

Chemistry 448 Laboratory

Textbook: *Advanced Inorganic Chemistry Laboratory Manual*

Instructor: Michael Castellani

Pre-lab: Room 460 Science Hall

A list of the experiments we will be doing follows (the schedule of dates is tentative):

<u>Date</u>	<u>Expt</u>
8/19	Introduction to 448 lab
8/26	Expt 1: Nitrogen Triiodide Ammoniate
9/2	Expt 2: Group theory (in Room 460)
9/9	Expt 7: Sunlight Photochemistry
9/16	Test 1
9/23	Expt 4: Silicone Polymer
9/30	Expt 3: Bis(glycinato)copper(II) monohydrates
10/7	Expt 6: Triboluminescent Compound
10/14	Test 2
10/21	Building a Solar Cell, part 1 (handout)
10/28	Building a Solar Cell, part 2 (handout)
11/4	Synthesis of Ferrocene (your design)
11/12	Synthesis of Ferrocene (your corrected design)
11/19	Test 3

You must have the usual safety equipment on the first day of lab and complete the safety training by Monday, Aug. 24. This includes safety goggles. If you wear contact lens, you must also notify me prior to the beginning of each lab period and notify me in writing before you begin work in the lab. I strongly urge anyone wearing contact lenses to use your prescription glasses during the lab.

Many of the chemicals you work with are corrosive and for that reason you may want to wear a lab apron or lab coat. In any case, open toe shoes and sandals are not allowed. Also long pants or dresses are required. You are encouraged to wear long sleeve shirts.

Anyone violating these rules will be sent home to change.

Grading

The labs will be graded on a 10 point scale. There are 3 components to your laboratory grade: notebook (60%), quality of product (20%), and product yield (20%).

- The notebook is graded on the quality of your description of your work. In general, the outcome of your experiment will not influence this grade. It will be graded on a 0 – 6 point scale.
- Your product will be judged on the basis of its purity. This may be done by spectroscopy, appearance, or other technique we discuss in pre-lab. Grades are on a 0 – 5 point scale. Attempting the experiment will guarantee a minimum of 1 point.
- Your product yield will be evaluated on a 0 – 5 point scale. It may never exceed your purity score. Attempting the experiment will guarantee a minimum of 1 point.

There will be an additional graded assignment. You will write a synthetic procedure for the preparation of ferrocene, $(C_5H_5)_2Fe$. There will be a handout distributed on the first lab period describing the assignment in detail, but, briefly, you will be given a list of chemicals and a target molecule. You will then write a proposed synthesis in the manner of a lab manual for the compound, submit it to the instructor for approval, then, at the end of the semester try the procedure.