# Lab 2: Kirchhoff, Thévenin, and Impedance Matching

1. Construct a Wheatstone bridge from 5 resistors in the 1–10 kΩ range. Measure its resistance at a few voltages (i.e. measure current and voltage). What is its resistance? Does it agree with your calculation from design exercise 2-1?

2. Construct a voltage divider similar to the one you made last week for lab exercises 1-3 and 1-4. Set $V_{in}$ to 10 V and measure $V_{TH}$ and $Z_{TH}$ seen by a load resistor -- use the result from design exercise 2-2 as the basis for this measurement. Do the measured $V_{TH}$ and $Z_{TH}$ agree with what you expect from your calculations? What load resistance results in the maximum output power out of the voltage divider? Please provide experimental evidence for all assertions!

3. Set the breadboard power supply to 3 V and measure $V_{TH}$ and $Z_{TH}$ for this setting. Before doing your measurements, you should list the potential difficulties of such an experiment. You can team up with another student for this measurement, if necessary. You should also consult with the instructors before attempting it -- please do not let $I_{out}$ exceed 1.5 A. Comment on the engineering of the power supply.