

# Lab 2: Lenses

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Course Number: PHYS 353

Lab Section: 3

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## 1 Objective

## 2 Theory

Thin lens equation:

$$\frac{1}{f} = \frac{1}{d_o} + \frac{1}{d_i} \quad (1)$$

This was from Physics of Light and Optics by Peatross and Ware equation 7.4.3 [1, p. 230].

However, our lab manual uses the following version:

$$\frac{1}{s} + \frac{1}{s'} = \frac{1}{f} \quad (2)$$

Below is an picture of the lab manual showing the variables used in the thin lens equation.  
Uncertainty in a Function of Several Variables

$$\delta q = \sqrt{\left(\frac{\partial q}{\partial x}\delta x\right)^2 + \dots + \left(\frac{\partial q}{\partial z}\delta z\right)^2} \quad (3)$$

This was from An Introduction to Error Analysis by John R. Taylor equation 3.47 [2, p. 75].

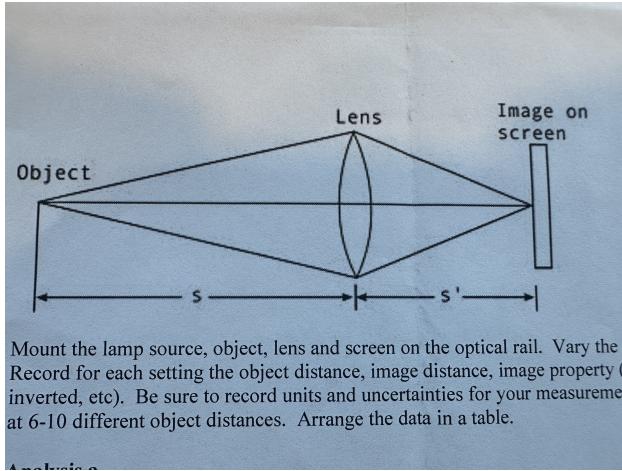


Figure 1: This image shows the variables used in the thin lens equation.

### 3 Experimental Procedure

### 4 Experimental Results and Analysis

### 5 Conclusions

## References

- [1] Justin Peatross and Michael Ware. *Physics of Light and Optics*. Brigham Young University, 2015.
- [2] John R. Taylor. *An Introduction to Error Analysis: The study of uncertainties in physical measurements*. University Science Books, 1997.