



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:	John Lee		
(b)	Office Hours:	See posted times on F344A door		
(c)	Location:	F344A		
(d)	Phone:	250 370 3446	Alternative Phone:	
(e)	Email:	leejohn@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. Utilize the specialized vocabulary and nomenclature based on the IUPAC system of organic compounds to name and draw structures for many simple organic compounds containing the common functional groups.
2. Write chemical reactions to illustrate numerous transformations between organic functional groups.
3. Draw structural and stereoisomers of organic compounds and name stereoisomers based upon the IUPAC system of nomenclature.
4. Demonstrate an understanding of the factors that influence the rate of a chemical reaction, deduce the rate of a chemical reaction from time/concentration data, and utilize rate laws to perform kinetic calculations.
5. Apply the laws of thermodynamics and account for the factors that lead to spontaneous physical and chemical changes.
6. Explain how and why reactions attain equilibrium positions and perform calculations pertaining to equilibrium systems.
7. Describe redox reactions, use electrochemical data to predict the spontaneity of redox reactions, and comprehend the structures of electrochemical cells.
8. Describe various acid-base theories and apply these theories to acid-base reactions in aqueous solution.
9. Perform experiments in the areas of preparative organic, preparative inorganic, physical and analytical chemistry and use the various associated pieces of laboratory equipment.

3. Required Materials

(a) **Mastering Chemistry Course Code.** A My lab Mastering Chemistry Access Code can be purchased from the Pearson Website: <http://www.pearson.com.au/9781442563902> or from the Camosun Bookstore. If you have purchased a new textbook (Custom Camosun Edition) or ebook (see below) then this includes a My Lab Mastering Chemistry Course Code.

(b) **Chemistry 121 Laboratory Manual.**

Other Recommended Materials for the Course

Chemistry, The Central Science, Brown, le May, Bursten. *Custom Camosun Edition*. \$145. (For hard copy, ebook access and My lab Mastering Chemistry course code). Ebook and My lab Mastering Chemistry course code only \$114.

The 2nd and 1st Australian editions of this textbook are also acceptable. **Note: New textbooks come with a My Lab Mastering Chemistry Code.**

Other Recommended Materials for the Course

My Chemistry 110 Course Pack is available for review on D2L.

4. Course Content and Schedule

Subject	Material Covered	Classes (approximate)
Organic Chemistry	Alkane/Alkenes structure and properties, including naming simple cycloalkanes/ cycloalkenes, reactions and stereochemistry, functional groups and some reactions. Polymers depending on schedule.	12
Chemical Kinetics	Reaction rates, change in concentration with time, temperature and rate, reaction mechanisms and catalysis	5
Thermochemistry	Energy, first law of thermodynamics, enthalpy, calorimetry, Hess' Law, enthalpies of formation	3
Thermodynamics	Spontaneity, second law of thermodynamics, entropy, Gibbs Free Energy, free energy and temperature, free energy and equilibrium	3
Equilibrium	Equilibrium constants, heterogeneous equilibria, working with equilibrium constants	4
Acids and Bases	Acids and bases, pH scale, K_a and K_b , auto-ionization of water, acid strength of ions	3
Aqueous equilibria	Titration, common ion effect, buffers, solubility equilibrium	2
Electrochemistry	Redox reactions, balancing redox equations, half cells and the Nernst equation	3

Lecture Times: Monday, Wednesday, Thursday: 15.30 - 16.20 am in E 344

Laboratory Time: Friday: 9.30 to 12.20 pm in F 356

Note: No Class on Monday, February 8th (Family day), Thursday February 18th, Friday February 19th (Reading Break), Friday March 25th (Good Friday) and Monday March 28th (Easter Monday).

5. Basis of Student Assessment (Weighting)

The course mark will be derived in the following manner:

- 2 Midterm tests: 10 % each (multiple choice).
- A 3 hour written final examination covering all the material in the course: 32 %
- Online mastering chemistry assignments: 24 %
- Laboratory component: 24 %

If it is advantageous to the student the theory mark will be solely derived from the final examination, or a combination of midterm and final. **Mastering Chemistry assignment marks may not be carried over.** In the event of a midterm test being missed due to illness/other commitments the weight of the missed test will be carried over to the final. There are no make-up dates midterm.

The Laboratory Mark

The breakdown of the Laboratory mark is as follows:

Arriving punctually, prepared to do a lab, familiar with the procedure and having the correct safety gear. Ability to work competently and confidently with good attitude. Leaving work space clean and tidy.	10 %
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Pre-lab assignments (completed prior to starting the lab class).	10 %
Quality of Lab Reports/Assignments	80 %

No more than **2 laboratory classes may be missed**, during the course. In the event of a student being unable to attend a laboratory class it is advised that the student attempt to obtain data from a partner or perform the class with another section in order to complete the assignment/report. It is essential that you give your lab instructor the courtesy of an email in the event that you miss a laboratory class.

A student that attends the laboratory class but does not present a written report will receive a (maximum) score of 40%.

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

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. <i>(For these courses a final grade will be assigned to either the 3rd 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

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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.

[ADDITIONAL COMMENTS AS APPROPRIATE OR AS REQUIRED](#)

8. Winter 2016– Chem 121-001 Provisional Lab Schedule

Fridays, 9:30-12:20 pm in Fisher 356

Note: This is only a preliminary lab schedule, changes will be made due to equipment &/or scheduling. Lab coat and eye protection are both mandatory and **ARE NOT PROVIDED BY THE DEPARTMENT.**

Week Number Begins on	Activity & Experiment Number	Actual Date of Lab Friday
I Jan 11 th	Review & Lab Orientation — attendance mandatory	Jan 15 th
II Jan 18 th	Expt. 1 Preparation of Xylene Sulfonic acid	Jan 22 nd
III Jan 25 th	Group A Expt. 3 Preparation of Benzoic acid	Jan 29 th
IV Feb 1 st	Group B Expt. 3 Preparation of Benzoic acid	Feb 5 th
V Feb 8 nd	Midterm 1	Feb 12 th
VI Feb 15 th	College closed for reading break	Feb 19 th
VII Feb 22 th	Expt. 2 Analysis of an unknown acid	Feb 26 th
VIII Feb 29 th	[Expt. 6 The rate of bromination of acetone]	Mar 4 th
IX Mar 7 th	Expt 4 Banana Oil	Mar 11 th
X Mar 14 th	Expt 10 Thermochemistry	Mar 18 th
XI Mar 21 st	College Closed-Good Friday	Mar 25 th
XII Mar 28 th	Midterm test	Apr 1 st
XIII Apr 4 th	Expt. 8 Gravimetric Chloride analysis	Apr 8 th
XIV Apr 11 th	Material Review	Apr 15 th
Final Exam Period	Final Exams Apr 18 th to Apr 26 th	