**Mitosis Lab Report Guidelines and Rubric**

This lab report will focus on the determination of the effect of lectin on mitotic cell division in scallion root tips.

1) State the lab’s purpose.

2) State the lab’s hypothesis.

3) What is lectin ,why is it used in this investigation, and in what aqueous concentration is it used (given in either **percent or parts per million** – **show calculations)**?

4) What is a root meristem and what happens there?

5) Once new cells are formed by mitosis, what happens to them if they become functional parts of the root? Be complete.

6) In **Table** **1.** with a title, and columns with headers, show the tallied cell count data for the control and lectin treated roots; include decimal %’s that will be used to calculate values in Table 2.

7) In a **Table** **2.** with a title and columns with headers, show your chi square calculations, including those for determining all “expected” values. Below the calculations table, state the degrees of freedom and chi square table value used to compare the calculated chi square value to.

8) What is the null hypothesis tested by the chi square test? Is it accepted or rejected and why? What does this mean about the effect of lectin on mitotic cell division in scallion root tips?

9) Identify another factor to test, besides lectin, that may alter the mitotic rate in scallion root tips. Explain your rationale for choosing this factor and cite sources of information as needed. State your experimental hypothesis and design an experiment to test your hypothesis using the Experimental Design Worksheet.

**Abstract** (One page or less. I will stop reading at one page: size 12 font, Times New Roman, 1.5 spaced)

1) State the purpose of the investigation.

2) Describe control (what was it?) and lectin solution (give concentration) growth of scallion root tips in the sand-perlite mixture in the 16 ounce plastic cups where the roots were trimmed down completely and allowed to grow back for two to three days; describe your preparation of root squashes. Describe how the cell count data was collected. How was the data analyzed using statistics?

3) What were the major results?

4) What was the outcome of the statistical analysis: give calculated and table value (with probability: 0.05 or 0.01) of the chi square analysis and what your conclusion is about a statistically significant difference.

5) State your conclusion relative to the purpose of the lab based on the statistics.

6) Optional: Comment on any challenges associated with acquiring reliable data.