

☐ **PHYS115** ☐ **PHYS121** ☐ **PHYS123**  
☐ **PHYS116** ☐ **PHYS122** ☐ **PHYS124**  
**Lab Cover Letter**

Author (You) Trevor N.

Signature: Trevor N.

*I declare that this assignment is original and has not been submitted for assessment elsewhere, and acknowledge that the assessor of this assignment may, for the purpose of assessing this assignment: (1) reproduce this assignment and provide a copy to another member of faculty; and/or (2) communicate a copy of this assignment to a plagiarism checking service (which may then retain a copy of this assignment on its database for the purpose of future plagiarism checking).*

Lab Partner(s) Katherine

Date Performed 24/01/24

Date Submitted 25/01/24

Lab (such as #1: UNC) #1: UNC

TA: Phillip

**GRADE** (to be filled in by your TA) See your TA for detailed feedback.

An 'x' next to a subcategory means you need to improve this aspect of your work.

***Paper Subtotals (points)***

( ) **General (6)**

\_\_\_\_ Sig. figs.  
\_\_\_\_ Units  
\_\_\_\_ Clarity of Presentation  
\_\_\_\_ Format

( ) **Abstract (4)**

\_\_\_\_ Quantity or principle  
\_\_\_\_ How measurement was made  
\_\_\_\_ Numerical Results  
\_\_\_\_ Conclusion

( ) **Intro & Theory (9)**

\_\_\_\_ Basic principle  
\_\_\_\_ Main equations to be used  
\_\_\_\_ Apparatus  
\_\_\_\_ What will be plotted  
\_\_\_\_ Fitting parameters related

( ) **Exp. Procedures (15)**

\_\_\_\_ Description  
\_\_\_\_ Stating and justifying uncertainties  
\_\_\_\_ Data Record  
\_\_\_\_ Quality of Lab Work

( ) **Analysis & Error Analysis (20)**

\_\_\_\_ Discussion  
\_\_\_\_ Equations & Calculations  
\_\_\_\_ Presentation inc. Graphs, Tables  
\_\_\_\_ Results Reported & Reasonable  
\_\_\_\_ Underlined items addressed

( ) **Discussion & Conclusions (6)**

\_\_\_\_ Numerical comparison of results  
\_\_\_\_ Logical conclusions  
\_\_\_\_ Discussion of pos. errors  
\_\_\_\_ Suggestions to reduce errors

( ) **Paper Total (60 points)**

**(30 points for CME or EPF)**

( ) **Notebook (10 points)**

\_\_\_\_ Format (*proper style, following directions*)  
\_\_\_\_ Apparatus (*brief description of equipment, including sketches*)  
\_\_\_\_ Data (*including computer file names and manually recorded data*)  
\_\_\_\_ Experimental Technique (*describing your procedures; stating & justifying uncerts.*)  
\_\_\_\_ Analysis (*results and errors*)

( ) **Worksheet(s)/Fill-in-the-Blank-Report (30 points) if applicable**

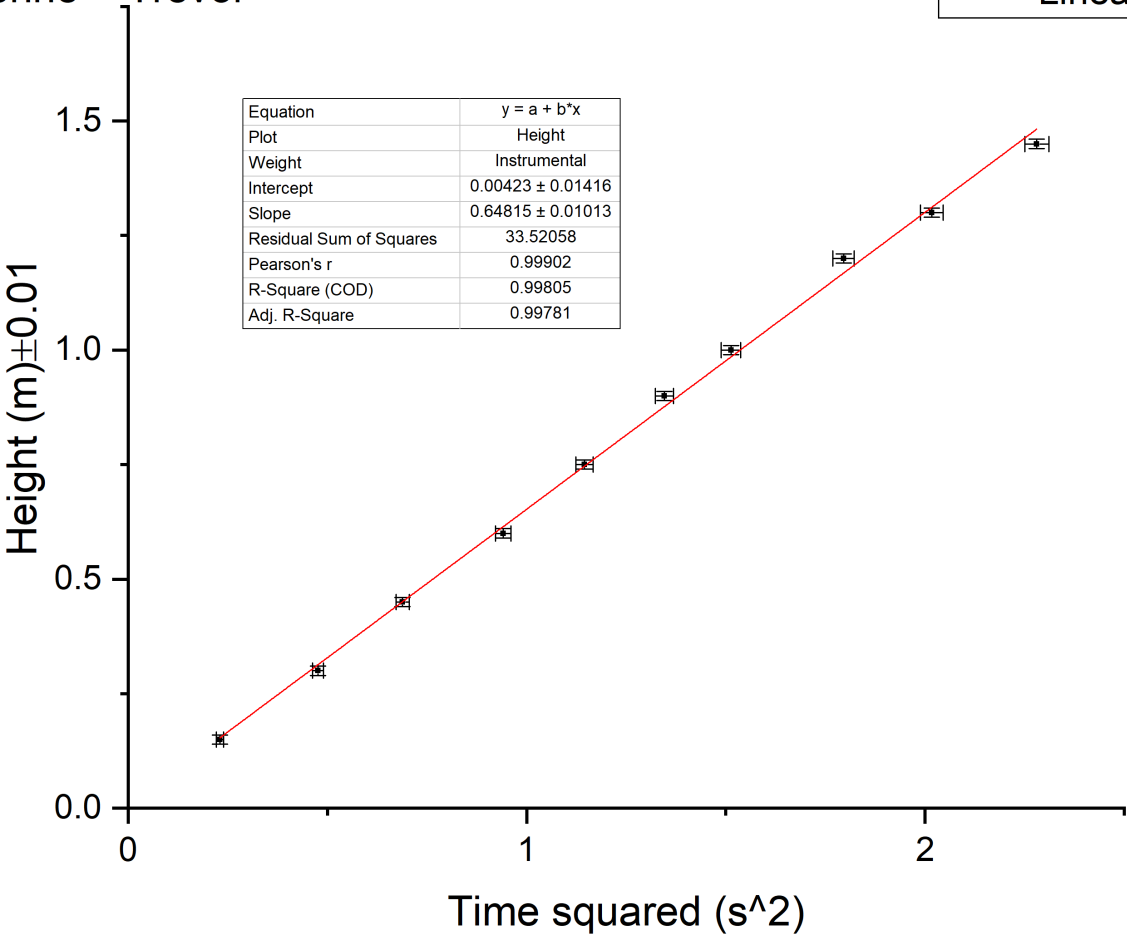
( ) **Adjustments** – late submissions, improper procedures, etc. – or bonus points for exceptional work.

