George Mason University PHYS244

**Pre-Lab Activity: Flow in Tubes**

Reference the laboratory write-up and the Khan Academy video in the content folder to answer the questions below. *Type your answers into this document and submit it into the pre-lab activity drop box on Blackboard.*

1. Look at the radii and the flow rates of the various veins and arteries listed on page 1-2 of the laboratory write up. Write a hypothesis about the velocity of blood through the veins and arteries relative to the radius.
2. Watch the Khan Academy video about the major veins and arteries of the heart. Using this video and looking at the hypothesis above (#1) estimate the radius of the Vena Cava.
3. State the difference between veins and arteries.
4. In this laboratory we are using flexible tube to model veins and arteries. Write down at least one limitation of this model when trying to mimic exactly the way veins and arteries work in the human body.
5. In this experiment we will be using a simplified model of blood flow. Name and make a sketch of the two different types of blood flow. Write down when, in veins and arteries, you think one type of flow is more likely to be seen than the other.
6. In words – describe what the volumetric fluid flow is and the units of this value Q as written in the laboratory manual. (Use the link: Physical Description of Poiseiulle’s Law in the Content folder.)