



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

CHEM-070-D01
College Prep Chemistry
Fall 2020

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	TBA and by appointment
(c) Location	Online
(d) Phone	Alternative: _____
(e) E-mail	mckinnons@camosun.bc.ca
(f) Website	D2L

2. Intended Learning Outcomes

CHEM 070 encompasses the Core Topics for Chemistry: Advanced Level (11) outlined in the 2018-2019 BC ABE Articulation Handbook. Upon successful completion of this course a student will be able to:

- Obtain the prerequisite body of knowledge and skills that will provide a basis for further academic and career / vocational education and training
- Demonstrate an awareness of chemistry in everyday life
- Demonstrate an awareness of chemistry in solutions to environmental challenges
- Apply scientific method to investigate phenomena
- Communicate effectively using the language of chemistry
- Carry out all duties in an ethical, professional manner, including the collection and treatment of data
- Work independently and also as part of a team, where appropriate
- Handle equipment and chemicals in a safe and effective manner with regard to personal safety and the safety of others

3. Required Materials

- (a) Access to Microsoft 365 Word & Excel - Free with Camosun student e-mail, go to <https://webservices.camosun.ca/o365-opt-in/>
- (b) Scientific Calculator

- (c) Course Manual and Study Guide – provided free on D2L. Students may also purchase a physical copy (shipped from the Lansdowne Bookstore)
- (d) Laboratory Manual - provided free on D2L. Students may also purchase a physical copy (shipped from the Lansdowne Bookstore)

4. Course Content and Schedule

Lecture Outline

A detailed outline of the lecture material is provided in the Table of Contents of *Chemistry 100 Notes*. Notably, this book has been designed specifically for this course to present many relevant examples of the chemistry of life and the environment including those intended to stimulate interest and curiosity.

- 1. Measurements and Calculations:** SI & other scientific units; SI prefixes; metric conversions; measurements, scientific notation, & significant figures; density calculations; calculations involving energy changes.
- 2. Introductory Terminology:** scientific method; physical & chemical changes; elements, compounds and mixtures; metals and nonmetals; atoms and molecules; protons, neutrons and electrons; ions and isotopes; atomic masses.
- 3. Chemical Formulas and Names:** composition of chemical compounds; formulas and naming of molecular compounds; meaning of ionic formulas and naming of ionic compounds; compounds containing polyatomic ions; formulas and names of acids.
- 4. Calculations Based Upon Formulas:** molecular mass; formula mass; percentage composition; the mole; grams to moles and moles to grams conversions; moles of molecular or ionic compounds; Avogadro's Number.
- 5. Stoichiometry:** balancing chemical equations; stoichiometry - problems based upon chemical equations; limiting reactant calculations; percentage yield calculations; calculations involving exothermic or endothermic chemical reactions.
- 6. Periodic Table and Electron Distributions:** chemical families; electron levels and orbitals (sublevels); electron distribution in atoms; electron dot formulae; trends in atomic radii (size), ionization energies & chemical reactivity.
- 7. Chemical Bonding:** formation of ionic compounds; formation of molecular compounds; electron dot formula representations; electronegativity and bond polarity; molecular geometry and polarity.
- 9. Liquids and Solutions:** general properties of liquids; hydrogen bonding; vapour pressure and boiling point; solubility; solution concentration & diluting solutions; electrolytes, dissociation equations & ion concentrations in solution; pH scale; solution stoichiometry.
- 10. Organic Chemistry:** why so many organic compounds?; structural formulas and isomers; naming of hydrocarbons & alcohols; optional: addition and substitution reactions in organic chemistry.
- 11. Radioactivity (optional):** Radioactive substances; alpha, beta & gamma rays & associated decay; optional: production of radioisotopes; half-life and dating; medical applications.

Laboratory and Test Schedule – Tuesday, 11:30-1:30

Week	Date	Activity
1	Sept 8	Orientation
2	Sept 15	Exp 1 - Density
3	Sept 22	Quiz 1 Exp 4 – Heat of Combustion
4	Sept 29	Exp 3 – Separation of Mixtures
5	Oct 6	Quiz 2
6	Oct 13	Exp 5 – Recycling Copper
7	Oct 20	Quiz 3
8	Oct 27	Midterm Exam
9	Nov 3	Exp 7 – Cu and AgNO ₃ Reaction
10	Nov 10	Quiz 4
11	Nov 17	Exp 12 - Neutralization
12	Nov 24	Quiz 5
13	Dec 1	Tutorial
14	Dec 8	Quiz 6 Exam Info and Review

Final Exam Period Dec 14 – 22 The time and location will be published by the College during the semester

5. Basis of Student Assessment (Weighting)

- (a) 20% Lab Assignments
- (b) 30% Quizzes
- (c) 20% Midterm Test
- (d) 30% Final Exam

Notes

Quizzes will be scheduled during lab periods. They will cover material up until the Friday before the scheduled quiz day. The overall quiz grade will be taken from the best 5 of 6 quiz marks.

The Midterm will cover all material from the first half of the course. Details to be discussed in class.

The Final exam is cumulative.

Classes and labs will be online through Collaborate (D2L) as scheduled (synchronous). These sessions will be recorded so students can access information at other times or catch up on stuff they missed.

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.