

	<p>SCHOOL OF ARTS & SCIENCE CHEMISTRY AND GEOSCIENCE DEPARTMENT</p> <p>CHEM 110-002</p> <p>2011 Fall</p>
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A. General Information

Instructor: John Lee

Office - Fisher 352, Phone: local 3909, twitter: johnatcamosun

E-mail: leejohn@camosun.bc.ca

Email is my preferred method of communication however any problems with course material/questions should be addressed in person.

Lectures:

Monday (E201), 6.30 pm – 9.20 pm

Lab:

Wednesday (F354), 6.30 pm – 9.20 pm

Office Hours: Tuesday, Wednesday, Thursday and Friday 10.30 am to 11.30 am

Important Dates: September 20th: Fee deadline, October 10th: Thanksgiving (College closed).
 November 8th: Last day to withdraw without a failing grade. November 11th: Remembrance Day
 (College closed). December 12th or 13th Exam day.

B. Intended Learning Outcomes

(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)

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

1. Identify, describe and account for the general characteristics of gases, liquids and solids - interionic and intermolecular forces; vaporization and condensation; melting and freezing; specific characteristics of water.
2. Utilize solution terminology, account for and compare the solubilities of ionic and molecular compounds, and describe the impact of temperature and pressure on solubility.
3. Describe the characteristics of solubility equilibria and use mathematical techniques employed in dealing with this phenomenon.
4. Account for differences in the rates of chemical reactions, apply Le Chatelier's Principle to equilibrium processes, and explain how catalysts influence reaction rates.
5. Apply mathematics and equilibrium constant expressions to descriptions of reversible reactions and chemical equilibria.

6. Identify Arrhenius, Bronsted and Lewis acids and bases, and describe the chemical properties of each type of substance.
7. Describe the ionization of water, the pH scale, weak and strong acids and bases, neutralization and the actions of buffer solutions.
8. Perform mathematical calculations involving pH, hydronium ion concentrations and acid-base titrations.
9. Define oxidation and reduction and assign oxidation numbers to the elements of substances involved in oxidation-reduction reactions. Demonstrate the ability to use oxidation numbers in balancing redox reactions.
10. Demonstrate an understanding of electrochemistry and account for the characteristics and uses of the standard hydrogen electrode, standard reduction potentials, electrolytic and voltaic cells.

C. Required Materials for the Course

Texts	<p>Optional—to be used for reading and additional questions.</p> <p>◆ “Chemistry, The Central Science” by Brown, LeMay, & Bursten (a.k.a. B-L-B), Australian 2nd edition. (This optional text is Required for Chem. 120 & 121) The Aus, 1st edition and the US. 10th/ 11th and 12th editions are also acceptable.</p>
Other	<p>Chem 100 Camosun College Lecture Notes are a good revision source. Chem 110 Lab Manual (Safety glasses & lab coat are both mandatory!)</p> <p>John Lee chemistry 110 course pack may be downloaded at: http://web.uvic.ca/~chem101/LEE/coursepack.pdf</p>

Do not purchase a copy of Diana Li’s coursepack as there are only enough available for her students.

D. Course Content and Schedule

The course includes:

- a) 4 in-class, 30 minute review quizzes. (September 26th, October 17th, November 14th, 28th). Quiz dates may change at Instructor’s discretion, advance notice will be given.
- b) One 3 hour written midterm test in week VIII . (Wednesday October 24th)
- c) A 3 hour written final examination at the end of the course on all the material in the course.

E. Summary of Lecture Material with Page References

Unit	Topic (approx. # of lecture hours)	B-L-B Aus. 2 nd ed.	B-L-B Aus. 1 st ed.
1	Thermochemistry (6)	pp. 125-129, 133-141, 145-149, 153-154, 162-163, 165-166	pp 135-139, 144,147-152, 661-663, 667-668, 671-673,675-676
2	Chemical Kinetics (5)	pp 448-459, 465-467, 478-480	pp 46-474, 493-496
3	Chemical Equilibrium (5)	pp 501-502, 506-508, 510, 512-518	pp 509-515,517,520-524, 526-535
4	Solution & Solubility (3)	pp 412-414, 88-100, 109-117	pp 423-424, 93-105, 113-122
5	Acid-Base Equilibria (5)	pp 526-551 & 558	pp 543-568, 575-576
6	Aqueous Equilibria (5)	pp 569-572, 578-584 (expt.6), 584-591	pp589-591, 598-604 (expt.6), 604-612
7-I	Oxidation & Reduction (3)	pp 103-105 &107	pp 108-110
7-II	Electrochemistry (3)	pp 607-624	Pp 701-719

