

Lesson 10:  
Sampling distributions and the Ce...

Lesson 10: Sampling distributions and the Central Limit Theorem

SEARCH

RESOURCES

CONCEPTS

17. Video: Two Useful Theorems - ...

18. Notebook + Quiz: Central Limit...

19. Notebook + Quiz: Central Limit...

20. Video: When Does the Central ...

21. Notebook + Quiz: Central Limit...

22. Video: Bootstrapping

23. Video: Bootstrapping & The Ce...

24. Notebook + Quiz: Bootstrapping

25. Video: The Background of Boo...

26. Video: Why are Sampling Distri...

27. Quiz + Text: Recap & Next Ste...

Mentor Help

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Peer Chat

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Quiz + Text: Recap & Next Steps

A theorem that states: the larger the sample size, the closer our statistic gets to the parameter.

A theorem that states: if our sample size is large enough, the sample mean will be normally distributed.

Describing the data we have collected.

Using the data we have collected to draw conclusions about our population of interest.

Law of Large Numbers

The Central Limit Theo

Descriptive Statistics

Inferential Statistics

Recap

In this lesson, you have learned a ton! You learned:

Sampling Distributions

- **Sampling Distributions** are the distribution of a statistic (any statistic).
- There are two very important mathematical theorems that are related to **The Law of Large Numbers** and **The Central Limit Theorem**.
- **The Law of Large Numbers** states that as a sample size increases, the sample mean gets closer to the population mean. In general, if our statistic is a "good" estimator, it will approach our parameter with larger sample sizes.
- **The Central Limit Theorem** states that with large enough sample sizes our sample means will follow a normal distribution, but it turns out this is true for more than just normal distributions.

Bootstrapping

- **Bootstrapping** is a technique where we sample from a group with replacement.
- We can use bootstrapping to simulate the creation of sampling distributions many times in this lesson.
- By bootstrapping and then calculating repeated values of our statistics, we can gain a better understanding of the sampling distribution of our statistics.

Looking Ahead

In this lesson you gained the fundamental ideas that will help you with the next lessons about sampling distributions and bootstrapping. These are going to provide the background for **confidence intervals** and **hypothesis testing** in the next two lessons.