MATH-338 Midterm 2 Cheat Sheet

THEORY

Day 14: probability density function is represented an integral with function $f(x)$. Our probability lies within the curve and is always 1. Density curve $\rightarrow$ bell curve. Z-Score allows us to have a universal standard for density curves with different scales. They are directly proportional to the standard deviation and the delta from the mean of the graph.

Day 15: unimodal: one hump, bimodal: two humps. Mean is resistant whereas the mean is subject to change. Density curves decay to histograms (integral $\rightarrow$ to Reimann Sum). Whisker plots are an effective method to determine if a data set contains outliers (data points not belonging to the sample set)

Day 16: error: since there is some error while taking sample data, we do allow for some buffer. We also do not measure exact but to a tolerance which is influenced by the buffer above. The mean of the sampling distribution of the

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FORMULAS

- $\sqcap = width \times \frac{1}{width}$ (finite curve)
- $Z = \frac{x-\mu}{\sigma}$ (z-score)
- $X \sim N(\mu\,, \sigma)$
- $\bar{X} \sim N(\mu, \frac{\sigma}{\sqrt{n}})$
- $t = \frac{\bar{X}-\mu}{\frac{s}{\sqrt{n}}}$
- $SEM = \frac{s}{\sqrt{n}}$

- IQR $= Q_3 - Q_1$
- $K = 1.5$
- Lower fence: $Q_1 - K \times IQR$
- Upper fence: $Q_3 + K \times IQR$