



COURSE OUTLINE

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

Ω Please note: the College electronically stores this outline for five (5) years only.
It is **strongly recommended** you keep a copy of this outline with your academic records.
You will need this outline for any future application/s for transfer credit/s to other colleges/universities.

1. Instructor Information

(a)	Instructor:	Dr. Tatiana Popa		
(b)	Office Hours:	Monday, Wednesday 4:30 -5:50 pm <i>or by appointment</i>		
(c)	Location:	Room 106E, Fisher Building, Lansdowne Campus		
(d)	Phone:	250 370 3374	Alternative Phone:	
(e)	Email:	PopaT@camosun.bc.ca		
(f)	Website:	D2L		

2. Intended Learning Outcomes

(No changes are to be made to these Intended Learning Outcomes as approved by the Education Council of Camosun College.)

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)	Textbook	"Chemistry, The Central Science" by Brown, LeMay & Bursten, 3 rd Australian Edition. (Also required for students going on to CHEM 120/121).
(b)	Lab Manual (Mandatory)	CHEM 110 Lab Manual, Camosun College Publications.
(c)	Safety Glasses (Mandatory)	Bookstore has "UVEX" safety eyewear – please check if using others
(d)	Lab coat (Optional)	Bookstore has lab coats available – please check if using another type
(e)	Scientific Calculator (Mandatory)	Smartphones / PDAs or similar devices cannot be used during tests & exams.

Students are responsible for obtaining their own safety glasses and lab coat from the bookstore. It is not the responsibility of the College to provide you with safety equipment.

4. Course Content and Schedule

Lecture Plan

Unit	Topic	Unit	Topic
1	States of Matter	6	Acid-Base Chemistry
2	Thermochemistry	7	Oxidation & Reduction
3	Solutions & Solubility	8	Electrochemistry
4	Chemical Kinetics	9	Organic Compounds
5	Chemical Equilibrium		

Lecture Wednesday 6:00 pm – 8:50 pm Fisher Building - Room 302
Laboratory Monday 6:00 pm – 8:50 pm Fisher Building - Room 354

Test I Wednesday October 4th (Lecture period) Fisher Building - Room 302
Test II Monday November 6th (Lab period) Fisher Building - Room 354

5. Basis of Student Assessment (Weighting)

- (a) Assignments 10%
- (b) Laboratory work 25%
- (c) Test I and II (2x15%) 30%
- (d) Final exam 35%

If it is advantageous to the student the theory mark will be solely derived from the final examination, or a combination of midterm with the final. To write the final exam you must achieve a minimum final score of **50%** on laboratory work, and you must pass both the lecture portion and the laboratory portion in order to pass the course.

6. Grading System

(No changes are to be made to this section unless the Approved Course Description has been forwarded through the Education Council of Camosun College for approval.)

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	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

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 E-1.5 at camosun.ca 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, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. (For these courses a final grade will be assigned to either the 3 rd course attempt or at the point of course completion.)
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.

7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services, or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services, and the College web site in the Policy Section.

Laboratory schedule Fall 2017

Week Number	Date of lab	Experiment
II	Mon, Sep 11th	<i>Laboratory & Safety Orientation</i>
III	Mon, Sep 18th	Expt 4. Precipitations Reactions
IV	Mon, Sep 25th	Expt 1. Energy Changes
V	Mon, Oct 2nd	Expt 2. Reaction Rates
VI	Mon, Oct 9th	Thanksgiving Monday
VII	Mon, Oct 16th	Expt 3. Shifting Equilibria
VIII	Mon, Oct 23rd	Expt 7. Vitamin C, Aspirin, Magnesia
IX	Mon, Oct 30th	Expt 8. Acid – Base Titration Curves
X	Mon, Nov 6th	Term Test #2
XI	Mon, Nov 13th	<i>Remembrance Day</i>
XII	Mon, Nov 20th	Expt 10. Oxidation – Reduction Reactions
XIII	Mon, Nov 27th	Expt 12. Electrochemistry
XIV	Mon, Dec 4th	Lab wrap-up; Final Exam Review