University of Windsor
Chemistry and Biochemistry
Chemistry 59-450, Winter Term 2017

Lectures: Mon., Wed., Fri. 11:30-12:20 in Memorial Hall room 105

Professor: Dr. Charles Macdonald (office: 355 Essex Hall (Chem.); 236 Essex Hall (Sci.))

Office Hours: Open Door (but it is best to email me to make an appointment)

Textbook:
Inorganic Chemistry by **C. Housecroft and A. Sharpe**.
This is the textbook from 59-250. There is a companion web site for the book found at:
http://wps.pearsoned.co.uk/ema_uk_he_housecroft_inorgchem_4/
This web site has additional information from the book and some practice problems relating to the material in the book. ***There will be a copy of this book in the library. This is the textbook we will follow somewhat but it is not required.***

Other Useful Textbooks:

Main Group Chemistry by W. Henderson.
This is an inexpensive book that covers many of the aspects of descriptive Main Group Chemistry that we will examine in this course. There was at least one copy of this book in the library. ***There will be copies of this book in the bookstore but you can save some cash if you purchase a copy of this book from e.g. Amazon.ca or Wiley (http://ca.wiley.com/WileyCDA/).***

Main Group Chemistry by A. G. Massey.
This is a book that covers many of the aspects of descriptive Main Group Chemistry that we will examine in this course. There was at least one copy of this book in the library. It covers the chemistry in much more detail that required for this class and treats some subjects differently than I do.

Supplement: Periodicity and the s- and p-Block Elements by N. C. Norman
This is the inexpensive, soft-covered primer that we used sometimes in 59-250 with brief explanations of the trends with which you are expected to be familiar in the study of the Main Group elements.

Other sources I will use and that you may find helpful:
Other introductory Inorganic Chemistry texts (such as those by: Shriver and Atkins; Huheey, Keiter and Keiter; Cotton, Wilkinson and Gaus; Rodgers; Rayner-Canham and Overton; etc. some of which may be found in the library). I will also provide handouts during class or post notes on my website: (**http://mutuslab.cs.uwindsor.ca/macdonald/teaching.htm**) *for certain topics.*

Grading:
The overall grade will be based on a mid-term test (25%), a paper (25%) and presentation (10%) and a comprehensive final exam (3 hours long, 40%).

Test Dates: **There will be no make-up tests or exams!**

Mid-term Test: Friday, Feb. 17 - during class time
Final Exam: Saturday, Apr. 8, 12:00 (Exam slot 2)

The Paper and Presentation (which will be due around March 22nd - we will iron out the details later) will be on a topic of Main Group Chemistry that you find interesting. The paper will probably be up to 10 pages in length including diagrams/pictures etc. and the presentation to the class will be of the "3-minute thesis" variety and will be around 3-5 minutes (including questions).

Please note: If you are unable to write a test/exam or hand in any course work, you must provide me with an acceptable excuse within 12 hours (before or after, by phone message or e-mail) of the proscribed time or you will receive a grade of 0% on that test or assignment. All work is due at the start of the indicated class - work passed in after the start of class will receive a maximum of 50%.

Students caught cheating (or any other form of academic dishonesty) will be reported to the Department and are subject to disciplinary action as proscribed in Senate By-Law 31.

Last Date for Voluntary Withdrawal from Course: March 15, 2017

Student Evaluation for the course will be conducted within the last two weeks of the course.

Course Outline:

Review of periodic trends in the periodic table of the elements.

We will then see how the tools you have learned (in 59-250 and since then) can be used to understand the structure, bonding and reactivity of selected classes of simple main group elements and their compounds, including: hydrides, halides, oxides and organometallic compounds. Aspects of these subjects are found in later chapters of the Housecroft and Sharpe textbook (10-18) and in the other textbooks suggested for this class. We will roughly follow the order of Henderson's book however we will look at some aspects of the chemistry of individual classes of molecules in more detail.

Some other topics that will be hopefully covered at various points in the term may include:
The use of certain spectroscopic methods for the identification of main group compounds.
Main group clusters.
Main group radicals.
Main group polymers.
The isolobal analogy.