

D. Acid-Base

- Describe Bronsted-Lowry acids and bases including acid-base pairs
- Predict the relative strengths of acids
- Calculate $[H^+]$, $[OH^-]$, pH, and pOH from any one known
- Calculate pH from K_a
- Describe the characteristics of a buffer system

E. Oxidation-Reduction

- Assign oxidation states to elements in compounds
- Identify oxidizing and reducing agents
- Balance redox equations
- Describe the components of electrochemical and electrolytic cells
- Predict the voltage, E° , of electrochemical and electrolytic cells
- Describe the applications of oxidation-reduction to everyday and industrial processes
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Laboratories*

Chemistry laboratories are an essential component of the study of chemistry. During laboratories, students reinforce theory through practice. Laboratories develop skills in safety, procedures, techniques, data collection, analysis, and communication.

In the laboratory exercises, students will:

- List the safety and protective equipment available in a laboratory setting
- Demonstrate the appropriate procedures and techniques for dealing with particular hazards and hazardous materials
- Follow instructions and procedures
- Handle appropriate equipment for measuring mass, volume, and temperature
- Prepare solutions
- Perform titrations
- Collect and record data effectively
- Analyze and interpret data
- Communicate results and conclusions
- Write formal laboratory reports

*Laboratory exercises during Fall 2020 will be simulated online.

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) Chemistry online E-textbook from TOP HAT: <https://app-ca.tophat.com/>
- (b) Lab Manual – Available online (D2L)
- (c) Scientific calculator (Preferably Sharp)
- (d) Internet Access – Lectures, labs and tutorials will be online. Computer preferred.

4. Course Content and Schedule

All lectures and labs will be conducted synchronously and recorded.

	Time	Location
Lecture	Tuesday and Thursday 9:30 –10:50 Friday 9:30 – 10:20	<i>Online via D2L (collaborate ultra)</i>
Lab (Virtual)	Wednesday 1:30 – 3:20 PM	<i>Online via D2L (collaborate ultra)</i>

Lecture Plan

Unit	Topic
1	Measurement, Atoms, Molecules
2	Properties of Chemical solutions
3	Chemical bonding and Nomenclature
4	Gas Laws
5	Reaction Kinetics
6	Equilibrium
7	Acids & Bases
8	Solubility equilibria
9	Oxidation & Reduction

The first three units are mainly topics for review. It will cover approximately three weeks of lectures.

Lab schedule Winter 2021

Week	Lab Date	Lab No.	Lab Name
1	Jan 13	1	Orientation (Lab, D2L and instructor expectations)
2	Jan 20	7	Precipitation Reactions
3	Jan 27	2	Titration
4	Feb 3	3	Gas Laws
5	Feb 10	Online Test	Midterm Test 1
6	Feb 17	-	No classes reading break week
7	Feb 24	5	Reaction rates
8	Mar 3	6	Equilibrium
9	Mar 10	-	Solubility Equilibrium
10	Mar 17	Online Test	Midterm Test 2
11	Mar 24	10	pH of salt solutions
12	Mar 31	11	Redox Couples
13	Apr 7	-	Review
14	Apr 14	-	Review

5. Basis of Student Assessment (Weighting)

Labs (8) + orientation and safety quiz	25%
Quizzes (~1 per week) D2L	15%
Midterm Tests (2 x 15 %)	30%
Final Exam (comprehensive)	30%

6. Grading System

Standard Grading System (GPA)

Competency Based Grading System

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

The Camosun Student Success Centre offers many support services including online Learning Skills Guides, Learning Circles, and one-one-one appointments. Students are encouraged to explore what is available here: <http://camosun.ca/services/writing-centre/learning-skills.html>

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, Student Ancillary Fees, Academic Integrity, Grade Review & Appeals, Student Misconduct and Academic Accommodations for Students with Disabilities 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.