( ) **Total Grade**

Graded by \_\_\_\_\_ (TA's initial)

Acceleration Due to Gravity on Europa-Newton's Model  
Katherine + Trevor

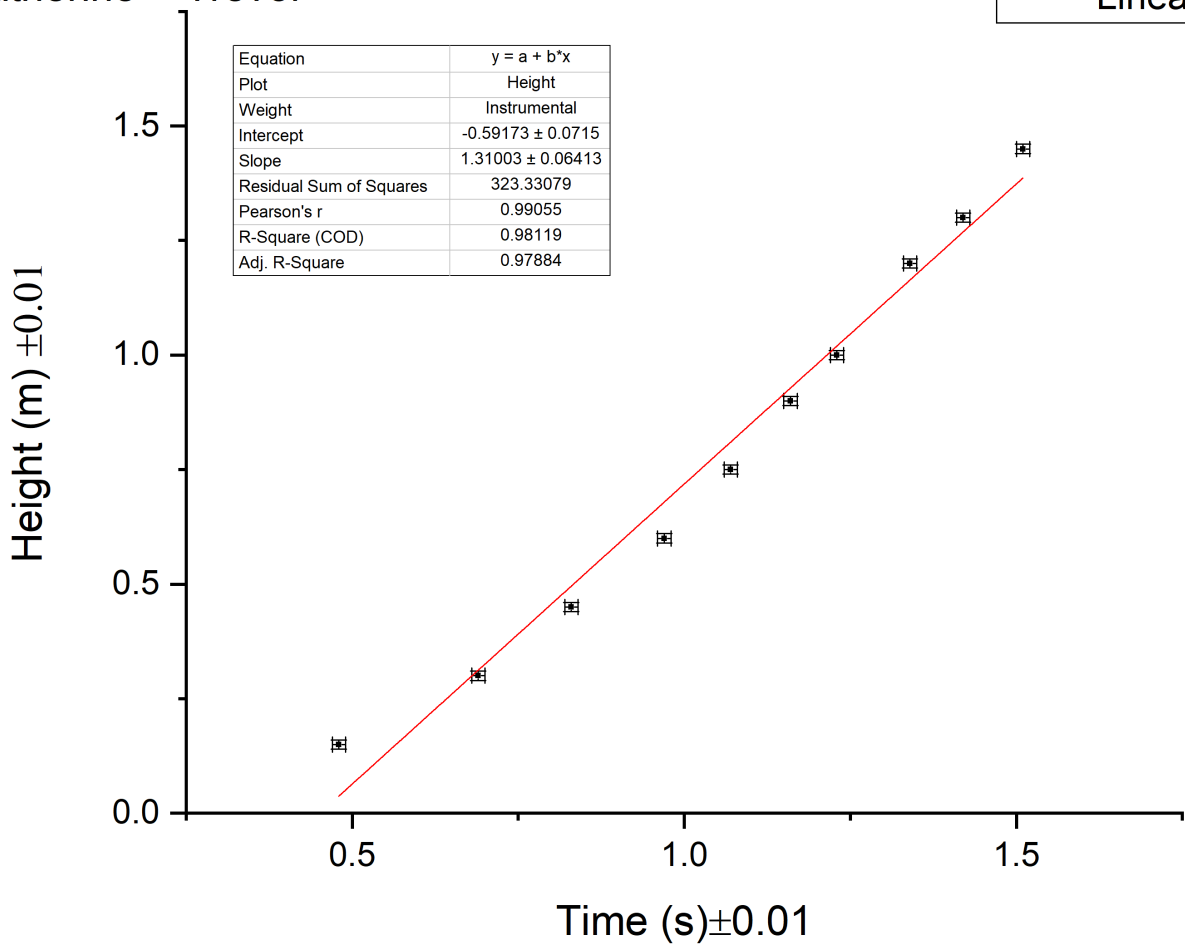
- Height
- Linear Fit of Shee



# Acceleration Due to Gravity on Europa-Aristotle's Model

Katherine + Trevor

- Height
- Linear Fit of Shee



$a_N$  and  $\delta_{aN}$  are shown on the graph

Newton's model is significantly closer to modeling the data than Aristotle's model. As you can see in the variance in the slope, Newton's has around 6x less variance and roughly one order of magnitude higher correlation ( $r$ ). The data points on Newton's graph stay significantly closer to the fit line whilst Aristotle's model has a consistent and predictable deviation from the line of best fit. I would report a value of  $0.65 \pm 0.001 \frac{m}{s^2}$  to my supervisor.