

	<p>SCHOOL OF ARTS & SCIENCE CHEMISTRY AND GEOSCIENCE DEPARTMENT</p> <p>CHEM 220-001</p> <p>2014 Winter</p>
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A. General Information

Instructor: John Lee

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E-mail: leejohn@camosun.bc.ca

Email is my preferred method of communication, rather than phone. **Any problems with course material/questions should be addressed in person.** All material required for this course is available on D2L.

Lectures: Monday (F216), Thursday (F210) & Friday (F210): 12.30 pm – 1.20 pm

Lab: Friday (F 354): 2.30 pm – when it's done (5.20) pm

Office Hours: Monday, Wednesday, Friday 10.30 to 11.30 am, Monday 1.20 pm to 3.20 pm any other times by appt.

Important Dates:

<http://camosun.ca/learn/calendar/current/pdf/important-dates.pdf>

B. Required Materials for the Course

Laboratory Manual Chemistry 220 Laboratory Manual, Winter 2014

There is no requirement to purchase a Textbook for this course other than the **Laboratory Manual**, However the Textbooks that may help your understanding:

Inorganic Chemistry, Shriver & Atkins, pub: Freeman, current edition is 5ed. Others acceptable.

Inorganic Chemistry, Housecroft & Sharpe, pub: Prentice Hall, current edition is 3ed. Others acceptable.

Descriptive Inorganic Chemistry, Rayner-Canham, G. pub: Freeman, current edition 2nd. Others acceptable.

CHEMISTRY, The Central Science: a Broad Perspective, (a.k.a: BLB) by Brown, Lemay, Bursten, Langford, Sagatys, and Duffy. Prentice Hall. Australian edition 2nd edition (blue).

The 1st edition (purple/green) is acceptable along with the 10th and 11th US editions.

C. Intended Learning Outcomes

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

At the end of the course the student will have an enhanced ability to:

1. Utilize a detailed knowledge of the electronic structure of atoms to rationalize many of the physical and chemical properties of atoms.
2. Apply simple and sophisticated bonding theories to explain many of the properties of ionic and molecular substances.
3. Comment on the chemistry of the first row transition metals, especially in respect to formation of coordination compounds, their catalytic activity, and their relevance to bioinorganic chemistry.
4. Describe the major features of the chemistry of the main group elements.
5. Use equipment associated with the preparation and analysis of inorganic compounds and perform reactions under an inert atmosphere for air- or water-sensitive compounds.
6. Demonstrate an understanding of the common approaches to synthesizing inorganic and coordination compounds in the laboratory.

D. Summary of Course Content

1. **Atomic Structure and Periodic Properties.**
2. **Structure and Bonding (I):** Lewis structures, Valence Bond theory, VSEPR, Molecular Orbital (LCAO) theory.
3. **Bonding (II):** MO theory of solids, semiconductors, structure of metals, ionic crystal structures, Lattice Enthalpies
4. **Transition Metals and Coordination Chemistry:** General properties, Complexes and Ligands, Isomerism, Nomenclature, Bonding Theories, Colour and Magnetism, Selected Reactions of Industrial and Biological Importance.
5. **s-block:** Survey of selected elements, compounds and reactions.
6. **p-block:** Survey of selected elements, compounds and reactions.
7. **Other:** Rare Earth Metals, Light Emitting Diodes, Hydrogen Fuel Cells and PEMs, Nanotechnology.

E. Basis of Student Assessment (Weighting)

The course mark will be derived in the following manner:

Take Home Assignments	20 %
Presentation*	20 %
Final	30 %
Laboratory work	30 %

*15 minute peer presentation on an Inorganic Chemistry topic of your choice. (Not core course material)

F. The Laboratory Mark

Chemistry is a practical science, it is essential to attend the Laboratory classes. 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 mandatory that you give your Lab Instructor and/or Lab Partner the courtesy of an email in the event that you miss a laboratory class.

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.

The breakdown of the Laboratory mark is as follows:

Arriving punctually, prepared to do a lab, familiar with the procedure and references and having the correct safety gear. Leaving workspace clean and tidy.	5 %
Awareness of Safety and Good Laboratory Practice. Ability to work competently and confidently with good attitude.	5 %
Pre-labs, quality and punctuality	10 %
Quality of Lab Report(s),	80 %

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 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.

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.

Winter 2014 – Chem 220-001 Provisional Lab Schedule

Chemistry 220 (001) – Friday, 12:30-1:20 pm in Fisher 354

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

Week Number Begins on	Activity & Experiment Number	Actual Date of Lab Friday
I Jan 6th	Gold nanoparticles	Jan 10th
II Jan 13th	Quantum Dots	Jan 17th
III Jan 20th	Beer Cans to OLEDs- part I	Jan 24th
IV Jan 27th	Beer Cans to OLEDs- part II	Jan 31st
V Feb 3rd	Isomerism- part I	Feb 7th
VI Feb 10th	College Closed	Feb 14th
VII Feb 17th	[Isomerism- part II]	Feb 21nd
VIII Feb 24th	[Optical activity at an octahedral cobalt centre]	Feb 28th
IX Mar 3rd	Luminescent Lanthanides	Mar 7th
X Mar 10th	tin(II) or tin (IV) ? - part I	Mar 14th
XI Mar 17th	tin(II) or tin (IV) ? - part II	Mar 21st
XII Mar 24th	Student Presentations	Mar 28th
XIII Mar 31st	Student Presentations	Apr 4th
XIV Apr 7th	Review of material	Apr 11th
Final Exam Period	Final Exams Apr 14th to Apr 18th	

Some, not all, of the Labs will require a report. Detailed information will be given at the lab briefing.