**Much more information is available at:** [**http://chemlab.truman.edu/the-laboratory-report/**](http://chemlab.truman.edu/the-laboratory-report/)

**You should replace the text following each boldfaced heading in this guide with text corresponding to your experiment. The boldfaced headings should remain to identify each section of the report.**

\*\*\*The report should be at least 1.5 spaced.

**Title** (bold font)

Authors’ names

*“Department of Chemistry, Truman State University, 100 East Normal, Kirksville, MO 63501*

**Abstract**

Insert abstract here.

The abstract is a one-paragraph summary of the paper that is written in the present tense. As the abstract is the only part of the paper that is entered into article databases, it should be able to stand alone, separate from the paper.

The first one to three sentences of the abstract should briefly introduce the reader to the problem studied. Next, the scientific approach, major results and primary significance of the findings should be presented. The abstract is generally 150-200 words (but can be much less for shorter papers). In order that it sum up the body of the paper, this section is normally written after the body of the paper has been completed.

Because the abstract is separate from the paper, all abbreviations in it should be written out. An example of this: nuclear magnetic resonance spectroscopy (NMR) was used to deduce the structure of compound X.

**Introduction**

Insert introductory material here. Modify spacing as needed, so that headings like **Introduction** do not appear on the last line of a page.)

The introduction should present the scientific problem at hand to the reader. Explain to the reader why the experiment was conducted, how it was designed and perhaps, if appropriate, what was found. Literature that is relevant should be incorporated and will help the reader understand the context of your study. A good rule of thumb is to start at the most general topic and progressively move towards the specific.

**Experimental**

Insert description of experimental methods here.

The experimental section of your paper should be a logical, coherent recount of the experiment(s) conducted. This section should be complete enough for a trained scientist to pick up your report and replicate your experiment. The experimental section in a laboratory report is more concise than the corresponding section in the laboratory notebook. **It should not be a step-by-step procedure of the activities carried out during the laboratory period.**

**This section does not need to be chronological either, but it can be if that presentation makes the most sense.** For example, if you started juicing oranges, then left that to standardize the DCIP, then went back to titrating oranges, then did more standardizing of the DCIP, you should not present it like that. You can present sample preparation first, then describe standardizing the DCIP (or vice versa).

Remember that this part of the lab is always in past tense, because the experiment is things you did, and they are over now.

**Results**

Insert results here. (Remember that is not simply a listing of your numerical results; there must be some description, also.)

In the Results section, the results are presented and summarized in a reader-friendly form. **Raw data are not presented here**. **Do not simply report your numerical results.**

The Results section must have a narrative that describes your results and puts them in context.  This narrative can include a description of the data (such as spectra or data in graphs), what problems were encountered during data acquisition (and how they were resolved, or not) and a general description of how the raw data were processed to give the final results (**not a step-by-step description of everything you did**).  The reader wants to know what you did, how you did it, what problems you encountered, and finally, what your results were.  Each of these topics must be addressed in the Results section in a way that is both clear and concise.

**Discussion**

Insert discussion of results here.

This is the section where the results are interpreted. This section of the paper is analogous to a debate. You need to present your data, **convince the reader of your data’s reliability** and present evidence for your convictions. This means you do not tell the reader how bad your lab group is at experimentation and how much your data stinks.

First, evaluate your data. Do you have good, mediocre, terrible, or un-interpretable (contradictory) data? If you do have poor data, then you have poor data- be honest, but don't be gloomy. Then, tell the reader what your data says with respect to your hypothesis- for example, maybe the vitamin C content is higher in A than B, but both are much lower than the container would have you believe. If your data is tightly grouped and contradicts the vitamin C content information on the package, then draw your conclusions as though your data is correct, not as though your data stinks and the package is always perfect! Include enough information to drive your conclusions home- and yes, your conclusions may invalidate your hypothesis.

**Conclusions**

Insert conclusions here.

The Conclusions section is typically a one-paragraph summary of your laboratory report. it is a bit different from the abstract. Here, you summarize the goal(s) of your experiment, state whether you reached that goal, and describe briefly the implications of your study.

**References**

Place your references here. (These generally follow directly after the last section of the report if less than half the page has been used. If more than half a page has been used then start the references on a new page.)

See <http://chemlab.truman.edu/the-laboratory-report/> for a description of the proper format for references.

**Tables**

Insert any tables here. (Omit if there are no tables.)

**Schemes**

Insert any schemes here. (Omit if there are no schemes.)

**Figure Legends**

Insert figure legends here. (Figures follow this page. Omit if there are no figures.)

**Supporting Information**

Add supporting information here. (The order of supplemental material should follow that of the main body of the text and the same rules apply: text first, then tables, schemes and figures.) This is where raw data goes- tables of titrations and any calculations.

In this report, tables of raw data will go here.

**A handwritten calculations sheet will be turned in as part of the supporting information (stapled to the back of the report).**