

## Pre-Lab Guidelines

*Please follow the format provided below for your pre-lab write-up. The pre-lab assignment is intended to prepare you for the lab and therefore should be written in your lab notebook **before** you come to the lab. Should you struggle in the preparation of the pre-lab or with any of the calculations for each lab feel free to e-mail your GSI or Dr. Koreeda. Your GSI will also go over any details at the beginning of the lab period. Some variation off this example is fine, but please try and follow the format for full points (i.e. make sure that all of the information is present and clearly displayed).*

Notebook Sections to Include for Each Experiment: Include an underlined heading for each section in your notebook (except for the title section, since it is already designated in the notebook).

- I. Title, **name**, date of the experiment, **course and section number**, and **experiment number** – in the appropriate boxes *at the top* of each page. (1/2 pt)
- II. Source Reference: Give the initial source of the experiment—i.e., what your source of instructions is; e.g., handout or textbook reference. For the prelab this does not need to be in any specific format, just so long as the pertinent information is there. (1/2 pt)
- III. Purpose: State the purpose of the lab, usually ~1-2 sentences, **in your own words** (1/2 pt)
- IV. Structures/Reactions: Show the primary chemical reactions involved and/or structure of compound(s) central to the experiment. (1/2 pt)
- V. Reagents/Hazards: List (e.g. via bullet-points or a table) the chemicals needed along with particular **hazard information** and other information necessary for the experiment (e.g., molecular weight, concentration, moles needed) (1 pt)
- VI. Materials & Methods: (i.e., the Procedure section) Using the **left-hand column** of the page, summarize the procedure to be followed (e.g., in bullet-points or numbered steps). NOTE: **This should not be a copy of the procedure from the lab manual!** However, this section must include enough information that another person could use your lab book to repeat the experiment without the textbook. It should be written **in your own words** in a stepwise manner (diagrams are encouraged). Physical constants of any compounds not listed previously should be included. Possible by-products and their physical constants should also be noted at this point in the report. Changes or points of emphasis brought out in the pre-lab discussion may then be added on the right-hand column adjacent to the procedural point in question. Also include the special equipment or non-standard glassware required, including illustrations as needed (the full page width may be used for illustrations). (1 pt)
- VII. Calculations: Provide any calculations necessary for the lab **ahead of time**. These can be included in the materials and methods section or as a separate section after the materials and methods. (1 pt)

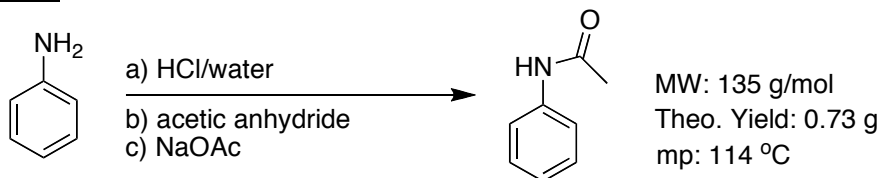
### Example of a Pre-Lab Write-Up:

NOTE: This is an example only, and actual pre-lab lab reports may vary.

II. Reference: Experiment 1, Chemistry 216: Synthesis and Characterization of Organic Compounds, Department of Chemistry University of Michigan, pp. 1-3.

III. Purpose: The purpose of this experiment is to convert a primary or secondary amine into an acetamide. (You could further explain why this reaction is useful, etc.)

IV. Reactions/Structures:



(This is a good place to record actual, theoretical and percent yields, as well as hazards for your products. If there is not a reaction in the experiment, this section should include the structures of the important materials involved in the lab.)

V. Reagents/Hazards:

Reagent	Mw (g/mol)	Amounts	Moles	Mol equiv.	Hazards	Notes
Aniline	93.1	500 mg	5.4 mmol	1.00	Poison, Irritant	volatile
HCl (conc.)	36.5	0.45 mL	5.5 mmol	1.02	Corrosive!	37% w/w d=1.20 g/mL
Acetic anhydride	102	0.60 mL	6.4 mmol	1.19	Corrosive! Flammable!	d=1.08 g/mL
Sodium acetate	82.0	530 mg	6.5 mmol	1.20	Irritant	

VI. Materials and Methods:

Any changes to be made:

- Weigh 500 mg of aniline and dissolve into 13-14 mL of water and 0.45 mL of conc HCl
- Add 530 mg of sodium acetate to 3 mL of water, set aside
- Measure out 0.6 mL of acetic anhydride, add to aniline/HCl solution
- Mix (swirl) and IMMEDIATELY add sodium acetate
- Precipitate forms, cool the mixture in an ice bath
- Collect solid using suction filtration
- Use water to recrystallize

VII. Calculations:

Ex: When using concentrated HCl, the solution from the bottle is generally 37% HCl by weight of solution. So, with a density of 1.20 g/mL,

$$0.45 \text{ mL conc. HCl} \times \frac{1.2 \text{ g HCl}}{1 \text{ mL}} \times \frac{1 \text{ mol HCl}}{36.5 \text{ g HCl}} \times \frac{1000 \text{ mmol}}{1 \text{ mol}} \times 0.37 = 5.5 \text{ mmol HCl}$$