

**Name**

**Partner's names**

**Course and Section#**

**Date**

**TA's Name**

## **Title of Lab**

### **I. Summary**

- A.** Demonstrates a clear understanding of the big picture and context.
- B.** Whys is this question important/interesting in the field of \_\_\_\_\_
- C.** Current knowledge accurate; provides appropriate background and definitions
- D.** A clear statement of objectives and hypotheses to be tested
- E.** discusses the approaches that existed before and why they were not satisfactory
- F.** presents a new approach that improves the previously existing ones. This is normally seen as the contribution of the paper, and all the paper has to be centered on this contribution
- G.** description of the organization of the paper
- H.** Valid literature sources
- I.** Information links theory to experiment and grounds experimental Hypotheses /assumptions
- J.** Prepares the reader for experiment discussion

### **II. Data**

Summarized in a logical format with a narrative structure appropriate to the sequence of objectives.

So a good paper structure has to be a seamless sequence of sections that are focused on explaining and demonstrating the contribution of the paper.

#### **A. Methods**

- 1.** Includes clear description of approach, materials, data sources, important equations. The experiment described in detail so that it is reproducible
- 2.** Statistical analysis appropriate to hypotheses
- 3.** Narrative summarizes key findings; refer to all tables and figures in sequence.
- 4.** Defines and discusses the parameters measured. The reasoning for use Appropriate and logical?
- 5.** Limitations of design and equipment
- 6.** Sample size justification (appropriate and logical?), Subject selection and justification (appropriate and logical?), Treatment design justification (appropriate and logical?) Number, set up (double-blind, blind, cross-over, etc...)

#### **B. Observations**

1. Uses senses to describe physical changes in data.
  - a) What colors, smells, tastes, feelings, etc were observed?

### C. Tables and Figures

1. Tables, figures arranged in order that best tells the story; informative captions; axes labeled. If shown in graphical form, plots are clear and displaying the trend described in the text.
2. Statistical analysis performed is appropriate
3. Titles and annotations are informative & can stand alone.
4. Proper references are made to tables/plots with cross-references to those in the report.
5. Visuals are labeled appropriately. See below:

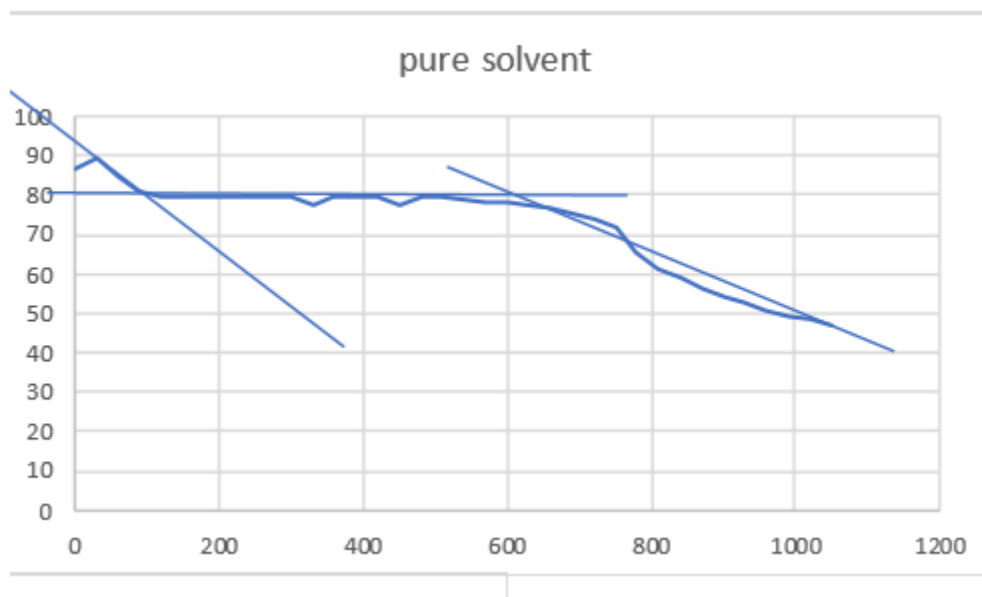


Figure 1- Plotted Data of the temperature of solvent vs time.

### D. Calculations

1. Statistical methods used to evaluate the hypothesis
2. Calibration methods (Defined, justified, and appropriate for exp.)
3. Results from the experiment are given.

## III. Analysis

- A. Sources of error addressed/discussed & minimized Controls?
- B. Conclusions are logically drawn from data. The logical chain of reasoning from hypothesis to data to conclusion is clearly explained.
- C. Address conflicting data.
- D. Alternative explanations considered. Suggest future directions for research
- E. Limitations of method and data explained
- F. Implications of results to a broader context

- G. Appropriate use of primary (peer-reviewed) literature and references; properly Cited.
- H. the conclusions have to be derived from the comparisons. Results serve to demonstrate the contributions of the paper.
- I. Results should not be inserted in the article just because data was gathered. Presented data has to be useful to demonstrate the contribution of the paper.
- J. Results do not contain extrapolation or conclusions.

**IV. Claim**

- A. Discusses what was achieved in the lab or research..

**V. References**

- A. APA format is recommended.
- B. It may be helpful to hyperlink any sources as they come up throughout your research.

Thank you to:

Dr. Lisa Weeks, Dr. Leonard Kass, Dr. Richard Wahle, Dr. Lynn Atkins, and Dr. Mitchell Bruce for their contributions to this project.

In order to design this document, many things had to be done beforehand. With the help of many friends, I was able to make a list of professors that had classes that required students to write lab reports. This was an extremely long list, and I was able to reach out to everyone on the list. Following a document that I read, [Email Genre Conventions](#), I was able to send out a well-informed [email](#) to the professors about what I wanted to accomplish and how they could help me. Many of them got back to me and I was able to pick out the common denominators from each of their rubrics and put them here. Of course, this isn't a comprehensive guide for each class, but covers most of the basics!