



## 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:   | David Stuss, M.Sc.                               |                    |  |
| (b) | Office Hours: | Mon-Thurs 14:30 – 15:20 <i>or by appointment</i> |                    |  |
| (c) | Location:     | Fisher F348D                                     |                    |  |
| (d) | Phone:        | (250) 370-3436                                   | Alternative Phone: |  |
| (e) | Email:        | stussd@camosun.bc.ca                             |                    |  |

### 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. Use dimensional analysis, metric and SI units in performing chemical calculations.
2. Utilize the specialized vocabulary and nomenclature of chemistry and name chemical compounds, and identify and construct chemical formulas.
3. Summarize the characteristics of electrons, protons and neutrons, and identify their roles as components of atoms, ions and isotopes, including radioisotopes.
4. Describe atomic structure, the differences between elements, and the role of the periodic table in organizing elements within a coherent theoretical and empirical system.
5. Describe and account for the periodic table trends concerning atomic number, atomic radius, ionization energy and electronegativity.
6. Compare the formation and characteristics of ionic and molecular compounds.
7. Perform mathematical calculations involving chemical formulas, molecular weights, moles, Avogadro's number and Molarity.
8. Balance chemical equations, including use of the mole concept, and solve stoichiometry problems.
9. Account for the general characteristics of the gas, liquid, and solid states.
10. Conduct experiments in basic chemistry, utilizing common chemistry laboratory equipment with an enhanced knowledge and practice in basic lab skills.

### 3. Required Materials

|     |   |   |
|-----|---|---|
| (a) | Text: Coursepack<br><b>(Mandatory)</b>        | <i>Chemistry 100 Course Notes, Lab Manual, and Problem Sets</i> , 2014 Edition. Camosun College Publications. |
| (b) | Safety Glasses<br><b>(Mandatory)</b>          | Bookstore has "UVEX" safety eyewear – please check if using others  |
| (c) | Lab coat<br><b>(Recommended)</b>              | Bookstore has cloth coats available – please check if using another type                                      |
| (d) | Covered Footwear<br><b>(Mandatory)</b>        | Exposed feet (e.g. sandals, flip-flops) are not permitted in the lab during experiments                       |
| (e) | Scientific Calculator<br><b>(Recommended)</b> | Available in bookstore  |

#### 4. Course Content and Schedule

##### Locations & Times

|                | Time  | Location                   |
|----------------|---|----------------------------|
| <b>Lecture</b> | Monday 6:30 – 9:20 PM<br>Wednesday 6:30 – 7:20 PM | Fisher Building, Room F300 |
| <b>Lab</b>     | Wednesday 7:30 – 9:20 PM                          | Fisher Building, Room F300 |

##### Lecture Plan

| Unit | Topic                                   | Unit | Topic               |
|------|---|------|---------------------|
| 1    | Measurements & Calculations             | 7    | Chemical Bonding    |
| 2    | Introductory Terminology                | 8    | Gases               |
| 3    | Chemical Formulas & Names               | 9    | Liquids & Solutions |
| 4    | Calculations Based Upon Formulas        | 10   | Organic Chemistry   |
| 5    | Stoichiometry                           | 11   | Radioactivity       |
| 6    | Periodic Table & Electron Distributions |      |                     |

Lectures & homework exercises will follow the coursepack at a pace of approximately **one unit per week**. There will be two review periods with additional practice material prior to exams.

##### Lab & Exam Schedule

| Week     | Lab Date      | Lab No.       | Lab Name  |
|----------|---------------|---------------|---|
| 1        | 3 Sep         | -             | Safety Orientation (Mandatory)                    |
| 2        | 10 Sep        | 1             | Density   |
| 3        | 17 Sep        | 4             | Heat of Combustion                                |
| 4        | 24 Sep        | 3             | Separating Mixtures - Pt. 1-3<br>& Tutorial       |
| 5        | 1 Oct         | 3<br>(cont'd) | Separating Mixtures – Pt. 4                       |
| 6        | 8 Oct         | 5             | Recycling Copper                                  |
| 7        | 15 Oct        | 5<br>(cont'd) | Review / Problem Sets (Mandatory)<br>Finish Lab 5 |
| <b>8</b> | <b>22 Oct</b> | -             | <b>Midterm Exam</b>                               |
| 9        | 29 Oct        | 6             | The Fe / CuSO <sub>4</sub> Reaction               |
| 10       | 5 Nov         | 7             | The Copper & Silver Nitrate Reaction              |
| 11       | 12 Nov        | -             | Molecular Models (Mandatory)                      |
| 12       | 19 Nov        | 11            | The Magnesium HCl Reaction                        |
| 13       | 26 Nov        | 12            | Neutralization                                    |
| 14       | 3 Dec         | -             | Review / Problem Sets (Mandatory)                 |

**Quizzes:** 6 in-class, 30 minute review quizzes on recent material

| Quiz | Chapters | Date** | Quiz | Chapters | Date** |
|------|----------|--------|------|----------|--------|
| 1    | 1        | Sep 17 | 4    | 5        | Oct 15 |
| 2    | 2        | Sep 29 | 5    | 6 - 7    | Nov 12 |
| 3    | 3 - 4    | Oct 8  | 6    | 8 - 9    | Nov 26 |

(\*\*Quiz dates may change with advance notice provided by the instructor).

## 5. Basis of Student Assessment (Weighting)

|                                 |     |
|---------------------------------|-----|
| Labs (8 x 2.5%) & Tutorials (3) | 20% |
| Quizzes (6)                     | 20% |
| Midterm Exam                    | 20% |
| Final Exam (comprehensive)      | 40% |

1. To write the final exam you must achieve 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 combined midterm + quiz mark, it will be used for the final mark on the theory section of the course.
4. Quizzes are worth 4% each. The worst quiz score will be dropped when calculating the final quiz mark.
5. There will be no make-up quizzes or midterm exam. The weight of a missed quiz / midterm will be reassigned to the final exam.

### The Laboratory Mark

The lab mark is based on attendance and the laboratory report. A student that participates in a laboratory class without completing the lab report will receive a minimum score of 50% on that lab (a report must still be submitted).

Students must watch an introductory Lab Safety video in the first lab class before they can begin any experiments. 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.

Wearing of **safety goggles** is **mandatory** in all labs. Students who forget safety goggles will not be allowed to complete the lab.

**Attendance in all the lab / review 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. **Permissions for an exception must be documented by email permission from the instructor and by a submitting the doctor's note.**

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. Each lab partner must hand in a separate report even if though lab partners are expected to share equally in experimental work. A detailed marking key will be handed out in the first lab.

## 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](http://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 3<sup>rd</sup> 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](http://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.

*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.*