

I. **Sections to Read** (All content from DeGroot and Schervish's *Probability and Statistics* unless otherwise noted) A digital copy of the textbook is available for on our class PWeb site, under the Day One Access tab.

(a) Section 8.5 (just through the section on One-Sided Confidence Intervals, ending on page 489)

II. **Objectives** (By the end of the day's class, students should be able to do the following:)

- Give both a formal and informal definition of the confidence interval, and explain how it can be used to add information to an estimator.
- Interpret a confidence interval as a statement about the joint distribution of the random endpoints, and not about the probability the parameter is contained in the interval.
- Construct one- and two-sided confidence intervals for the sample mean from a Normal population.

III. **Reflection Questions** (Submit answers on Gradescope <https://www.gradescope.com>)

- 1) Suppose X is a continuous random variable with PDF f and CDF F . Assume further that F is a strictly increasing function. What is the definition of the quantile function of X ? Explain how it can be used to determine $P(X \leq x) = .95$.
- 2) True or False? When we construct 95% confidence interval (A, B) for a parameter θ using Definition 8.5.1, we treat the endpoints of the interval A and B as random variables, and the parameter θ as a fixed value.

IV. **Additional Feedback** Are there any topics you would like further clarification about? Do you have any additional questions based on the readings / videos? *If not, you may leave this section blank.*