Learning Outcomes – MATH 10041 – Chapter 2

Ch.	*Sec.*	*Big idea*	*Learning outcomes – Conceptual*	*Learning Outcomes - Observable*
2	1	Displaying numerical data with dotplots, histograms, and stemplots	Understand what a distribution of a sample is; Understand what each graphical representation tells us about the distribution of a sample.	Explain in their own words what a distribution of a sample is; Interpret a given dotplot, histogram, or stemplot of a distribution; Explain the advantages and disadvantages of each of the aforementioned graphical representations; Explain the difference between a frequency histogram and a relative frequency histogram.
	2	Summarizing features of a numerical distribution	Know what to look for while summarizing a distribution; Summarize a given numerical distribution, describing shape, center, spread; Understand the vocabulary of describing distributions: **Typical value (center), variability (spread), symmetric distribution, bell-shaped distribution, right- or left-skewed distributions, unimodal distributions, bimodal, multimodal, outliers as extreme values.**	Given a graphical representation of a distribution, describe the distributions shape, center, and spread; Interpret in context the shape, center, and spread of a distribution given a histogram; Compare two distributions (in context) given a dotplot or histogram of each; Given several histograms and several scenarios, match the histograms with the appropriate scenario; Determine which graphical distribution is appropriate for a given numerical data set and explain why.
	3	Visualizing variation in categorical variables	Understand and be able to use the usual graphical representations for categorical variables; Know the difference between a bar chart and a histogram; Know how to create and interpret a pie chart; Know which graph is appropriate for a given situation.	Know how to create a bar chart and pie chart using StatCrunch; Explain the differences between a bar chart and a histogram.
	4	Summarizing Categorical Distributions	Use bar charts and pie charts to interpret distributions of categorical variables.	Given a bar chart or pie chart, describe the distribution; Determine which graphical distribution is appropriate for a given categorical data set and explain why.
	5	Recognizing misleading graphs	Understand that graphs can be misleading.	Recognize common abuses of graphical representations, including: • changing the scale of the vertical axis on a bar chart so that it does not start at the origin; • using pictures to misrepresent relative size (e.g. making the length of a picture proportional to the given numbers, but the eye tends to look at the area).