Pre-class preparation

Please read the following textbook sections from Degroot and Schervish's *Probability and Statistics* (fourth edition) or watch the video, as indicated:

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

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 a point 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.

Reflection Questions

Please submit your answers to the following questions to the corresponding Canvas assignment by 8:45AM:

1. Let X be a continuous random variable with PDF f and CDF F. Suppose that F is strictly increasing. What is the definition of the quantile function of X? Explain how it can be used to determine $P(X \leq x) = 0.95$.
2. True or false? When we a construct 95% confidence interval (A, B) for a parameter θ using Definition 8.5.1, we treat the endpoints A and B as random variables, and θ as a fixed value.
3. (Optional) Is there anything from the pre-class preparation that you have questions about? What topics would you like would you like some more clarification on?