

# PHYS 24L Final Assignment

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DUE: Thursday, March 23, 2017

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**For each problem, briefly explain/justify how you obtained your answer.** This will help us determine your understanding of the problem whether or not you got the correct answer. Moreover, in the event of an incorrect answer, we can still try to give you partial credit based on the explanation you provide.

*Answer each of the following questions using the images provided. (You can see the images on the next page, and download the actual files from the Overleaf Project at this link:*

<https://www.overleaf.com/read/jzvvpkpchxmkb#/30252658/>

*Remember to specify the uncertainty in your measurement and to propagate uncertainties through your calculations. You may find the following formula useful:*

$$\sigma_f = \sqrt{\left(\frac{\partial f}{\partial x} \sigma_x\right)^2 + \left(\frac{\partial f}{\partial y} \sigma_y\right)^2 + \left(\frac{\partial f}{\partial z} \sigma_z\right)^2} \quad (1)$$

1. How long is the object?
2. What is its outer diameter?
3. What is its inner diameter?
4. What is the volume of the object?
5. Given that the density of the material it is made of (nylon) is  $(1.15 \pm 0.05) \text{ g/cm}^3$ , what is the mass of the object?

