

**REPORT GUIDE Report Due:** Monday/Tuesday May 5/6

**For this lab you will write a 'Formal report'**

**This lab is a Synthesis lab.**

**This experiment was done pairs and each pair will turn in one report.**

Be sure your report has these sections (in order on the lab report): Purpose, Theory, Data, analysis, conclusion and questions to be answered.

### **Finer points**

The Purpose should be the reaction equation for this experiment (show all steps).

The Theory is simply the mechanism for the reaction (do for formation of the mono product only)

For the Data section. Be sure to attach NMR spectra. Should also have weight & mp of each purified product and any remaining Ferrocene. Also sketch the TLC plate—For each spot be sure to determine the identity and R<sub>f</sub> value. Also note the solvent system used to develop the plate.

For the analysis section Show calculation for % yield. Comment on data in regards to the success of the reaction and to the purity of you product(s). If you received low yields speculate on what could have caused this.

Analyze the NMR with the appropriate interpretation (as you did for the NMR day unknown).

For the conclusion, surmise all the data and state if you succeeded in synthesizing the mono and di ferrocene and if you successfully purified them by column chromatography.

### Additional questions

1. Why was it important to keep water out of this reaction? (show a reaction equation of what would happen).
2. Indicate the order in which ferrocene, monoacetyl ferrocene, and diacetyl ferrocene elute in a column chromatography and provide an explanation for this behavior.