DC Circuits and Ohm's Law

As you work through the steps in the lab procedure, record your experimental values and the results on this worksheet. Use the exact values you record for your data to make later calculations.

Procedure A: Reading the color code of unknown resistors

Complete the data table below.

Data Table 1

resistor	band #1		band #2		band #3		resistance (Ω)	
	color	value	color	value	color	value	value	tolerance
1								
2								

CHECKPOINT 1: Ask your TA to check your reading of the color code.

Procedure B: Experimentally determining the resistance of resistor 1

CHECKPOINT 2: Ask your TA to check your circuit and multimeter settings.

Complete the data table below for R_1.

Data Table 2

Trial #	ΔV (V)	$\sigma_{\Delta V}$ (V)	current (A)
1			
2			
3			
4			
5			

What is the experimental value of R_1 (from your plot of voltage versus current)?

What is the percent error between the experimental and accepted values of R_1?

Does your measured resistance value agree with the expected value within the measured tolerance? (Compare your percent error for R_1 and your tolerance for resistor 1 exactly as you have entered them.)

CHECKPOINT 3: Ask your TA to check your chart, calculations, and Excel graph before proceeding.

Procedure C: Experimentally determining the resistance of resistor 2

Complete the data table below for R_2.

Data Table 3

Trial #	ΔV (V)	$\sigma_{\Delta V}$ (V)	current (A)
1			
2			
3			
4			
5			

What is the experimental value of R_2 (from your plot of voltage versus current)?

What is the percent error between the experimental and accepted values of R_2?

Does your measured resistance value agree with the expected value within the measured tolerance? (Compare your percent error for R_2 and your tolerance for resistor 2 exactly as you have entered them.)

CHECKPOINT 4: Ask your TA to check your chart, calculations, and Excel graph before proceeding.