

ENGR 101: *Introduction to Engineering*

Homework #1

- 1) Create frequency table of colors distribution. Put the colors in a single column with the following order: Red, Orange, Yellow, Green, Blue, Brown.
- 2) Compile data from other groups in your lab. You should now have a table of frequency bins for each color for each group.
- 3) Determine the mean and standard deviation for each color for all the groups and add this data as a separate column to the end of your table.
- 4) **Create a frequency table for each color using the data from all teams (6 graphs total). Use at least 5 bins. Create histograms for each color using the frequency tables you created.**
- 5) Create a column chart of the mean values for all colors for the entire class. Add another set of columns to this graph showing the mean values for your sample.
- 6) Create a pie chart, with colors corresponding to the M&Ms and percentage labels, showing the distribution of colors in your sample. Create a corresponding pie chart with the color distribution for all the samples.
- 7) Answer the following questions:
 - a. What is the mean and standard deviation for the total number of M&Ms per sample (bag)?
 - b. Which color M&M occurs most often (highest frequency)?
 - c. Which color M&M occurs least often?
 - d. Which color has the most variation (scatter)?
 - e. Which color has the least variation?
 - f. Does any color approach a normal distribution when all the samples are viewed as a single population? How did you verify this result?
 - g. Does the M&M manufacturing process have good control over the number and type of M&M's they put in each bag? Why or why not?

Put all graphs on a single page. Put all data on a single page (separate). Answer all question on a single page (separate). Turn homework in by the end of the day (5:00 p.m.) on the first class of next week. Type each team member's name on each page (3 pages total) and all team members should sign at the bottom of the last page. No handwritten reports accepted, excepting signatures.