

## Example Rubric for CHEM 225

### Experiment #3 – Stats

#### LABORATORY GRADE BREAKDOWN

	<i>Possible</i>	<i>Actual</i>
<b>Purpose</b>	<i>5 pts</i>	
<b>Notebook</b>	<i>5 pts</i>	
<b>Results Section</b>	<i>25 pts</i>	
<b>Discussion</b>	<i>20 pts</i>	
<b>Post-Lab Questions</b>	<i>15 pts</i> <i>(5 quest.*3</i> <i>pts each)</i>	
<b>TOTAL POINTS: 70</b>	<b>SUM:</b>	%

#### **Notes:**

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#### **Purpose**

**Before coming to lab,** State the purpose of the experiment along with a brief (<150 words)

#### **Notebook**

Qualitative observations and quantitative data recorded *during the lab*, as the experiment proceeds.

PtA: data for two forty penny groups, individual masses and total group masses, single penny data for class

PtB: nine successive masses of sucrose vial; Eppendorf aliquots masses; NaOH standardization titration data; Sucrose/KHP mixture titration analysis data

#### **Results**

This section contains a narrative summary of the overarching results of the experiment and tables and graphs that contain all of the detailed results. The graphs and tables should be referred to in the text and be labeled with figure numbers and descriptive titles.

PtA: Confidence intervals for single penny sets, confidence intervals for 40 penny data sets, histograms of 40 penny data sets, t-test results: each with  $\mu$  (total mass/number), and with each other, Mass of penny vs. mint year graph.

PtB: sucrose vial mean and std dev; Eppendorf aliquots mean, std dev, comparison to manufacturer's specs; Standardization NaOH molarity and std dev; Sucrose/KHP calculated values, comparison to theoretical value

#### **Discussion/Conclusion**

**AFTER LAB:** A summary of the theory and/or topics studied as they compare to your results.

May include :

PtA: May structure discussion around questions 1-5 and/or discuss general results of penny analysis

PtB: Sampling error analysis: balance error results, Eppendorf error comparison, discuss experimental result of sampling error with theoretical result, propose means of reducing sampling error.

#### **Questions**

PtA: questions 1-5 (maybe in discussion section)

PtB: Sampling Error (in discussion section)