Laboratory Reports, Polymer Processing.

See for Example: [1] "Experiments in Physical Chemistry", D. P. Shoemaker, C. W. Garland, J. I. Steinfeld, McGraw Hill, 1974.

1) Laboratory reports are your report of results from your experiment. Plagiarism is not allowed in any form. These forms include:

a) Copying data from others.

b) Copying text from old reports or reports of other students in your class.

c) Paraphrasing text without a reference.

d) Copying text from a book etc.

You should present your own results as best you can. If you have a problem with technical writing this is the time to work it out. The reports will be graded with each student's level of competence in technical writing in mind, that is, there is no advantage to plagiarize and it has the disadvantage that you don't learn to write and you risk a 0 on the report.

2) The report should contain a copy of the relevant sections of your lab notebook as an appendix. These can be referenced in the report, "The lab fell apart when the fire alarm sounded (see appendix 2, Joe's notebook 1/15/97 pp. 22)."

3) Reports should be written legibly in ink or typed.

4) Figures, Tables need captions and numbers in sequential order. Equations need numbers to reference them. Equations are usually typed on a separate line with a reference number. A figure or table needs to be mentioned in the text before it appears on the page. (This rule can be softened to referencing in the text of the same or a previous page of the report.)

5) Sections of the report:

a) Title, Date of Submission, Author, Lab Partners

b) Abstract: 1 to 5 sentences that summarize why you did what you did, what was done, what happened and why it might be important. In a company setting the abstract is critical as this is the only part anyone will read. It is very important to learn how to say the

main point in a few sentences. Abstracts do not contain references, i.e. they must be self-contained.

c) Introduction: Background information, develop the context of the experiment, introduce all necessary equations and any derivations necessary to understand the report. Usually, the introduction will contain the bulk of the references to prior work which is important to the report. Don't go overboard on this section. Keep it simple and to a minimum of what is needed to understand the report. Reference what will take a lot of space or give an appendix for length things which are somewhat off track.

d) Experimental: What did you do? You need to describe all materials and their source, all equipment and either a sketch of the setup or the make and model etc. so someone can duplicate what you did. This is typically a short section.

e) Results/Calculations: Tables of data and discussion in as concise a format as possible. Calculations should use equations which were introduced in the Introduction section. A brief explanation of the approach can be included but discussion of the results should be reserved for the next sections. (Include data sheets from write-ups where appropriate.)

f) Discussion of Error: Discuss the problems with the experiment, the possible sources of error, propagation of error if appropriate. This can be qualitative or quantitative depending on the measurement. This is a critical part of the report and should justify the weight you give to your results in the following section. Lengthy derivations of error belong in an appendix. This section is really just to give the appropriate weight to the results so they can be reasonably discussed.

g) Discussion: Give meaning to your results in the context of what was introduced in the introduction, the experiments which were performed and the weight you give the results based on your discussion of error. This is an essay on the results basically. In some cases the discussion and conclusion are combined. For this class it is better to separate them.

h) Answers to questions in write-up. Answer the questions by number. This is like a homework assignment.

i) Conclusion: This is similar to the Abstract in that it is a concise, self-contained and short description of the importance of the results. ***The conclusion can assume that the reader has read the report whereas the abstract is for the "uninitiated".***

j) References: Number references consecutively as they appear in the report. In the report use square brackets for references [1,5,7] and parenthesis for equation numbers equation (1).

k) Appendix:

1) Pertinent copies of lab notebook as well as a copy of the cover of the lab notebook.

2) Copy of the instruction sheet for the experiment.

3) Other information important to the report but not appropriate for the body of the report.

6) Relative importance of report sections: In a job your boss will typically read the abstract and sometimes the conclusion sections only. If it seems important he may glance at the discussion section. You are usually trusted with the experimental and error sections unless there is some reason to question the results. At that point the experimental and error sections become critical to validate your conclusions. It is critical that you learn to write short, concise abstracts and conclusions that convey the major point of the lab.

7) Grading:

20% Abstract
20% Conclusions
15% Answers to Questions
10% Discussion
10% Discussion of Error
5% Introduction
5% Results/Calculations
5% Experimental
5% References
5% Appendix/Presentation and Organization
100%

8) Lab Reports are **due one week** from the day the experiment was performed. **Late reports will receive half credit.**

Despite of this detailed description of the lab reports given above, please keep them as short as possible (10 pages is long) while including the parts listed above. Hand written reports should be the norm unless you can word process faster than you can write by hand. The reports do not need a binder. The bulk of the grade is on the abstract and conclusion.