

**Experiment #3: Atomic Spectroscopy**

Student Name: \_\_\_\_\_

**Pre-Lab** - 13 pts.Introductory Statement  
Pre-Lab Questions

	Pts Possible	Pts Earned
Question 1	2	
Question 2	2	
Question 3	2	
Question 4	1	
Question 5	3	

**Data Collection** - 4 pts.

Data Section should be appropriately formatted and neatly organized prior to the start of lab. All necessary data are recorded with appropriate units.

**Calculations** - 29 pts.

Helium spectral line identification	1	
Spectroscope calibration graph - Draft	3	
Spectroscope calibration graph - Final	4	
Estimate wavelengths of Balmer series	2	
Predict transitions ( $n_{\text{high}} \rightarrow n_{\text{low}}$ )	2	
Calculate wavelengths of Balmer series	3	
Calculate energy of emitted photon	3	
Calculate $n_{\text{high}}$ for each transition	3	
Calculate energy of each n level	2	
Calculate $\Delta E$	2	
Energy diagram - Summary of results	4	

**Post-Lab** - 7 pts.

Question 1	3	
Question 2	2	
Question 3	2	

**Results and Conclusions** - 4 pts.

	4	
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**TA Discretionary Points** - 3 pts.

Promptness, safety, attitude, cooperation, lab-cleanup, etc.

<b>Total</b>	<b>60</b>	<b>0</b>
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Up to 3 pts. max deduction for poorly organized/poor quality lab notebook.  
Up to 3 pts. max deduction (for the entire lab report) for incorrect sig. figs.

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