



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

CHEM-180-X01ABC
Applied Science for Civil
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	Daniel Dönnecke
(b) Office hours	Monday 3:30 pm – 4:20 pm in TEC 232
(c) Location	TEC 232
(d) Phone	Alternative: _____
(e) E-mail	donnecked@camosun.bc.ca
(f) Website	D2L

2. Intended Learning Outcomes

Upon completion of this course the student will be able to:

1. Apply the safety procedures applicable to a chemistry laboratory.
2. Apply the basic terminology and tools used in chemistry including: components of the periodic table, units, the mole concept, balancing of equations, chemical nomenclature and chemical bonding.
3. Use the gas laws to calculate changes in a gas temperature, pressure and volume and apply the concepts of vapour pressure and partial pressure.
4. Describe the processes of dissolution and precipitation and apply equations of solubility; differentiate between a solution and a suspension.
5. Describe common contaminants in natural water supplies and the methods used for measuring them.
6. Define LD50 and describe simple concepts of toxicology.
7. Describe the natural cycles of nitrogen, phosphorus and carbon.
8. Identify various types of bacteria and their metabolism.
9. Describe bacterial growth and the bacterial growth curve.
10. Apply the fundamentals of chemistry to such applications as: corrosion and cathodic protection; hydration of Portland cement; polymers and plastics.

3. Required Materials

(a) Texts

No text is required, but it is recommended that you have a first year university chemistry text, either used or from the library. Brown Le May "Chemistry the central science" is a good book. Petrucci "General Chemistry" is an excellent book. Older editions are fine. There are a few copies in the library including a Petrucci in the reserved reading section. Lecture slides will be posted on D2L.

(b) Lab Manual online (D2L)

Lab procedures are posted on D2L. You need to print them and bring them to each lab as they contain the procedures for the experiments and instructions on the lab write-up. You need safety glasses in the lab!

4. Course Content and Schedule

Timetable:

Lecture: Section X01A, X01B and X01C: M, Tue, Th and Fr 2:30 pm – 3:20 pm in TEC 173

Lab: Section X01A and X02A: Fr 3:30 pm – 5:20 pm, alternate weeks in TEC 230

Section X01C: Tu 12:30 pm – 14:20 pm, alternate weeks in TEC 230

DETAILED OUTLINE

WEEK	ACTIVITY
1	2 September, Labour Day, College closed Lab safety, both sections attended
2	<i>Lab 1 Stoichiometry: Decomposition of Copper Bromide</i>
3	<i>Lab 1 Stoichiometry: Decomposition of Copper Bromide</i> Term Test 1
4	<i>Lab 2 The molar Volume of Hydrogen</i>
5	<i>Lab 2 The molar Volume of Hydrogen</i>
6	<i>Lab 3 Hardness of water, titrating combined Calcium and Magnesium in Colquitz River water</i> Term Test 2
7	14 October, Thanksgiving , College closed <i>Lab 3 Hardness of water, titrating combined Calcium and Magnesium in Colquitz River water</i>
8	<i>Lab 4 Spectrophotometric determination of Copper</i>
9	Midterm
10	<i>Lab 4 Spectrophotometric determination of Copper</i>
11	11 November, Remembrance Day , College closed <i>Lab 5 Trace Metals in Natural Waters, Atomic Absorption Spectroscopy</i>
12	<i>Lab 5 Trace Metals in Natural Waters, Atomic Absorption Spectroscopy</i> Term Test 3
13	<i>Lab 6 TBA, Review</i>
14	<i>Lab 6 TBA, Review</i>
15	Final exam period starts

5. Basis of Student Assessment (Weighting)

Laboratory (5)	16%
Term Tests (3)	24%
Midterm	20%
Final	40%
Total	100%

6. Grading System

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

Term Tests will cover sections of the course while the midterm and the final will cover all the materials up to the midterm and the final respectively. Problem sets which will help you prepare for exams will be posted on D2L approximately every two to three weeks. These problem sets will not be graded but answer keys will be published. A lab that is missed without a valid reason such as a doctor's note or incomplete because no report was handed in by the beginning of the following lab period receives a mark of zero. If you miss a term test or the midterm because you were ill or had a serious emergency, of which you have informed me before or immediately after the exam and provided acceptable proof you will be granted a rewrite at a time convenient to both of us. You must pass the lab to pass the course. You must also pass the final exam to pass the course.

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
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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		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.