CHEM 713 – Chemistry of the Elements
Fall 2017, 2:25 PM MWF – Room 2307
Credits: 3
Instructor: Prof. John F. Berry, Room 6357, 262-7534, berry@chem.wisc.edu

Goals: There are three things I would like for you to take away from this course. (1) To develop an intuition for chemical reactivity necessary for pursuing research in synthetic chemistry, (2) to develop writing skills and learn to read and critically evaluate the literature, and (3) to learn to use tools to search the chemical literature.


Syllabus:
Part 1: Overview of the Periodic Table
Part 2: The Main Group Elements
   Hydrogen, Group 1 and Group 2
   Boron, Group 13
   Carbon, Group 14
   Nitrogen, Group 15
   Oxygen, Group 16
   Group 17
   Group 18
   Zinc, Cadmium, and Mercury
Part 3: The Transition Elements
   Introduction to Coordination Chemistry
   Ligand Field Theory
   The Elements of the First Transition Series
   The Elements of the Second and Third Transition Series
   Scandium, Yttrium, Lanthanum, and the Lanthanides
   The Actinide and Transactinide Elements
Office Hours: My office door is always open when I am available. Feel free to stop by any time.

Grading: The following scheme shall be used:

- 25 Elementary Information Exercises: 125 points
- One first exam: 100 points
- One second exam: 100 points
- Two CSD projects: 100 points (50 points each)
- One special project: 100 points

525 points

Elementary Information Worksheets: I will give you 26 element worksheets throughout the semester in preparation for upcoming class discussions. You will use these sheets to gather the vital information about each element or set of elements including their sources in Nature, information on processing, their important compounds, and their reactivity. 25 of these will be graded for up to 5 points for 5 correct problems. These worksheets are due on the day that we are scheduled to discuss the topical element. You can use these worksheets during exams.

Exams: Exam 1 – Friday, Oct. 28th at 7:00 PM
Exam 2 – Wednesday, Dec. 14th at 7:00 PM

CSD Projects: To be announced

Special Project: See attached sheet

Extra Points Available: Abstracts. Every now and then (roughly 10 times during the semester) I will give you a paper about some aspect of inorganic chemistry from the literature with the abstract missing. I want you to write an abstract for the article. If you write an abstract, you will get up to 5 bonus points. Do not just find the original abstract and copy it – this would be plagiarism. The purpose is for you to learn how to read a
paper, find the most important aspects of the paper, and to develop your writing skills. The abstracts will be corrected for content and grammar.

*Participation in Classroom Discussion.* Lectures in which I talk and students listen passively can be kind of boring. Participate! Ask questions! I want to share with you my ways of thinking about the chemistry of the elements, but I want to know what you think, too!