Wrap-Up (Sampling Distributions)

As mentioned in the introduction, this last section in probability is the bridge between the probability sections and inference. It focuses on the relationship between sample values (**statistics**) and population values (**parameters**). Statistics vary from sample to sample due to **sampling variability**, and therefore can be regarded as **random variables** whose distribution we call **sampling distribution**. In this module we focused on two statistics, the **sample proportion**, $\hat{p}$, and the **sample mean**, $\overline{X}$. Our goal was to explore the sampling distribution of these two statistics relative to their respective population parameters (p and μ), and we found in **both** cases that under certain conditions the **sampling distribution is approximately normal**. This result is known as the **Central Limit Theorem.** As we'll see in the next section, the Central Limit Theorem is the foundation for statistical inference.