	5/20 Victoria Day—College Closed	5/21 Expt. 2 Reaction Rates (bring digital timing device!)	5/22 Unit 2	5/23 Test I (Unit 1) 1:30-3:30 in F354	5/24 Unit 2
IV	5/27 Return Test I, Unit 3	5/28 Expt. 3 Shifting Equilibria	5/29 Unit 3	5/30 Expt. 7 Vitamin C, ASA, & Milk of Magnesia	5/31 Unit 3
V	6/3 Unit 4	6/4 Expt. 8 Titration Curves	6/5 Unit 4	6/6 Expt. 10 Redox Reactions	6/7 Test II Review
VI	6/10 Unit 5	6/11 Expt. 11 Oxidation of Iron	6/12 Unit 5	6/13 Test II (Units 3 & 4) 1:30-4:00 in F354	6/14 Unit 5 & Unit 6
VII	6/17 Return Test II, Unit 6	6/18 Wrapping up Lab Work	6/19 Unit 7	6/20 Unit 7	6/21 Exam Info & Review

Eye protection is mandatory in the lab!!

May 13—Add Course/Drop with Tuition Refund Deadline; May 21—Fees Due

June 7—Last Day to Drop/Audit...

June 24-26 Exam Period for Summer 2019

- Unit 1 Thermochemistry
- Unit 2 Chemical Kinetics
- Unit 3 Chemical Equilibrium
- Unit 4 Solution & Solubility
- Unit 5 Acid-Base Equilibria
- Unit 6 Ionization & Neutralization
- Unit 7 Redox & Electrochemistry