Conclusion for Chapter 11

What to DO?

Brief discussion of deriving other results

To find the distributions of S^2 and $t = \dfrac{\bar{X} - \mu}{\sqrt{S^2/n}}$

requires mathematical statistics work using transformations of pdfs including some transformations of multivariate pdfs.

Also, to find the distribution of the ratio of the variances (of independent random samples from normal dist'ns)

$$F = \frac{S_X^2 / \sigma_X^2}{S_Y^2 / \sigma_Y^2} \sim F_{p,q}$$

requires mathematical statistics work using transformations of multivariate pdfs.

Other considerations

- What if the data don’t meet the conditions for the procedure?
- What if the data are on the “edge” of meeting the conditions for the procedure?

- Should you trust the results?

Other considerations: Partial answer

- The crucial question is not so much whether the data meet the conditions.
- It is whether the sampling distribution of the statistic you will use to make your inference has the distribution that the theory is using.
- Simulation using your sample data available to you.
- Thus you have the capability to explore an approximation to that sampling dist'n.
- Use that to see (in a holistic way) how it differs (or not) from the theoretical dist'n you are expecting.

How should you THINK about these?

- All inference questions for which the sampling dist'n is either normal or a t-dist'n are worked in very similar ways.
- For these, think of the overview of how to do them, and then, as needed, pay attention to anything that is a bit different about the particular type you are working on.
- The two types of chi-squared tests and the ANOVA for means test require different insights. It is important to see examples in addition to those provided here.

What are you expected to know how to DO?

You are expected to do (and interpret the results of) all the inference procedures on our formula sheets

EXCEPT Analysis of Variance in Regression (which is covered in a different course in our program.)

How should you learn to DO these?

- You should be working from an applied statistics book or an elementary statistics book from among those listed on our course web page.
- That book should have examples and exercises of each of these types. (Or if the book you chose to use does not have enough for you, ask for guidance about that.)
- Additional resources are suggested on the course page.