1. Inference issues
   (a) The paradox of the “nearly normal” condition.
   (b) What to do about outliers.
   (c) Stating conclusions in context.
   (d) Confidence intervals versus hypothesis tests.

2. The simplest block design – paired observations. Examples:
   (a) Before – After
   (b) Crossover
   (c) “Matched” pairs

3. Looks superficially like two independent samples – one categorical variable and one quantitative variable. BUT,
groups are not independent. And there are always the same number of observations in each group.

4. Inference is about the mean of the difference $\mu_d$ not the difference of the means.

5. Use exactly the same inference procedures as for one variable but with the variable being $d = y_1 - y_2$, the difference
between the observations.
   (a) Confidence interval: $\bar{d} \pm t^{*}SE(\bar{d})$ (df = number of pairs-1)
   (b) Hypothesis test: $H_0 : \mu_d = 0$. Use $t = \frac{\bar{d}}{SE(d)}$.
   (c) Assumptions: Independence, paired data, normal population. Conditions: randomization, 10%, nearly normal.

> attach(darwinpaired)
> t.test(Crossed-Self)

One Sample t-test

data: Crossed - Self
t = 2.2298, df = 14, p-value = 0.04264
alternative hypothesis: true mean is not equal to 0
95 percent confidence interval:
  0.8390018 43.1609982
sample estimates:
mean of x
  22

Homework

1. Read Chapter 25, pages 610–618.

2. For practice do problem 25.5.

3. To turn in on Tuesday, April 20, do problem 25.28.