## APPLICATIONS OF STATISTICS TO DATA EVALUATION

**1.** Rejecting an "outlier": Using the Grubbs test

**2.** Calculating confidence interval around an experimental mean ($x$), within which the population mean ($\mu$, the 'true value') can be expected to be found with a given probability (usually 95%).

**3.** Determining the number of replicates (N) required to assure that an experimental mean falls within a pre-determined confidence interval at a given level of probability (i.e., 95%)

**4.** Comparing an experimental mean ($x$) and a true or accepted value ($\mu$). Identifying a systematic method error or *bias* at some specified level of confidence (typically 95%).

**5.** Comparing two experimental means to determine if they are different at a given level of confidence (95%).

**6.** Comparing individual differences in single measurements to determine if two methods are different at a given level of confidence (95%).

**7.** Treating calibration data. Method of least squares analysis for 'best fit' line.