Academic Presentations

A LaTeX Template Using the beamer Class

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Inviting Institution/Seminar Series

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Outline

Introduction

Introduction 1: Choice of a Reasonable Aspect Ratio

When preparing a presentation, we often do not know whether the native aspect ratio of the projector in the seminar room/lecture hall will be $4:3$ or $16:9$ (or $16:10$).

In this case, it may be a good idea to choose an **intermediate aspect ratio**, see https://github.com/josephwright/beamer/issues/497. The idea behind this recommendation is that it minimizes the average loss of available space.

Hence, these templates include a presentation in the **$14:9$ aspect ratio** (see https://en.wikipedia.org/wiki/14:9_aspect_ratio): while it is imperfect for probably every projector that you will encounter, it is good on average for all of them.

(Please note that $14:9 \doteq 1.556$, which is pretty close to the "officially" recommended $20:13 \doteq 1.5385$.)

Introduction 2

Great Minds Discuss Ideas.
Average Minds Discuss Events.
Small Minds Discuss People.
—https://quoteinvestigator.com/2014/11/18/great-minds/

Background

- Temporal discounting is key concept in economics.
- Normative model: exponential discounting. However, observed decisions are hard to explain
- Robust decision-making is the greatest thing on earth.

Introduction 3

Research Question

- The composition of latex and of typical rubbers is given below.
- Is it true that trees are regularly tapped and the coagulated latex which exudes is collected and worked up into rubber?

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- Is it true that trees are regularly tapped and the coagulated latex which exudes is collected and worked up into rubber?

Preview of the Results

- There is no feasible method at present known of preventing the inclusion of the resin of the latex with the rubber during coagulation.

$\Rightarrow$ Although the separation of the resin from the solid caoutchouc by means of solvents is possible, it is not practicable or profitable commercially.

Introduction 4: Beamer block Environments

Block title example: 0123456789 äöüß ÄÖÜ Often finding flowers in official fjords

The block environment. The block environment. The block environment. The block environment. The block environment. Block title example: 0123456789 äöüß ÄÖÜ Often finding flowers in official fjords.

An exemplary example

I am the exampleblock environment. Use me for examples.

Summary: Things to remember

The alertblock environment. Use this environment for really important stuff. The alertblock environment.

Introduction 5: Beamer block Environment with Different Colors

A block in the default color

The block environment. The block environment. The block environment. The block environment. A block in the default color.

A block in yellow

The block environment. The block environment. The block environment. The block environment. A block in yellow.

A block in the default color

The block environment. The block environment. The block environment. The block environment. A block in the default color.

Introduction 6: Beamer `definition` and `theorem` Environments

Definition (A Very, Very, Very, Very, Very, Very Long Name of a Concept that Spans Two Lines)

The `definition` environment. Upright.

Theorem (Theorem's mame)

The `theorem` environment. Italic.

Lemma (Lemma's Name)

The `lemma` environment. Italic.

Corollary (Corollary's Name)

The `corollary` environment. Italic.

Proof of Theorem's Name

The `proof` environment. Upright. ■

Introduction 7: Design of the Study

- The latex of the best rubber plants furnishes from 20% to 50% of rubber.
- As the removal of the impurities of the latex is one of the essential points to be aimed at, it was thought that the use of a centrifugal machine to separate the caoutchouc as a cream from the watery part of the latex would prove to be a satisfactory process.

Introduction 8: Design of the Study

The watery portion of the latex soaks into the trunk, and the soft spongy rubber which remains is kneaded and pressed into lumps or balls:

Robust Each payment transferred on single day.

Decision Earlier payoff concentrated, while later payoff dispersed over $n = 2$, 4, or 8 dates.

Making Earlier payoff dispersed over $n = 2$, 4, or 8 dates, while later payoff concentrated.

Introduction 9: Control Experiment

- Control for alternative explanations.
- Many of the example sentences were taken from http://sentence.yourdictionary.com/latex.

Introduction 10: An Example `enumerate` List

1. First itemtext
   a. First itemtext
      i. First itemtext
      ii. Second itemtext
      iii. Last itemtext
      iv. First itemtext
   b. Second itemtext
   c. Last itemtext
   d. First itemtext
2. Second itemtext
3. Last itemtext
4. First itemtext

Introduction 11: An Example `itemize` List

- First itemtext
  - First itemtext
    - First itemtext
    - Second itemtext
    - Last itemtext
    - First itemtext
  - Second itemtext
  - Last itemtext
  - First itemtext
- Second itemtext
- Last itemtext
- First itemtext

Let's include some Greek letters: α, β, σ

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper. α, β, σ

Test: χρστ χρσ τ χρσ τ. Math mode, upright: σ

Introduction 13: Some Example Formulas

Let's include some additional Greek letters: γ, φ, σ_ε, c^α

$$p(R,\varphi) \sim \int_{-\infty}^{\infty} \frac{\tilde{W}_n(\gamma) \exp\left[\imath R/a \left(\sqrt{k^2a^2-\gamma^2}\cos\varphi\right)\right]}{(k^2a^2-\gamma^2)^{3/4} H_n'^{(1)}\left(\sqrt{k^2a^2-\gamma^2}\right)} \mathrm{d}\gamma$$

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Let's also include some upright Latin letters in math mode: d, e (next slide)

$$\int_a^b f(x)\,\mathrm{d}x = F(b) - F(a)$$

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Let's also include some upright Latin letters in math mode: d, e (next slide)

$$\int_a^b f(x)\,\mathrm{d}x = F(b) - F(a)$$

Let's test the math bold style

$$\boldsymbol{\Sigma} := \operatorname{Cov}(\boldsymbol{X}) = \begin{bmatrix} \operatorname{Var}(X_1) & \cdots & \operatorname{Cov}(X_1, X_n) \\ \vdots & \ddots & \vdots \\ \operatorname{Cov}(X_n, X_1) & \cdots & \operatorname{Var}(X_n) \end{bmatrix}$$

Introduction 14: Additional Example Formulas (with upright π)

Only variables are set in italics according to ISO style—hence, we use upright “d,” “e,” and “π” (`\mathup{d}`, `\mathup{e}`, and `\mathup{\pi}`, respectively).