Notes

1. My course pack can be found at: <http://web.uvic.ca/~chem101/LEE/coursepack.pdf>
2. The midterm test will be on material covered in the half of the course. It will take place on Wednesday October 24th in a classroom to be determined.
3. The in class quizzes will be on material covered in the previous week(s). They will be given at the start of class, answers will be given after the quiz.

E. Basis of Student Assessment (Weighting)

The course mark will be derived in the following manner:

4 Quizzes	(5% each) = 20 %
1 Midterm test	20 %
Final	35 %
Laboratory work	25 %

If it is advantageous to the student the theory mark will be solely derived from the final examination, or the combination of midterm/quiz and final.

In the event of a quiz or midterm test being missed due to illness/other, the weight of the missed quiz/test will be carried over to the final exam.

F. The Laboratory Mark

Students must **complete a minimum of 6 of the Labs** and score a **minimum of 50%** on the Labs to pass the course **NO EXCEPTIONS**. If no reason for missing a lab class is supplied, either by email or in person, a mark of zero will be given for the missed lab.

The lab mark is based on attendance and the laboratory report. A student that attends the laboratory class but does not present a written report will receive a score of 40% for that lab.

Students are responsible for obtaining their own safety glasses. Laboratory jackets are available from the bookstore and are recommended, especially if the student is to pursue further chemistry courses.

G. The Grading System

Grading System, Standard (GPA)

(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)

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.
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- 1. You must score a minimum of 50 % on laboratory work to be permitted to take the final exam and participate in 6 of 8 lab classes.**
- 2. You must pass both the **lecture portion and the laboratory portion** in order to pass 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 on the College web site in the Policy Section.

Fall 2011 – Chem 110-002 Lab Schedule

Chem 110 (002) – Wednesdays, 6:30-9:20 pm in Fisher 354

Note: Labs are typically less than 2 hours in duration, I will be available during the lab period to answer questions related to the course.

Week Number	Experiment	Date:
I Sept 5th (Mon), Labour Day	Course Introduction and Review of Selected Topics in Fisher	Wednesday 7th Sept.
II Sept 12th	Lab Safety Attendance Mandatory unless previous lab credit has been granted	Wednesday 14th Sept.
III Sept 19th	Expt. 1: Energy Changes	Wednesday 21st Sept.
IV Sept 26th	Expt. 2: Reaction rates	Wednesday 28th Sept.
V Oct 3rd	Expt. 3: Equilibria	Wednesday 5th Oct.
VI Oct 10th (Mon), Thanksgiving	Expt. 4 Precipitation reactions	Wednesday 12th Oct.
VII Oct 17th	Class instead of Lab, Room TBA	Wednesday 19th Oct.
VIII Oct 24th	Midterm test in classroom TBA	Wednesday 26th Oct.
IX Oct 30th	Expt. 6 Acid Base Titrations	Wednesday 2nd Nov.
X Nov 7th	Expt. 7 ASA, Vitamin C etc	Wednesday 9th Nov.
XI Nov 14th	Expt. 11. Oxidation of Iron	Wednesday 16th Nov.
XII Nov 21st	Class instead of Lab, Room TBA	Wednesday 23rd Nov.
XIII Nov 28th	Expt 12. Electrochemistry	Wednesday 30th Nov.
XIV Dec 5th	Review	Wednesday 7th Dec.

Note: This is only a preliminary lab schedule, changes will be made due to equipment &/or glassware problems, or rescheduling of tests... Lab coat and eye protection are both mandatory!!

Final exam will be scheduled between Monday 12th and Thursday 15th December.