



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

CHEM-110-005
College Chemistry 1
Fall 2019

COURSE OUTLINE

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.

1. Instructor Information

(a) Instructor	Dr. Steve McKinnon
(b) Office hours	See Schedule or by appointment
(c) Location	Fisher 348A
(d) Phone	250-370-3472 Alternative: _____
(e) E-mail	mckinnons@camosun.bc.ca
(f) Website	D2L

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

- (a) Lab Experiments: Chemistry 110 Laboratory Manual, (In-house)
- (b) Safety Glasses

Other Recommended Materials (Used for Chem 120/121)

CHEMISTRY, The Central Science: a Broad Perspective[®] by Brown, Lemay, Bursten, Langford, Sagatys, and Duffy. Prentice Hall, Australian 3rd edition.
\$145 (Hard copy with Mastering access code)
\$114 (ebook with Mastering access code)

4. Course Content and Schedule

Lecture Plan			
Unit	Topic (approx. # of lecture hours)	B-L-B 3 rd Aust. Ed	B-L-B (9 th /10 th Ed.)
1	Review (3)	Ch. 1-3	Ch. 1-3
2	Solutions (3)	Ch. 4	Ch. 4
3	Thermochemistry (5)	Ch. 14	Ch. 5 & 19
4	Chemical Kinetics (5)	Ch. 15	Ch. 14
5	Chemical Equilibrium (5)	Ch. 16	Ch. 15
6	Acid-Base Equilibria (6)	Ch. 2, 4, 12, 18	Ch. 2, 4, 17
7	Solubility Equilibria (5)	Ch. 2, 4, 17	Ch. 4, 16, 17
8	Redox and Electrochemistry (6)	Ch. 4 & 19	Ch. 4 & 20

5. Basis of Student Assessment (Weighting)

(a) Midterm Test I	(Units 1-3)	20%
(b) Midterm Test II	(Units 4-6)	20%
(c) Final Exam	(Cumulative)	40%
(d) Laboratory	(Mandatory)	20%

Notes

- Students **must** complete a minimum of 70% of the laboratory work to pass the laboratory component of Chem 110. Students must pass the laboratory portion (>50%) of the course in order to obtain credit for Chem 110.
- A test score that is not as high as that of the December 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 80% of the course grade.
- Students must write each test as scheduled. No one is allowed to write late and there will be no exceptions. Early exam is a privilege and not a right, at full discretion of the instructor.

Important Dates

Oct. 7 (Mon): **Test I 1:30-4:00pm in Lab**
Oct. 14 (Mon): Thanksgiving
Nov. 11 (Mon): Remembrance Day
Nov. 18 (Mon): **Test II 1:30-4:00pm in Lab**
Final Exam Period: Dec. 9-14, 16 and 17

See Camosun website for information on fee and drop deadlines.
<http://camosun.ca/learn/fees/#deadlines>

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 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.

Fall 2019 Lab Schedule

Chem 110-005 – Mondays, 1:30-4:20 in Fisher 354

Week Number	Experiment Number & Activity	Lab Date Wednesday
I	Labour Day	Sept 2 nd
II	Intro and Safety Orientation Expt. 4 - Part 1	Sept 9 th
III	Expt. 6 – Acid Base Titrations	Sept 16 th
IV	Expt. 1 – Energy Changes	Sept 23 rd
V	Expt. 2 – Reaction Rates	Sept 30 th
VI	Test I in Lab (1.5 hours)	Oct 7 th
VII	Thanksgiving Day	Oct 14 th
VIII	Expt. 3 – Shifting Equilibria	Oct 21 st
IX	Expt. 7 – Vitamin C, ASA and MOM	Oct 28 th
X	Expt. 8 – Titration Curves	Nov 4 th
XI	Remembrance Day	Nov 11 th
XII	Test II in Lab (1.5 hours)	Nov 18 th
XIII	Expt. 12 - Electrochemistry	Nov 25 th
XIV	Review	Dec 2 nd
Final Exam Period - Dec 9 – 14, 16 and 17		

Note: This is only a preliminary lab schedule, changes will be made due to equipment &/or glassware problems, or rescheduling of tests...

Eye protection is mandatory!!