Theorem (simplest form of the *Central Limit Theorem*)

Let $X_1, X_2, \cdots$ be a sequence of i.i.d. random variables with mean 0 and variance 1 on a probability space $(\Omega, \mathscr{F}, \mathbb{P})$. Then

$$\mathbb{P}\left(\frac{X_1 + \cdots + X_n}{\sqrt{n}} \le y\right) \to \mathfrak{N}(y) := \int_{-\infty}^{y} \frac{\mathrm{e}^{-v^2/2}}{\sqrt{2\pi}}\,\mathrm{d}v \quad \textit{as} \quad n \to \infty,$$

or, equivalently, letting $S_n := \sum_1^n X_k$,

$$\mathbb{E}f\left(S_n/\sqrt{n}\right) \to \int_{-\infty}^{\infty} f(v)\frac{\mathrm{e}^{-v^2/2}}{\sqrt{2\pi}}\,\mathrm{d}v \quad \textit{as } n \to \infty, \textit{ for every } f \in \mathrm{b}\mathscr{C}(\mathbb{R}).$$

Introduction 15: Overview

1. As a secondary function we may recognize the power of closing wounds, which results from the rapid coagulation of exuded latex in contact with the air:

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   b. However, the walls separating the individual cells do not break down.

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   a. In some cases (Allium, Convolvulaceae, etc.) rows of cells with latex-like contents occur.
   b. However, the walls separating the individual cells do not break down.
2. The rows of cells from which the laticiferous vessels are formed can be distinguished (6.3 p.p. vs. 2.6 p.p.; $p < 0.01$).

Introduction 16: An Automated Animation

The automated transition to the next slide (= page in the PDF document) only works in full-screen mode.

- The feature is available in Adobe Acrobat and Acrobat Reader.
- Unfortunately, it is (currently, March 17, 2020) not available in macOS Preview, Skim, and SumatraPDF.

Figure 1. Step 1—Angle: 30.0°

Introduction 16: An Automated Animation

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Figure 1. Step 2—Angle: 60.0°

Introduction 16: An Automated Animation

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Figure 1. Step 3—Angle: 90.0°

Introduction 16: An Automated Animation

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Figure 1. Step 4—Angle: 120.0°

Introduction 16: An Automated Animation

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Figure 1. Step 5—Angle: 150.0°

Introduction 16: An Automated Animation

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Figure 1. Step 6—Angle: 180.0°

Introduction 16: An Automated Animation

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Figure 1. Step 7—Angle: 210.0°

Introduction 16: An Automated Animation

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Figure 1. Step 8—Angle: 240.0°

Introduction 16: An Automated Animation

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Figure 1. Step 9—Angle: 270.0°

Introduction 16: An Automated Animation

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Figure 1. Step 10—Angle: 300.0°

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Figure 1. Step 11—Angle: 330.0°

Introduction 16: An Automated Animation

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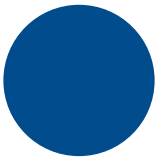

Figure 1. Step 12—Angle: 360.0°

◂ Back to the start

Introduction 17: Testing the `allowframebreaks` option

Let's test automatic numbering with the `allowframebreaks` option.

On this slide, **no** number should be included in the frame title.

Random cite: Knuth (1984)

Introduction 18: Testing the `allowframebreaks` Option (1/3)

Let's test automatic numbering with the `allowframebreaks` option.

On this slide, "(1/3)" should appear in the frame title.

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Introduction 19: Testing the `allowframebreaks` Option (2/3)

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Introduction 20: Testing the `allowframebreaks` Option (3/3)

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References

References

Knuth, Donald E. 1984. *The TeXbook*. Reading, MA, USA: Addison-Wesley, 483. [PDF p. 36]

Appendix

Appendix: Modeling Concentration Bias

Subjects consider a sequences of consequences $\boldsymbol{c}$ from choice set $\boldsymbol{C}$.

- **Standard discounted utility:** Suppose that the instantaneous utility function u satisfies $u' > 0$ and $u'' \leq 0$, and that earlier consequences are preferred over later consequences of the same magnitude, i.e., $D(t) \leq 1$:

  $U(\boldsymbol{c}\quad) := \sum_{t=1}^{T} \quad D(t)\, u(c_t), \quad$ where, e.g., $\quad D(t) = \delta^t$ or $D(t) = \frac{1}{1+k\,t}$.

- **Focusing model (Koszegi2013):**

  $\tilde{U}(\boldsymbol{c}, \boldsymbol{C}) := \sum_{t=1}^{T} g_t\, D(t)\, u(c_t), \quad$ where

  $g_t \equiv g[\max_{\boldsymbol{c}' \in \boldsymbol{C}} u(c'_t) - \min_{\boldsymbol{c}' \in \boldsymbol{C}} u(c'_t)]$

  - Weighting function $g[\cdot]$ increases in difference of maximum and minimum possible utility at a point in time.
  - Subjects overweight intertemporal consequences with a greater range.