What is an Error Bar?

\*Error bars are graphical representations of the variability of data and used on graphs to indicate the error or uncertainty in a reported measurement. They give a general idea of how precise a measurement is, or, how far from the reported value the true (error free) value might be.

\*An error bar is a line through a point on a graph, parallel to one of the axes, which represents the uncertainty or variation of the corresponding coordinate of the point.

\*Error bars can be used to compare visually two quantities if various other conditions hold.

\*In summary, there are three common statistics that are used to overlay error bars on a line plot of the mean: the standard deviation of the data, the standard error of the mean, and a 95% confidence interval for the mean. The error bars convey the variation in the data and the accuracy of the mean estimate.

\*A bar chart with confidence intervals (shown as red lines):

