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: 8.4

Objectives

By the end of the day's class, students should be able to do the following:

- Give the definition of the t distribution and explain its relationship with a sample from a Normal population.
- Calculate the formula for the PDF and CDF of the t distribution, and use the formula to estimate information about a population based on a sample.

Reflection Questions

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

1. Explain in your own words by what is meant when we say that the t distribution has "heavier tails" than the Normal distribution.
2. The sample mean $\bar{X}$ is both a consistent and unbiased estimator for the mean μ from a $N(\mu, \sigma^2)$ population. What do we gain from the t-statistic U that is introduced in Theorem 8.4.2?
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?