

What's similar about Ch. 18 to Chs. 14 and 15?

We find confidence intervals and perform hypothesis tests in pretty much the same way.

What's different in Ch. 18?

1. Estimate the population standard deviation σ by the sample standard deviation s . So use s instead of σ in formulas. (Compute s , the sample standard deviation, as we learned in chapter 2 with software.)
2. Use t instead of z in formulas. (Compute t just as we did z , but with s instead of σ in the denominator.)
3. Use t -table (Table C) instead of normal table (Table A).
4. Start thinking more about realistic conditions.
5. Deal with data coming directly from matched pairs experiments.

For our first day looking at Chapter 18, we'll focus on the first three of these.

Discussion: What do the t -distributions look like and why? (page 439)

How do we read the t -table? (Start with the line which is the summary of the normal table.)

Do 18.3, 18.5, 18.7, 18.9.

That completes the basic ideas of Chapter 18. Now let's deal with more realism – as much as we have time for today.

- **Data from matched pairs comparisons:** Read Example 18.4. Do Exercise 18.11.

(We actually already seen problems with data from matched pairs comparisons: Exercises 14.26, 15.39, 15.41, 16.34. In those problems, we didn't have the "raw data." The statistician had already computed the differences for us. Now we are ready to start dealing with the data as collected.)

- **Language:** Introduction. Page 438. We finally give the standard deviation of the sampling distribution of \bar{X} its own name. Call it the "standard error." We didn't give it a name until now, because now we're ready to estimate it, which is much more realistic than assuming we know it, so we use s instead of σ and we have the standard error of \bar{X} is $\frac{s}{\sqrt{n}}$.

Do Exercise 18.1.

- **Conditions.** Introduction, pages 437 and 438. AND "Robustness" page 452. Do Exercise 18.13.