PH201 LBCC **Prelab 6: Uniform Circular Motion** Name_____

Lab Section_____

This week's lab experiment will introduce you to the forces and acceleration in uniform circular motion. I hope you will enjoy this new way to determine the mass of a rubber stopper.

1. Find in the textbook the derivation that shows that $a = v^2/r$ and explain it here. Without a picture and a useful diagram of vectors this will not be possible to explain (this was done in chapter 3).

2. Draw a free-body diagram representing the moon going around the Earth. What is the force that keeps the moon on it's path?

3. In the lab manual in the analysis section it is described how to use the picture to solve for the mass in today's experiment. Draw the free body diagrams for both of the objects (the swivel and the rubber stopper. Derive the expression of m as a function of M, T, g, and L in your lab book. Finish this before lab, this is actually a classic exam question. (No this does not mean you should memorize it, it means you should be able to solve this kind of problems in 10 minutes or so, when we are at the end of this chapter, it might be longer now. You will need to show your derivation in the lab book for this week's lab report. Derive it before lab in your lab notebook.

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