## Dr. Laurie S. Starkey, Cal Poly Pomona, Organic Chem Lab II CHM 3150L **Organization of Laboratory Notebooks**

One part of your Laboratory Final may be "open notebook," so you should try and keep your notebook as accurate and detailed as possible. All entries must be written in ink. The "Prelab" portion of the notebook is due at the beginning of each laboratory meeting. It includes Introduction through Procedure, below, and is worth 50% of your Lab Report grade. An open-notebook Prelab quiz will be administered and will require that the Reagent Table be thoroughly completed. If the entire Prelab is not thoroughly completed before lab, but is finished before turning in the report, 25 points will still be deducted from the grade. (note: 100 points are shown here but labs will be graded on 10 point scale)

**Introduction** (5 pts) Make an entry in your Table of Contents (first few pages of notebook).

Title/Date: Choose an appropriate title and give the date the lab was conducted.

Purpose: A brief statement that describes the objectives of the experiment.

Reaction: Show the reaction to be conducted, using drawings (no mechanism needed).

Reagent Table (15 pts) Add columns for: Reagent–MW–Density–Amount–Moles–Equivalents–Remarks Generate a table, listing each Reagent and solvent to be used in the reaction and also the product(s) expected (do not include workup materials). Use the lab manual and other references (Google is a good place to start; Wikipedia is rich with reliable chemical data. Also: CRC Handbook, Aldrich catalog) to complete the table as best you can. The Amount of each Reagent is the amount added to the reaction mixture (in g and/or mL). The Amount of product expected is the calculated Theoretical Yield. Equivalents are the molar ratios of the Reagents added. The Remarks should include relevant mp (solids), bp (liquids), solubility data and any relevant hazards/precautions.

Calculations (5 pts) Show sample calculations for the Theoretical Yield and the Mole amounts in the Reagent Table. Be sure to include proper units.

**Sketch** (5 pts) Sketch new apparatus only. Add enough detail so that you no longer need to refer to your lab textbook. If the setup has been used before, reference that sketch's page number here.

Workup Outline (5 pts) The "workup" is everything done once the reaction is complete, to isolate/purify product. Read through the procedure and prepare an OUTLINE of the steps to be taken in the Workup, with the PURPOSE of each step indicated (e.g., treat with CaCl<sub>2</sub> – for drying, removes any water dissolved in the organic layer). The complete steps for the workup will ALSO be given in the Procedure below.

**Procedure** (10 pts) Using the left-hand half of the page (draw a vertical line), provide a brief, but thorough, step-by-step outline of the experiment. Indicate where the reaction workup (product isolation) begins. Finish with notes on proper waste disposal. Your procedure should be detailed enough so that you no longer need to refer to the text. Also, spread it out over a few pages to allow adequate space to make observations that correlate to each step.

Observations (25 pts) Across from each step of the Procedure, record in permanent ink all observations made while actually running the experiment. Record times, temps, colors, odors, etc. What does each reagent look like? What happened during each step? How much product did you get? Modify the apparatus sketch, if needed, and indicate any deviations made from the procedure.

**Results** (10 pts) In an organized fashion, present the data obtained, including (as appropriate): actual yield, % yield, mp, IR data (attach well-labeled spectra with title and structure drawn on it), etc.

**Discussion** (15 pts) Analyze and interpret the results obtained, including spectra. Discuss the yield, meaning of the spectra and mp obtained, etc. Explain the expected and/or unexpected results. Did the reaction work? How do you know? (Evidence?!) What could you do to improve? What did you learn?

**References** (5 pts) List all resources and texts used, including page numbers where applicable. Give a complete reference so the resource can be located by someone who is unfamiliar with the lab.