Every job is a self portrait of the person who did it. Let your signature be excellence.
Lee Martin

- Laboratory reports are individual writing assignments, not group projects, so do all your own calculations, graphing and writing.
- Laboratory reports must be typed not handwritten
- You are expected to use proper grammar and correct spelling
- Each section should be written up as a clear, concise essay, not a list of answers to the points listed under each section. The listed points are merely to show you what should be included in your report.
- The hypotheses and predictions are done before you do the experiment, so don't see what you got for results and then write your hypotheses to fit.
- For the Results section do not turn in handwritten data on sheets from the handouts or on torn out lab manual pages. Retype these tables for your results.
- Proofread your report before handing it in.
- Email an electronic copy of this lab report with the Excel graph embedded in the document to spetro@ramapo.edu for your permanent portfolio. Hand in a hard copy to your instructor.

TITLE - 1 point
Laboratory reports should have a separate title page

ABSTRACT - 3 points
A brief recap of why you did the experiment, how (again be brief) you did it and what you found.

INTRODUCTION - 18 points total
- What is diffusion? - 2 points
- What factors affect its rate and how do they affect the rate? - 4 points
- What is osmosis? - 2 points
- What do the terms hypo-, iso- and hypertonic mean? - 3 points
• How would the water content of cells change when immersed in hypo-, iso-
or hypertonic solutions and why? - 3 points
• Hypotheses/predictions - In this section introduce your experiment. What are the dependent and independent variables? What result will indicate osmotic concentration of the potato parenchyma and why? - 4 points
• NOTE - The introduction is written as an essay not just a series of definitions. The list above is to assist you in including the pertinent points.

MATERIALS AND METHODS - 2 points
• Source of lab protocol - 1 point
• Any changes to the lab protocol - 1 point

RESULTS - 15 points total
• Two tables for potato lab - 6 points total
  1. For each mean, standard deviation and % change remember to use correct significant figures
• One graph with two lines and accompanying table. Make sure you determine the osmotic concentration of potato parenchyma (solve for $x$ when you know $y$). See graph checklist below. - 7 points total
• Brief verbal description of what your graph showed - 2 points

DISCUSSION - 5 points
• What was the osmotic concentration of the potato parenchyma for your table and for the class? - 2 points
• How were you able to determine the osmotic concentration of the potato parenchyma from your results? - 3 points

CITATIONS - 2 points
• Use the format in Appendix D (p. 445) of your lab manual for listing citations.

WRITING - 4 points
• Your sentences make sense, you were concise and you proofread your lab report for typographical errors. - 2 points
• No more than five grammar/misspelling/punctuation errors (Remember the Center for Academic Success which is on the second floor of E wing will be happy to help you with this) - 2 points

PROBLEMS FROM POTATO HANDOUT - 5 points total
Checklist for Potato Graph

Table
- **Table 3** label on table
- Center data in table
- Units on x axis column
- Osmotic concentration of potato for table (Solve for $x$)
- Osmotic concentration of potato for class

Graph
- **Figure 1** label on graph
- Graph fills the page
- Plot area has a white background
- Good title
- Label $y$ axis
- Should have no units on $y$ axis as they cancel out when % change is calculated
- Label $x$ axis
- Units on $x$ axis
- Formulas for class and table are labeled so reader knows which is which
- Formula for table data
- $R^2$ value for table
- $r$ value for table
- Should $r$ value be negative or positive for this graph?
- Formula for class data
- $R^2$ value for class
- $r$ value for class
- Should $r$ value be negative or positive for this graph?
- Delete *linear* in legend box
- No spelling or typographical errors