Physics 1111: Lab 06
Power

In this lab you will conduct a real life experiment to calculate your (or a lab mate's) maximum power output, with an uncertainty.

1. Write down your weight (with uncertainty) and convert to mass (in kg).

2. Gather relevant supplies (a ruler, stopwatch/smartphone, paper, pencil, and calculator) and go on a class fieldtrip to the staircase next to the Nesbitt building.

3. Use your ruler to measure the height of one stair. Also count the number of stairs to get the total elevation change from the bottom to the top. Make sure to propagate the error.

4. Have one person control the stop watch while another person runs up the hill next to the staircase as fast as possible. Record the time taken, with uncertainty. The runner and timer should coordinate a strategy so that the runner's velocity at the bottom is approximately equal to the velocity at the top; that way the change in energy is only due to the change in height. Include your strategy in your lab report. Although your stopwatch probably has very good precision, you may want to assign a larger time uncertainty due to the human error of starting and stopping at the right time.

5. Write down the relevant equations from class and calculate your power with uncertainty. Give your answer both in W and hp.