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.


Topics:

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:

- 35 Preclass Exercises: 70 points
- One first exam: 100 points
- One second exam: 100 points
- Two CSD projects: 100 points (50 points each)
- One special project: 100 points

470 points

Preclass Worksheets: This is a “flipped” class. There will be pre-class assignments for nearly every class period, about 35 over the entire semester. You will use these sheets to gather vital information for upcoming classroom discussions. For each element or set of elements you should find out their sources in Nature, information on processing, their important compounds, and their reactivity. These will be graded for up to 2 points each based on the amount of work you put into them. These worksheets are due on the day that we are scheduled to discuss each topic. You can use these worksheets during exams.

Exams: Exam 1 – Friday, Oct. 25th in class
Exam 2 – Wednesday, Dec. 11th in class

CSD Projects: To be announced

Instead of a Final Exam we have a 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.