



THE UNIVERSITY OF BRITISH COLUMBIA

ATSC 303

Methods in Atmospheric Science

**Lab X – Laboratory name**

**Student name – ID: xxxxxxxx**

Vancouver, BC, Canada

2023



Student name

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Table of contents should also be in Arial 12.



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## **LIST OF FIGURES**

**Figure 1.** Caption and figure centralized, Arial 10, 1.5 spaced. Figure + # in bold. .... 8

## **LIST OF TABLES**

**Table 1.** Caption and table centralized. Arial 10, 1.5 spaced. Table + # in bold..... 9



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## **1. OVERALL PROCEDURE**

Describe in a bullet form all the instruments used in the laboratory. Also describe the general activity (do not copy from the laboratory sheet, you do not need to go over every detail, only describe what you and your group did).

### **1.1 Sensor(s) studied**

Describe the sensor(s) used in the laboratory. What are their main functions? How they work? Was it prepared by students or was it handed already setup? If so, in what conditions?

## **2. OBJECTIVE**

What, in your words, was the main objective of this laboratory? – This will not be used for grading but to understand the student's experience and help us improve.

## **3. EXTRAORDINARY EVENTS**

Did something happened during the lab that could implicate your report? E.g., unfinished experiments.



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#### **4. QUESTIONS FROM LABORATORY PRACTICE**

Use Arial 12, 1.5 spacing, justified or align left for answers. If there are no questions, you can type “No questions”.

##### **4.1 Part 0**

*Question 1*

Answer Answer Answer

*Question 2*

Answer Answer Answer

##### **4.2 Part 1**

*Question 1*

Answer Answer Answer

*Question 2*

Answer Answer Answer

##### **4.3 Part 2**

*Question 1*

Answer Answer Answer

*Question 2*

Answer Answer Answer

##### **4.4...**



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## **5. CONCEPT QUESTIONS**

Use Arial 12, 1.5 spacing, justified or align left for answers.

### **5.1 Question 1**

*From this point forward, indicate the sub questions but you do not necessarily need to include in the contents table.*

### **5.2 Question 2**

*From this point forward, indicate the sub questions but you do not necessarily need to include in the contents table.*

### **5.3 Question 3**

*From this point forward, indicate the sub questions but you do not necessarily need to include in the contents table.*

### **5.4...**



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## **PLOTS:**

Now, Excel is - in my opinion - long behind common coding languages such as R or Python when it comes to plots. Nevertheless, the benefits of an interface and easiness of manipulating data makes it preferable when handling routine reports. Seeing that most of you opted to use Excel, I am writing a personal guide on making plots "look better" for future reference. Use it as you please :)

This is an example from the Thermocouple lab (Lab 2). Judge how it compares to your submission to see where you can improve.

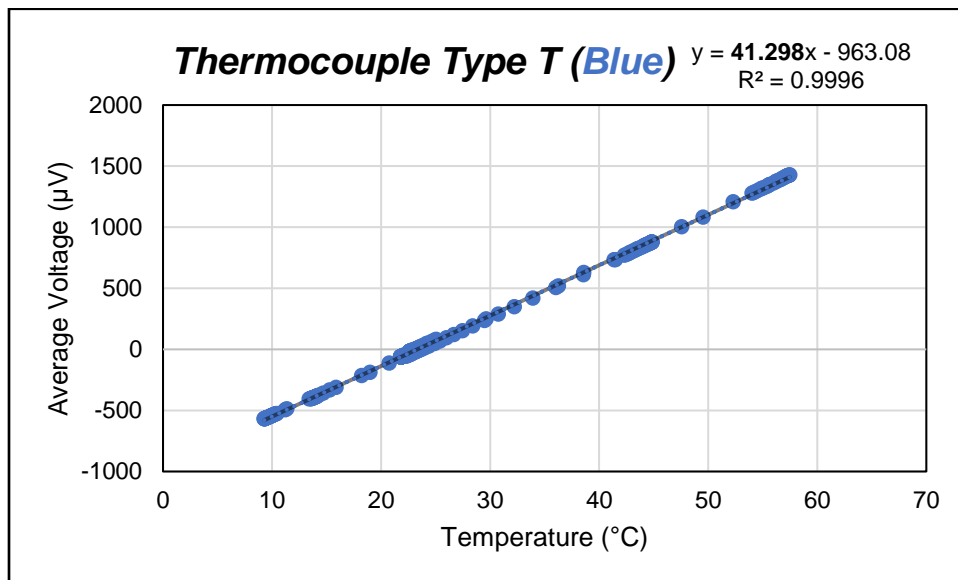
- i. Highlight the title: Bold + Italics usually turns out good
- ii. Use colour coding: wire (or piece used) was blue/purple? Let the reader know right away! Use the title and data points colour as hint
- iii. Display the equation in the top corner. Only display inside the chart if you are putting a box around it (black outline/blank background preferably)
- iv. Highlight the most important piece of the equation (in our case, the slope of the curve)
- v. Regarding the curve, don't use dashed lines as they can be mistaken with your data points, solid lines are preferable. You can change the transparency to 50% for a nice blending
- vi. Titles do not necessarily need to be Variable Y vs. Variable X, be creative :) Usually, they convey the main message of the plot (in our case, the thermocouple type)
- vii. Borders: now, this is tricky. For reports, usually, a bold border outside and a light border inside works (see below). But sometimes it is good to have no borders at all (contrary to a grey line - default)
- viii. Units: always use symbols for "microvolts" or "degrees C" for instance. They will match what you type in the text
- ix. R-value: good to reaffirm that your linearization fits the data



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- x. I always prefer to have the axis values next to the axis (instead of the middle of the plot)
- xi. Organize everything space-wise to be aesthetically pleasing, and use the same font type as the report, or at least the same font type in all the plot
- xii. The font size of the axis numbers and axis labels should be large enough to be roughly the same size as the font-size in the rest of your lab report, when your graph is pasted into your report.

How it will look after applying 1-11:



**Figure 1.** Caption and figure centralized, Arial 10, 1.5 spaced. Figure + # in bold.





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**TABLES:**

To simplify matters, let us always use closed tables, text Arial 10 to 12. 1.5 spacing.

**Table 1.** Caption and table centralized. Arial 10, 1.5 spaced. Table + # in bold

<b>Title in bold (grey box)</b>	<b>Title in bold (grey box)</b>
Variable	Number up to 2 decimal points unless stated otherwise
Variable	Number up to 2 decimal points unless stated otherwise
...	...



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**FINAL TIPS:**

- I. When describing sources of error, think of:
  - *Instrument Design & Selection*: Static error, Dynamic error, Drift, Exposure, Safety, Access
  - *Human*: Perception bias, Automation, Interpretation, Judgement
- I. When asking advantages, disadvantages, or characteristics, try to enumerate at least 3.
- II. You may copy the question if desired, but it is not mandatory (if the Professor/TA knows which question you are answering)
- III. For calculations, you can:
  - Use MS Word equations
  - Scan handwriting (careful with legibility)
  - Save document as PDF and annotate over it
  - **Mandatory**: highlight final answer with a box/different color.