



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

CHEM-110-001
General College Chemistry 1
Winter 2018

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	Blair Surridge	
(b) Office hours	Tu: 10:30-12:20am	Wed and Thurs: 10:30-11:20am
(c) Location	F348D	
(d) Phone	250-370-3436	Alternative: _____
(e) E-mail	SurridgeB@camosun.bc.ca	
(f) Website	http://camosun.ca/learn/programs/chem/surridge.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

(a)	Course Notes	Chem 110 Lecture Notes by Blair Surridge
(b)	Text	"Chemistry, The Central Science:" by Brown et. al., 2014, a.k.a. B-L-B Camosun Custom Edition
(c)	Safety Glasses	Book store has "Uvex" safety eyewear – please check if using others
(d)	Lab coat	Bookstore has cloth coats available – please check if using another type
(e)	Lab Manual	Chem 110 Laboratory Manual

4. Course Content and Schedule

Lectures:

Tuesday	9:30 to 10:20 pm in WT226
Wednesday	9:30 to 10:20 pm in F214
Thursday	9:30 to 10:20 pm in WT226

Unit	Topic	Textbook Readings
0	REVIEW ON YOUR OWN: Matter, units of measure and uncertainty, Atomic and Electronic Structure and Basic Bonding	Ch. 1 (in detail) Ch. 6 and 8 (parts only see class notes)
0	REVIEW IN CLASS: Periodic Table, Naming Molecules and Ions, Stoichiometry Solutions and Molarity, Ionic Equations, Acids and Bases, and Oxidation-Reduction	Ch. 2 and Ch. 3 (In detail) Ch. 4 (Emphasis will be on precipitation rxns (4.2), molarity (4.5), and solution stoichiometry (4.6))
1	Thermochemistry	Ch. 14 Omit sections 14.8 to 14.13
2	Chemical Kinetics	Ch. 15 Omit sections 15.4, 15.5, 15.6, and 15.7
3	Chemical Equilibrium	Ch. 16 Omit sections 16.7
4	Solution and Solubility	Ch. 12 Omit sections 12.5 and 12.6
5	Acids and Bases	Ch. 17 Omit sections 17.8, 17.9, & 17.11
6(Part 1)	Oxidation/Reduction	Ch. 4 (section 4.4)
6(Part 2)	Electrochemistry	Ch. 19 Omit section 19.5 and 19.6

Note: Lectures will not be covering the chapters from the text in completely.
(Specifics are given in the class lecture notes)

**Chem. 110 Lab Schedule, Thurs 12:30-3:20 in F354
(Subject to Change)**

Week	Lab Date	Experiment
I	Jan 11 th	Lab Orientation/Review
II	Jan 18 th	Exp # 4, Precipitation Reactions
III	Jan 25 th	Exp # 6, Analysis of Vinegar
IV	Feb 1 st	Exp # 1, Energy Changes
V	Feb 8 th	Exp # 2, Reaction rates
VI	Feb 15 th	No Lab Scheduled (Reading Days)
VII	Feb 22 nd	Exp # 3, Shifting Equilibria
VIII	Mar 1 st	Midterm (2.0hrs)
IX	Mar 8 th	Exp # 7 Analysis of tablet products
X	Mar 15 th	Tutorial and review
XI	Mar 22 nd	Exp # 10 Redox
XII	Mar 29 th	Tutorial and review
XIII	Apr 5 th	Exp# 12 Electrochemistry
XIV	Apr 12 th	Review for Final Exam

5. Basis of Student Assessment (Weighting)

Labs	20%
Quizzes ¹ & Sapling Learning ² (Online Questions)	25%
Midterm Test (Units 1, 2, & parts of 3)	15% (Week VIII Lab Period, 2.0 hours) ²
Final Exam (comprehensive)	40% (TBA ~Week XV, 3 hours in April)

1. Tentatively six or seven quizzes scheduled. You will receive at least 4 days of notice before a quiz and details will be posted on D2L!!
2. Sapling Learning has a cost of ~\$45 and can be accessed from the following site www.saplinglearning.ca/login. Note see D2L post for a more detailed set of instructions.

Important Notes:

- (1) This course **cannot** be done as an online course and student are expected to come to class. Missing classes typically leads to an F grade in the course.
- (2) Students are expected to check D2L every couple of days for the following;
 - News postings for announcements (e.g. – info regarding to labs, quizzes, and exams)
 - Accessing homework information and answers (blair's questions and end of chapter questions)
 - Handouts and notes that were provided in class

- (3) **Students must pass the lab portion and the lecture portion** of the course to obtain credit for Chem 110. All labs are to be attended and individual lab reports completed. A zero grade is given if the report is not handed in. If a lab is missed contact must be made with the instructor to make arrangements. No exceptions.
- (4) *At the discretion of the instructor a student who is repeating this chemistry course may apply for lab exemption.*
- (5) Immediate contact must be made with instructor for missed labs and tests due to illness or family emergencies for arrangements to be made.
- (6) A 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. For example, if the midterm test is missed your final exam will then be 60% of the course grade!
- (7) No one is allowed to write tests late and there will be no exceptions. Early writing 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

N/A

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://www.camosun.bc.ca/policies/policies.php>

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://www.camosun.bc.ca/policies/E-1.5.pdf> 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.