

	<p>SCHOOL OF ARTS & SCIENCE CHEMISTRY AND GEOSCIENCE DEPARTMENT</p> <p>CHEM 220-001</p> <p>2013 Winter</p>
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A. General Information

Instructor: John Lee

Office - Fisher 344A, Phone: local 3446, twitter: *johnatcamosun*, via D2L: *john.lee16@online.camosun.ca*

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 (WT225), 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>

January 21st Fee deadline, February 11th Family Day (College closed), February 21st & 22nd : Reading Break/Connections Day (College closed). March 12th: Last day to withdraw without a failing grade.; Good Friday March 29th, (College closed); Easter Monday, April 1st (College closed). April 15th - 20th and April 22nd - 23rd Exam period.

B. Required Materials for the Course

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

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.

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.

Concise Inorganic Chemistry, Lee, J.D. pub: Blackwell, current edition is 5ed. Others acceptable.

Laboratory Manual Chemistry 220 Laboratory Manual, Winter 2013

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. **Special Topics and Guest Speakers:** 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 %
My Turn	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.	5 %
Ability to work competently and confidently with good attitude.	5 %
Awareness of Safety and Good Laboratory Practice	5 %
Submitting the Pre-lab assignments prior to starting the lab class.	5 %
Quality of Lab Report, Pre-Lab Assignments and Notebook	70 %
Submission of Lab Report within reasonable timelines.	5 %
Leaving your workspace clean and tidy	5 %

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 2013 – 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 7th	Luminescent Lanthanides	Jan 11th
II Jan 14th	Beer Cans to OLEDs- part I	Jan 18th
III Jan 21st	Beer Cans to OLEDs- part II	Jan 25th
IV Jan 28th	Isomerism- part I	Feb 1st
V Feb 4th	Isomerism- part II	Feb 8th
VI Feb 11th	Optical activity at an octahedral cobalt centre	Feb 15th
VII Feb 18th	[College Closed]	Feb 22nd
VIII Feb 25th	[Ferrofluids]	Mar 1st
IX Mar 4th	tin(II) or tin (IV) ? – part I	Mar 8th
X Mar 11th	tin(II) or tin (IV) ? – part II	Mar 15th
XI Mar 18th	Gold nanoparticles	Mar 22nd
XII Mar 25th	Good Friday- College Closed	Mar 29th
XIII Apr 1st	Student Presentations	Apr 5th
XIV Apr 8th	Student Presentations	Apr 12th
Final Exam Period	Final Exams Apr 15th to Apr 20st and Apr 22nd to Apr 23rd	

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