Deck 5

* Decision criteria
  + What are the chances I am going to have a null hypothesis
  + False positive rate = Type 1 errors
    - Observed something weird simply by chance
    - In frequentist analysis, this is α and typically around 5% but depends on the field of study
  + Test statistic
    - A calculated value used to compare against our chosen parametric distribution
    - If resides in the tail of a distribution, there is strong evidence to reject the null hypothesis
  + T-test r code examples in this powerpoint
* Confidence intervals
  + Distribution of the sample
  + Sampling distribution
    - Describes the distribution of a sample statistic if we could make repeated samples
    - A probability distribution
    - Depends on the sample size and population standard deviation
    - For sample sizes > 30, the sampling distribution approaches a normal distribution
      * mean is the population mean
      * standard deviation is the standard error
        + standard error is a sample size-adjusted version of the sample standard deviation (dependent on sample size and std deviation)
        + as sample size increases, sample standard deviation stabilizes and does not keep decreasing
        + sample standard error will keep decreasing with sample size increase
        + confidence intervals are calculated from standard error so they also decrease as sample size increases