

CHEMISTRY 431: INORGANIC CHEMISTRY II

FALL 2017 - SYLLABUS

Instructor: Dr. Chip Nataro
Office: 228 Hugel Hall
e-mail: nataroc@lafayette.edu
Web page: This course is available on Moodle
Office hours: You can always stop by, but I may not always be available.
Lectures: M, W, F 11:00-11:50 a.m.
Extra Hour: 4th hour to be arranged or Th 11 am.
Texts: Organometallic Chemistry by George Stanley, available on Moodle.
Inorganic Chemistry, 5th Ed.; by G.L. Miessler, P.J. Fischer and D.A. Tarr (Pearson, 2014)

Objectives: The purpose of this course is to introduce you to modern ideas in inorganic chemistry. The common theme of the course will be organometallic chemistry, although physical inorganic and descriptive inorganic topics will be included. This course is designed to expand on the knowledge you have gained from your other chemistry courses.

Expectations: Work the problem sets and actively participate in class. Show up to class. There is no formal attendance policy, however, it is highly unlikely that any student will receive an above average grade without regular attendance in lecture. Attend pertinent seminars.

Outcomes: In keeping with the chemistry department student learning goals, this course will 1) contribute to the student's general knowledge of chemistry with a particular emphasis on modern inorganic concepts, 2) enhance the student's ability to apply new knowledge to solve problems, 3) teach students to read current chemical literature with a critical eye and 4) guide them through the process of reviewing a research topic, developing a research proposal based on that topic and presenting that proposal in written form.

<i>Grading:</i>	3 exams	15% each	Sept. 21, Oct. 19 & Nov. 16
	Final exam	18%	To be scheduled
	Papers	21% total	
	Lit discussions	10%	Throughout semester
	Problem sets	6%	As assigned

Exams: There will be three exams and a final. I tend to write slightly long exams and I do not like students to feel rushed while they are taking exams. I would like to see what you know rather than what you can write in 50 minutes. Therefore, our 4th hour will be extended on the days we have exams. The exact times and dates are negotiable, but I have final say. Make-up exams will only be given for extreme cases requiring dean's excuses. The final will be partially cumulative approximately 70% on the final few weeks, 30% cumulative.

Homework: Problem sets will be assigned during the course of the semester. They will be graded and there will be approximately two problem sets per test period. They will be due approximately one week after being posted on Moodle. We will discuss the problem sets

on the day they are due. Students will be assigned at random to post problems during these discussion periods. Pictures or electronic copies of your problem sets must be sent to the instructor by 9 am on the day they are due. We will analyze the work presented and entertain different ideas from the rest of the class. Students are strongly encouraged to put notes/corrections on their problem sets as we discuss them as long as a different color pen or pencil is used. You are encouraged to work together or talk about the problem sets with one another. However, simply copying another person's work will not be of any benefit.

Papers:

This course has a W designation, so the paper must be 20 or more pages. Failure to complete either paper will result in an **automatic failure** for the course. During the semester, you will be writing two papers that will essentially make a research proposal. Each paper will have a different focus. The difficulty in writing these papers will progress throughout the semester. This is reflected in the amount of time given to write the papers. You are expected to meet the following target dates. You can always hand in material early. Missing target dates will result in a 10% reduction in your grade. Feel free to consult with a WA or any member of the chemistry faculty, however, if you consult with anyone besides me, you must acknowledge that consultation in your paper. A grading rubric for the papers is included. Papers must be submitted electronically.

Paper 1

You will be reviewing the work of Professor Jessica Hoover of the West Virginia University. Professor Hoover will be visiting Lafayette towards the end of the semester. Professor Hoover's work covers a variety of projects. You should choose to focus on one project, with approximately three papers (depending on length) published for that project. While reading these papers you must continuously ask questions like: Where there any additional experiments that could have been done? Is there a next logical step that the authors are not following? Is there a different application of this knowledge? If you fail to ask these questions, paper 2 will be difficult to write. You will be expected to use additional sources as background information. This paper should focus on what the goals were, what results were found and what you found interesting about this work. Experimental details can be provided, but should not be the bulk of your paper. You may also cover some of the additional applications of the work you are researching. As a suggestion, you may want to find other papers that cite the work you are reporting on. Figures are welcomed, but should not be counted as a part of your 12-14 pages.

Paper 2

This will be the more difficult of the papers. The goal of this paper is to write a research proposal based on your first paper. You must suggest work to be done and why it is worth doing. Although this paper will contain your ideas, it will likely require significant literature searching to support your ideas. Your proposal does not have to focus primarily on inorganic chemistry. If you want to apply what you have learned to different fields; feel free to do so.

Due Dates

Sept. 8th: Topic is due to me. You may need to look at journals we do not get and ILL is not fast.

Oct. 6th: Draft of first paper is due to reviewers.

Oct. 23rd: Paper is due back from reviewers.

Nov. 3rd: First paper is due.

Nov. 17th: Draft of second paper due to reviewers.

Dec. 8th: Paper is due back from reviewers.

Final: Second paper is due.

Reviewers: Your papers will be reviewed by the instructor and a classmate. You may have a different peer evaluator for each paper. The review process is designed to strengthen your work. Carefully consider comments and suggestions made by the instructor and your peers. Reviewers will return your papers in a timely fashion. Failure to return a paper will result in a 10% deduction from the grade for the paper of the reviewer.

Lit Discussions: During the semester, our 4th hour will not always be used for problem sets or exams. For any 4th hour when there is not an exam or presentation scheduled, there will be a lit discussion. There will also be lit discussions worked in at varying times during class. A lit discussion will be a discussion of an article. You will analyze the paper using a provided handout as a guide. This handout will be due at the start of our discussion, but anticipate answering similar questions on a second handout during the discussion. Group answers to any in class questions on handouts will be collected. Your grade will be based on your handouts and your participation.

Other: You will have to memorize the atomic symbols and their location on the table. It will be worth points on the first exam and the table will not be provided on any exams. Masses will be given.

Notes: Notes will be available on Moodle. These notes will not contain everything we cover in class, but may make it easier for you to follow the lectures. I will not include any figures from the text that I show as overheads, but I will provide copies of overheads from other sources.

Intellectual Honesty: You will be held to the highest expectations of student conduct as outlined in the Lafayette College Student Handbook. If you violate these precepts, I will refer the matter to the Dean of Studies office.