

	School of Arts & Science CHEMISTRY AND GEOSCIENCE DEPARTMENT CHEM 121-003 College Chemistry 2 Winter 2017
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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:	See posted times on office door or by appointment
(c)	Location:	TBA
(d)	Phone:	TBA
(e)	Email:	smithsc@camosun.bc.ca
(f)	Website:	MyLab

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:

- 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.
- Write chemical reactions to illustrate numerous transformations between organic functional groups.
- Draw structural and stereoisomers of organic compounds and name stereoisomers based upon the IUPAC system of nomenclature.
- 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.
- Apply the laws of thermodynamics and account for the factors that lead to spontaneous physical and chemical changes.
- Explain how and why reactions attain equilibrium positions and perform calculations pertaining to equilibrium systems.
- Describe redox reactions, use electrochemical data to predict the spontaneity of redox reactions, and comprehend the structures of electrochemical cells.
- Describe various acid-base theories and apply these theories to acid-base reactions in aqueous solution.
- 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

- 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.
- Chemistry 121 Laboratory Manual.**
- Safety glasses and laboratory coat for use in the laboratory.

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.**

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	Titrations, common ion effect, buffers, solubility equilibrium	2
Electrochemistry	Redox reactions, balancing redox equations, half cells and the Nernst equation	3

Lecture Time: Tuesdays 6:00 pm – 8:50 pm in F 212

Laboratory Time: Thursdays 6:00 pm – 8:50 pm in F 356

Note: No Class on Tuesday, February 14th or Thursday, February 16th (Reading Break).

5. Basis of Student Assessment (Weighting)

The course mark will be derived in the following manner:

- Laboratory component: 25 %
- Online mastering chemistry assignment: 15 %
- Midterm I: 15 % (Thur. Feb. 9. 2017)
- Midterm II: 15 % (Thur. Mar. 23. 2017)
- Final exam (cumulative): 30 % (TBA)

If it is advantageous to the student, if the final exam mark is greater than the mark of either or both midterm exam marks, the midterm exam weight will be carried over to the final exam. 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 for midterm exams.

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 %
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 will 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.

Laboratory reports need to be written using an electronic processor.

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

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 121-003 Provisional Lab Schedule

Thursdays 6:00-8:50 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 Thursday
I Jan 9 th	Group A: Preparation of Aspirin	Jan 12 th
II Jan 16 th	Group B: Preparation of Aspirin	Jan 19 th
III Jan 23 rd	Group A: Experiment 3: Preparation of Benzoic acid	Jan 26 th
IV Jan 30 th	Group B: Experiment 3: Preparation of Benzoic acid	Feb 2 nd
V Feb 6 th	Midterm 1	Feb 9 th
VI Feb 13 th	College closed for reading week No classes	Feb 16 th
VII Feb 20 th	Experiment 2: Analysis of an unknown acid	Feb 23 rd
VIII Feb 27 th	Experiment 6: The rate of iodination of acetone	Mar 2 nd
IX Mar 6 th	Activity: Let's make soap	Mar 9 th
X Mar 13 th	Experiment 10: Thermochemistry	Mar 16 th
XI Mar 20 th	Midterm 2	Mar 23 rd
XII Mar 27 th	Experiment 8: Gravimetric Chloride analysis	Mar 30 th
XIII Apr 3 rd	Experiment 9: Copper (I) chloride	Apr 6 th
XIV Apr 10 th	Final Exam Review	Apr 13 th
Final Exam Period	Final Exams Apr 18 th to Apr 26 th	