

	<p>SCHOOL OF ARTS & SCIENCE CHEMISTRY AND GEOSCIENCE DEPARTMENT</p> <p>CHEM 100-001</p> <p>2011 Fall</p>
---	---

A. General Information

Instructor: David Stuss
Office - Fisher 344A
Telephone: 250.370.3441
E-mail: stussd@camosun.bc.ca

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

Lectures: Monday, 6:30 to 9:20 pm, Wednesday 6:30 – 7:20 pm
Room 360, Fisher Building, Lansdowne Campus
Monday lecture will have two 10 minute breaks.

Lab: 7:30 to 9:20 pm, Room 300, Fisher Building, Lansdowne Campus

Office Hours: Monday & Wednesday, 5:30 to 6:20 pm
Appointments may be made to meet at other than posted times.

Important Dates: September 20th: Fee deadline / course drop without fee
October 10th: Thanksgiving (College closed).
November 8th: Last day to withdraw without a failing grade.
November 11th: Remembrance Day (College closed).
December 10th: Last day of instruction
December 12th -19th: Exam week

B. Intended Learning Outcomes

At the end of this course, students will be able to:

- Utilize the specialized vocabulary and nomenclature of chemistry.
- Use metric and SI units in performing chemical calculations.
- Describe the experimental discovery of subatomic particles, summarize the characteristics of electrons, protons and neutrons, and identify their roles as components of atoms.

- Communicate an understanding of atomic structure, the differences between elements, and the role of the periodic table in organizing elements within a coherent theoretical and empirical system.
- Describe and account for the periodic table trends concerning atomic number, atomic radius, ionization energy and electronegativity.
- Demonstrate an ability to name chemical compounds, and identify and construct chemical formulas.
- Compare the formation and characteristics of ionic and molecular compounds.
- Demonstrate an ability to perform mathematical calculations involving chemical formulas, molecular weights, moles, Avogadro's number and molarity.
- Balance chemical equations, demonstrate an understanding of the information they provide chemists and solve stoichiometry problems.
- Identify and account for the general characteristics of the gas state and solve mathematical problems involving Boyle's Law, Charles' Law, Gay-Lussac's Law and Avogadro's Law.
- Communicate an understanding of radioisotopes, nuclear fission and nuclear fusion.
- Conduct experiments in basic chemistry, utilizing common chemistry laboratory equipment with an enhanced knowledge and practice in basic lab skills.

C. Required Materials

Lecture & Lab

CHEM 100 Course Notes / Lab Manual / Problem Sets, 2011 Edition. Camosun College Publications. *Mandatory*.

Scientific calculator *Mandatory*. Calculators may be required in the lab, in class and during exams. Each student is required to provide her or his own calculator.

Lab

Safety glasses *Mandatory*. Safety glasses are required when handling hazardous chemicals. Available at the bookstore. Students lacking safety glasses when they are required will not be permitted to work in the laboratory.

Lab coats *Recommended*. Lab coats are required for any experiments involving hazardous chemicals. Available at bookstore. Note: long sleeves & pants also acceptable.

Covered footwear *Mandatory*. Exposed feet (e.g. sandals, flip-flops) are not permitted in the lab during experiments.

D. Course Content and Schedule

Credits	4 credits
Workload / week	4 h lecture 2 h lab 6 h study
Number of weeks	14
Pre-requisite	Math 10 / assessment

Summary of Lecture Material with Page References

Subject	Material Covered	Lecture Hours (apprx.)	Course Notes pages
Measurements & Calculations	Units, dimensional analysis, scientific notation, sig figs, density and energy calculations	4	1-19
Atoms, ions & molecules Mixtures, compounds & elements	Physical and chemical changes, elements, compounds and mixtures, The atom, isotopes, ions, periodic table	4	29-44
Naming compounds	Chemical Formula and names, naming molecular and ionic compounds	4	49-67
The Mole	Molecular mass, % composition, converting grams to moles to number of molecules	4	74-87
Stoichiometry	Balancing chemical equations, limiting reactants, % yields and heat of reactions	6	93-115
Periodic table & electron distribution	Electron shells and orbitals for the first 20 elements, ionization energy and chemical properties. Atomic spectra	4	120-139
Gases	Kelvin scale, Gas volume and temperature, gas volume and pressure, partial pressure, gas stoichiometry	6	170-184
Liquids & Solutions	Solution stoichiometry and concentrations	4	191-213
Organic Chemistry	Hydrocarbons, naming simple alkanes, structural isomers	4	221-240

