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Slide Title

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Block Title

You can use the command `highlight` to have `emphasize` some words.

Theorem 1: Weak Law of Large Numbers

Let X_1, X_2, \dots, X_n be a random sample of size n from a distribution with mean μ and variance σ^2 . Then, for any $\epsilon > 0$,

$$\mathbb{P} \left[\left| \frac{1}{n} \sum_{i=1}^n X_i - \mu \right| > \epsilon \right] \rightarrow 0 \text{ as } n \rightarrow \infty.$$

In other words, $\frac{1}{n} \sum_{i=1}^n X_i \xrightarrow{\mathbb{P}} \mu$.

Definition 1: Consistency

Let $\hat{\theta}_n$ be an estimator of θ . We say that $\hat{\theta}_n$ is **consistent** if $\hat{\theta}_n \xrightarrow{\mathbb{P}} \theta$.

Remark 1

Theorem ?? together with Definition ?? implies that the sample mean is a consistent estimator of the population mean.

Proof of Theorem ??

Let $\epsilon > 0$. By Chebyshev's inequality,

$$\mathbb{P} \left[\left| \frac{1}{n} \sum_{i=1}^n X_i - \mu \right| > \epsilon \right] \leq \frac{\sigma^2}{n\epsilon^2}.$$

Since σ^2 is a constant, the result follows.

Mathematics

Other useful envs could be:

Example 1: Example Title

This is an example.

Lemma 1: Lemma Title

This is a lemma.

Thanks!

Any thoughts?

Special thanks to :special-thanks: