

EdX and its Members use cookies and other tracking technologies for performance, analytics, and marketing purposes. By using this website, you accept this use. Learn more about these technologies in the [Privacy Policy](#).



[Course](#) > [Unit 3 Methods of Estimation](#) > [Method of Moments](#)
[Lecture 11: Fisher Information,](#)
[Asymptotic Normality of MLE;](#)

7. Introduction to Method of
> Moments

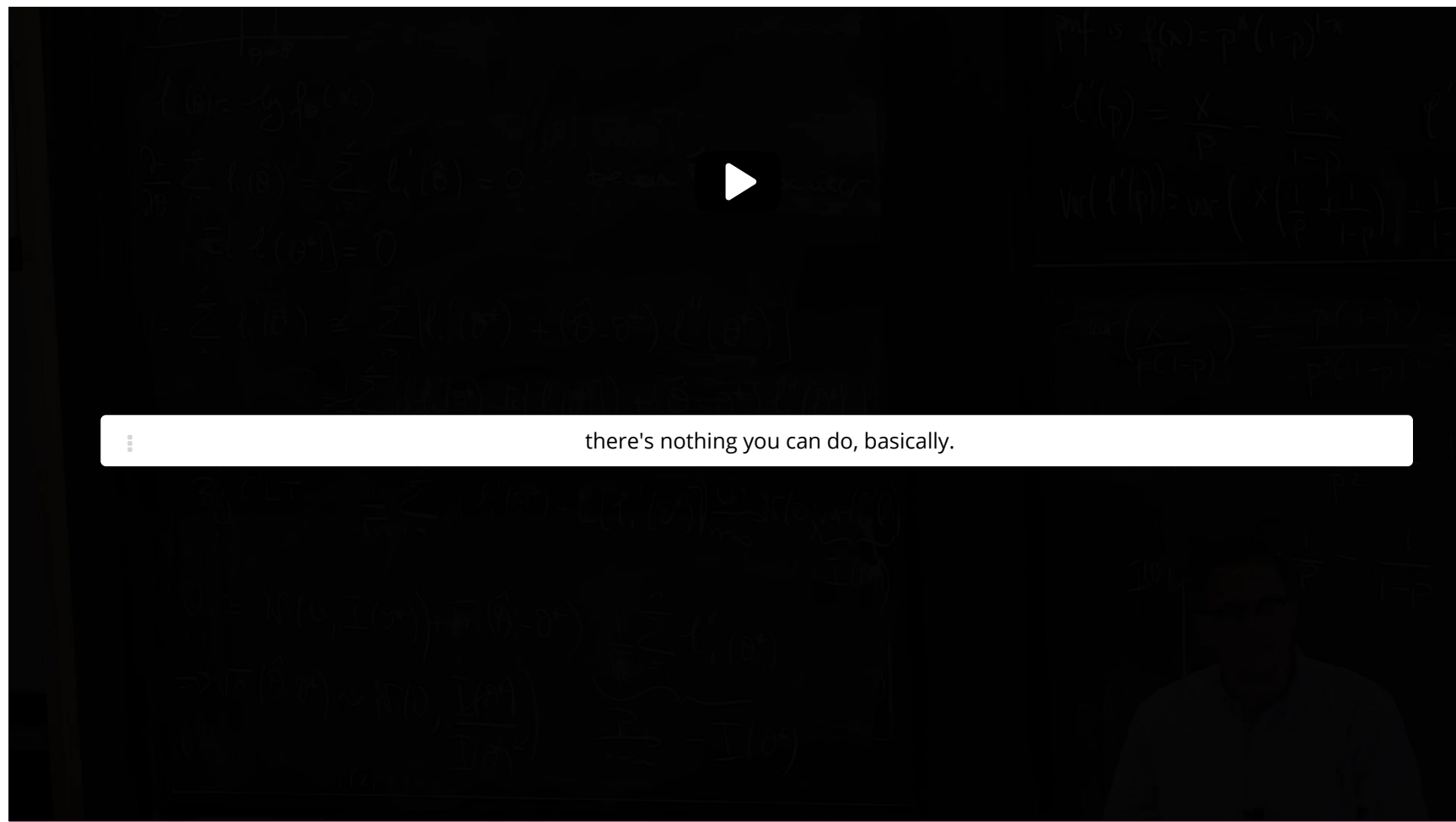
Audit Access Expires Dec 24, 2019

You lose all access to this course, including your progress, on Dec 24, 2019.

Upgrade by Nov 4, 2019 to get unlimited access to the course as long as it exists on the site. [Upgrade now](#)

7. Introduction to Method of Moments

Concluding thoughts on Asymptotic Normality of MLE



▶ 1:48 / 1:48

▶ 1.50x



Video

[Download video file](#)

Transcripts

[Download SubRip \(.srt\) file](#)

[Download Text \(.txt\) file](#)

Estimating Moments

1/1 point (graded)

Let $X_1, \dots, X_n \stackrel{iid}{\sim} \mathbf{P}_{\theta^*}$ be integer-valued random variables and let $(\mathbb{Z}, \{\mathbf{P}_{\theta}\}_{\theta \in \Theta})$ be the associated statistical model. Let p_{θ} denote the pmf of \mathbf{P}_{θ} . Assume that for all $\theta \in \Theta$, the **k -th moment**

$$m_k(\theta) := \mathbb{E}[X^k] = \sum_{x \in \mathbb{Z}} x^k p_{\theta}(x)$$

exists for all $k \geq 1$. Use the law of large numbers to fill in the formula so that $\widehat{m}_k(\theta)$ is a consistent estimator for $m_k(\theta)$.

(Type **X_i** for X_i .)

$$\widehat{m}_K(\theta) = \frac{1}{n} \sum_{i=1}^n \boxed{X_i^k} \quad \checkmark \text{ Answer: } X_i^k$$

STANDARD NOTATION

Solution:

The weak law of large numbers implies that

$$\frac{1}{n} \sum_{i=1}^n X_i^k \rightarrow \mathbb{E}[X^k],$$

where the convergence is in probability.

Submit

You have used 1 of 2 attempts

i Answers are displayed within the problem

Moments: Definitions

The method of moments

(Caption will be displayed when you start playing the video.)

0:00 / 0:00 1.50x

Video

[Download video file](#)

Transcripts

[Download SubRip \(.srt\) file](#)

[Download Text \(.txt\) file](#)

Discussion

[Hide Discussion](#)

Topic: Unit 3 Methods of Estimation:Lecture 11: Fisher Information, Asymptotic Normality of MLE; Method of Moments / 7. Introduction to Method of Moments

[Add a Post](#)

Show all posts ▼

by recent activity ▼

There are no posts in this topic yet.

[Learn About Verified Certificates](#)

© All Rights Reserved