Your Title Here

Crazy Frog
crazy.frog@music.br

Michael Jackson
whosbad@music.br

Your Place Here
Your Date Here

Slide Title

FGV EMAp
ESCOLA DE MATEMÁTICA APLICADA

Welcome to LaTeX Beamer FGV EMAp Template, a LaTeX Beamer Template specifically designed for use by students and faculty at FGV EMAp. This template provides an easy and efficient way to create beautifully formatted presentations, maintaining the aesthetic and quality standards of our institution.

Block Title

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

This template is first updated on its GitHub repository, take a look and give a star if you could.

Theorem 1: Weak Law of Large Numbers

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

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

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 1 together with Definition 1 implies that the sample mean is a consistent estimator of the population mean.

Proof of Theorem 1

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.

Other useful envs could be:

Example 1: Example Title

This is an example.

Lemma 1: Lemma Title

This is a lemma.

Coding

Code Listing 1: Example of Code

```
1 import numpy as np
2
3 def c(r):
4     return np.pi*r**2
```

Thanks!

Any thoughts?

Special thanks to prof. Yuri Saporito for providing the early version of this template in 2021.
I would also like to thank prof. Luiz Max de Carvalho, which inspired me to publish this repo - even though it is still a work in progress.
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Template by Eduardo Adame
adamesalles.github.io