Note: There are additional worksheets for each chapter available for practice:
<http://web.uvic.ca/~chem101/LEE/Worksheets.pdf>

Laboratory, Quiz & Midterm Exam Schedule

Quizzes: 6 in-class, 30 minute review quizzes on recent material
(Sep 14 & 28, Oct 12 & 26, Nov 9 & 23)
Quiz dates may change, advance notice will be provided.

Labs:

Wednesday, September 7th **Chemistry Laboratory & Safety Orientation (Mandatory)**
Wednesday, September 14th **Experiment 1. Density measurements**
Wednesday, September 21st **Experiment 3. Separating mixtures**
Wednesday, September 28th **Experiment 4. Heat of combustion**
Wednesday, October 5th **Experiment 15. Accuracy & precision**
Wednesday, October 12th **Experiment 5. Recycling copper**
Wednesday, October 19st **MIDTERM EXAM (2h)**
Wednesday, October 26th **Experiment 7. Copper - silver nitrate reaction.**
Wednesday, November 2nd **Experiment 9. Chemical Reactivity.**
Wednesday, November 9th **Experiment 12. Neutralization.**
Wednesday, November 16th **TBA. Experiment 10 or Review**
Wednesday, November 23rd **Experiment 13. Synthesis of aspirin**
Wednesday, November 30nd **Experiment 14. Preparation of common lab substances**
Wednesday, December 7th **Final Exam Review Period**
Week of December 12th-17th **FINAL EXAM (3 h); comprehensive. Date TBA**

E. Distribution of Marks

6 Quizzes	(3% each)	18 %
1 Midterm test		20 %
Final		35 %
Laboratory work		27 %

1. To write the final exam you must participate in a minimum of 8 lab classes and have a minimum final score of 50% on laboratory work.
2. You must pass both the **lecture portion and the laboratory portion** in order to pass the course.
3. If the final exam mark is higher than the midterm & quiz mark, it will be used for the final mark on the theory section of the course.
4. 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

Attendance in the lab periods is mandatory. There are **NO EXCEPTIONS** other than an official doctor's note. Missed labs without adequate reasons will result in a mark of zero for that lab.

Laboratory reports can usually be completed in-class but are otherwise due in the following experimental lab period. The lab manual has been designed to allow students to hand in the completed pages taken directly from the manual. **A formal laboratory report may be required for one designated experiment.** Each lab partner must hand in a separate report even if though lab partners typically share equally in experimental work.

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 50%.

In the event of missing the Lab Safety presentation students are responsible for watching the (30 minute) safety DVD, available from the technician's office prior to their first experiment.

G. The 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; cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

Temporary Grades: 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.

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. (For these courses a final grade will be assigned to either the 3 rd course attempt or at the point of course completion.)

CW	<i>Compulsory Withdrawal: 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.</i>
-----------	---

H. LEARNING SUPPORT AND SERVICES FOR STUDENTS

A variety of services are available to assist students with their learning. See the Calendar, Student Services, or the College website at camosun.ca.

Students may not use recording devices in the classroom without the prior permission of the instructor. However, the instructor's permission is not required when the use of a recording device is sanctioned by the College's Resource Centre for Students with Disabilities in order to accommodate a student's disability and when the instructor has been provided with an instructor notification letter which specifies the use of a recording device. Recordings made in the classroom are for the student's personal use only, and distribution of recorded material is prohibited.

I. 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.