



## 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:	Silvija Smith		
(b)	Office Hours:	11:30am-12:30pm Mondays and Wednesdays, or by appointment		
(c)	Location:	TEC232		
(d)	Phone:	250-370-4447	Alternative Phone:	N/A
(e)	Email:	smiths@camosun.bc.ca		
(f)	Website:	D2L		

\* email is the preferred method of contact

### 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 a student will be able to:

1. Calculate outcomes of chemical reactions based on stoichiometric quantities in general and in aqueous solutions in particular.
2. Describe the electronic configuration of atoms and explain why some atoms have unusual configurations.
3. Determine the shape and symmetry of molecules based on atomic, molecular, and hybrid orbitals.
4. Explain the impacts of bond polarity on molecular interactions on the physical states (phases) of molecules.
5. Determine the properties of polymers, ceramics and other engineering materials based on bonding and molecular interactions.
6. Calculate the properties of ideal gases. Describe the differences between ideal and non-ideal gases.
7. Calculate physical properties of solutions.
8. Determine rate constants, order of reaction and activation energy for simple chemical reactions.
9. Determine concentrations of participating molecules in chemical equilibria, in particular, aqueous equilibria. Determine the pH of dilute aqueous solutions of acids and bases.
10. Explain the importance of total energy, enthalpy, entropy and free energy in chemical processes.
11. Balance redox reactions. Determine the voltages of simple electrochemical cells. Describe the role of electrochemistry in corrosion and corrosion control.
12. Use orbital theory to describe the properties of metals and semiconductors.

### 3. Required Materials

(a)	Textbook (optional)	"Chemistry, The Central Science" by Brown, LeMay & Bursten, 3 <sup>rd</sup> Australian Edition (recommended for students going on to CHEM120/121). Lecture notes will be supplied on D2L
(b)	Lab Manual (Mandatory)	CHEM110 Lab Manual, Camosun College Publications.
(c)	Safety Glasses (Mandatory in Lab)	Bookstore has "UVEX" safety eyewear – please check with instructor if using others
(d)	Lab Coat (optional in Lab)	Bookstore has cloth coats available – please check with instructor if using others
(e)	Covered Footwear (Mandatory in Lab)	Exposed feet (e.g. sandals, flip-flops) are not permitted in the lab
(f)	Scientific Calculator (Mandatory)	Smartphones/PDAs or similar devices cannot be used during tests and exams

\* All required materials are available at the Camosun College Bookstore.

### 4. Course Content and Schedule

(This section can include: class hours, lab hours, out of class requirements and/or dates for quizzes, exams, lectures, labs, seminars, practicums, etc.)

#### Locations & Times

	Time	Location
Lab	Wednesdays 1:30-3:50 pm	Technology Building, Room 230
Lecture	Mondays 10:30-11:20 am	Technology Building, Room 173
	Tuesdays 2:30-3:20 pm	Technology Building, Room 110
	Wednesdays 10:30-11:20 am	Technology Building, Room 173
	Fridays 10:30-11:20 am	Technology Building, Room 173

#### Lecture Plan

Unit	Topic (approx. # of lecture hours)
1	Foundations (6)
2	Intro to Quantum Mechanics (4)
3	Periodic Properties (4)
4	Basic Concepts of Bonding (4)
5	Molecular Geometry and Bonding Theories (4)
6	Intermolecular Forces: Gases (4)
7	Intermolecular Forces: Liquids (4)
8	Thermochemistry & Thermodynamics (4)
9	Acids & Bases (6)
10	Electrochemistry (4)
11	Organic Chemistry (4)

#### Important Dates

Date	Event
Tues. Oct. 10 – Fri. Oct. 13	Midterm I (Exam date, time, location TBA)
Tues. Nov. 14 – Fri. Nov. 17	Midterm II (Exam date, time, location TBA)
December 11 <sup>th</sup> – 19 <sup>th</sup>	Final Exam Week (Exam date, time, location TBA)

#### Lab & Test Schedule

Week #	Lab Date (Wednesdays)	Experiment #	Experiment	Lab Report Due Date
1	Sept. 6	-	No lab	-
2	Sept. 13	0	Safety	-

3	Sept. 20	1	Densities	Sept. 27
4	Sept. 27	2	Stoichiometry	Oct. 4
5	Oct. 4	3	Spectroscopic Determination of Nickel	Oct. 18
6	Oct. 11	-	No lab	-
7	Oct. 18	4	Shape of molecules and polarity	Oct. 25
8	Oct. 25	5	Distillation	Nov. 1
9	Nov. 1	6	Thermochemistry	Nov. 8
10	Nov. 8	7	Copper, corrosion, and recycling of copper	Nov. 22
11	Nov. 15	-	No lab	-
12	Nov. 22	8	Bromination of Acetone	Nov. 29
13	Nov. 29	9	Determination of Chloride	Dec. 6
14	Dec. 6	-	No Lab	-

## 5. Basis of Student Assessment (Weighting)

*(This section should be directly linked to the Intended Learning Outcomes.)*

Labs	25 %
Assignments	15 %
Midterm I	15 %
Midterm II	15 %
Final Exam (comprehensive)	30%

- To write the final exam you must achieve a minimum final score of 50% on the laboratory work.
- You must pass both the lecture portion and the laboratory portion in order to pass the course.
- There will be no make-up midterm tests. The weight of a missed midterm will be reassigned to the final exam.
- If the percent score on the final exam is higher than one or both midterm marks, the final exam mark will replace the lower midterm mark(s).
- Assignments are online (via D2L) and must be completed by the assigned due date. No late submissions will be accepted, and a mark of zero will be assigned.

### The Laboratory Mark

- Lab reports are due at the beginning of the lab period in which they are due, no late lab reports will be accepted, and a mark of zero will be assigned.**
- Wearing of **safety goggles and covered footwear is mandatory** in all labs. Students who forget safety goggles and/or covered footwear or fail to wear them will not be allowed to complete the lab. One warning will be given, after which the student will be asked to leave the lab, prohibiting them to complete the lab, and a mark of zero will be assigned for the lab report portion of the lab.
- Punctual attendance to all lab periods is mandatory.** Arriving after the pre-lab talk is finished will prohibit the late student to complete the lab, and thus a mark of zero will be assigned for the lab report. Prior arrangements must be made with the instructor via email, **at least 24 hours** in advance, if a student will be late or absent from the lab.

## 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
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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](http://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. <i>(For these courses a final grade will be assigned to either the 3<sup>rd</sup> course attempt or at the point of course completion.)</i>
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](http://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.