

# Using LaTeX to prepare Presentations

## L<sup>A</sup>T<sub>E</sub>X 2016 COURSE

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# Outline

- 1 Preparation
  - About Beamer
- 2 Creating Presentations
  - Structuring the Presentation
  - Text
  - Columns
  - Graphics
  - Overlays
  - Themes
  - Colors
  - Fonts
- 3 Creating Handouts & Notes
- 4 Templates

⇒ <http://def.fe.up.pt/latex/>

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# Beamer

## There Is No Largest Prime Number

The proof uses *reductio ad absurdum*.

### Theorem

*There is no largest prime number.*

### Proof.

- 1 Suppose  $p$  were the largest prime number.
- 2 Let  $q$  be the product of the first  $p$  numbers.
- 3 Then  $q + 1$  is not divisible by any of them.
- 4 Thus  $q + 1$  is also prime and greater than  $p$ . □



# Beamer (2)

Results

- 

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# Documentation

- **The beamer class User Guide:**

<http://www.ctan.org/tex-archive/macros/latex/contrib/beamer/doc/>

- **Beamer tutorials:**

<https://www.google.pt/search?q=latex+beamer+tutorial>

- **A beamer tutorial in beamer:**

<https://www.uncg.edu/cmp/reu/presentations/Charles%20Batts%20-%20Beamer%20Tutorial.pdf>

# Advantages of Beamer

- The standard commands of  $\text{\LaTeX}$  also work in Beamer
- Professional looking, highly readable
- Automatically creates the table of contents
- Automatically creates clickable links to each section and subsection
- Presentations use the same source of the article
- Easily create overlays and dynamic effects
- Easily change the appearance of the presentation with themes
- Easily change layout, colors, and fonts globally

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# Pre-Made Template

- Get started with Beamer using a pre-made template
- Included with the Beamer distribution:  
`https://www.ctan.org/tex-archive/macros/latex/contrib/beamer/solutions/conference-talks/`
- Just copy the template file to the desired location and modify the contents

# Insert Cover Information

## Commands to Change

```
\title[short title]{long title}  
\subtitle[short subtitle]{long subtitle}  
\author[short name]{long name}  
\date[short date]{long date}  
\institution[short name]{long name}
```

- Commands found in the preamble at the top of the .tex file
- Other commands may be modified or commented out

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# Sections & Sub-sections

- Presentations are divided into sections, subsections, and sub-subsections
- Calls to `\section{section-name}`
  - Inserts a new entry into the table of contents at the appropriate tree-level
  - Inserts a new entry into the navigation bars
  - Does not create a new frame
- Calls to `\subsection*{section-name}`
  - only adds an entry in the navigation bars, *not* the table of contents

# Frames

## Basics

```
\begin{frame}[<alignment>]
  \frametitle{Frame Title Goes Here}
```

Frame body text goes here.

```
\end{frame}
```

- The `[plain]` option for the frame environment causes the headlines, footlines, and sidebars to be suppressed
- This can be useful for showing large pictures

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# Special frame: Title Page

## Title Page

```
\begin{frame}  
  \titlepage  
\end{frame}
```

- By default, the `\titlepage` command creates a title page that includes: Title, Author, Affiliation, Date, Graphic
- If any of these values are missing in the preamble, they will not be included on the title page

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# Special frame: Table of Contents

## Table of Contents

```
\begin{frame}  
  \frametitle{Outline}  
  \tableofcontents[part=1, pausesections]  
\end{frame}
```

- `pausesections` separates sections when reading the table of contents

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- `pausesections` **separates sections** when reading the table of contents

# Guidelines for Creating Presentations

- Worth reading the Beamer Guide, section 5:
  - Know the Time Constraints
  - Global Structure
  - The Frame Title
  - How Much Can I Put On a Frame?
  - Structuring a Frame
  - Writing the Text
  - Interactive Elements
  - Using Graphics
  - Using Animations and Transitions
  - ...

# Text Commands

## Text Commands

<code>\emph{Sample Text}</code>	<i>Sample Text</i>
<code>\textbf{Sample Text}</code>	<b>Sample Text</b>
<code>\textit{Sample Text}</code>	<i>Sample Text</i>
<code>\textsl{Sample Text}</code>	<i>Sample Text</i>
<code>\textrm{Sample Text}</code>	Sample Text
<code>\textsf{Sample Text}</code>	Sample Text
<code>\alert{Sample Text}</code>	Sample Text
<code>\structure{Sample Text}</code>	Sample Text
<code>\color{green} Sample Text</code>	Sample Text

## 2 Columns

```
\begin{columns}
  \column{.xx\textwidth}
    First column text or graphics

  \column{.xx\textwidth} %% inter-column space

  \column{.xx\textwidth}
    Second column text or graphics
\end{columns}
```

- `xx` is the percentage of the width of the slide

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    Second column text or graphics
\end{columns}
```

- `xx` is the percentage of the width of the slide



# Graphics

- Graphics can be added in the same way it is added in a  $\text{\LaTeX}$  document by invoking the `includegraphics` command<sup>1</sup>

---

<sup>1</sup>and the same goes for tables!

# Overlays

- Having parts of your slides appear incrementally
- **overlays** control the order in which parts of the frame appear
- An easy way to implement an overlay is to place the `\pause` command between the parts
- `paused...`

# Overlays

- Having parts of your slides appear incrementally
- **overlays** control the order in which parts of the frame appear
- An easy way to implement an overlay is to place the `\pause` command between the parts
- paused. . .

# Overlay Specifications

```
\begin{itemize}
  \item<1> List item 1
  \item<1-2> List item 2
  \item<1-2> List item 3
  \item<1> List item 4
  \item<1,3> List item 5
  \item<1-2> List item 6
\end{itemize}
```

- `< >` indicates which slide the corresponding information should appear on

## More Overlay Specifications

```
\alert{Alert on all slides}  
\alert<2>{Alert on slide 2}  
\alert<3>{Alert on slide 3}  
\alert<1,3>{Alert on slides 1 and 3}  
\alert<-2,4>{Alert on slides 1, 2 and 4}
```

- to make certain text commands take effect at different times

## More Overlay Specifications (2)

- Alert on all slides
- Alert on slide 2
- Alert on slide 3
- Alert on slides 1 and 3
- Alert on slides 1, 2 and 4

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## More Overlay Specifications (2)

- Alert on all slides
- Alert on slide 2
- Alert on slide 3
- Alert on slides 1 and 3
- Alert on slides 1, 2 and 4

# Themes

- Themes can change the entire look and feel of your presentation
- Themes can be selected by using the `usetheme` command with one argument
  - Antibes
  - Bergen
  - Berkeley
  - Berlin
  - Boadilla
  - Copenhagen
  - ...

# Color Themes

- To change the colors, keeping the layout
- Put `\usecolortheme{default}` in the preamble
- and replace `default` with the theme
  - albatross
  - beaver
  - crane
  - beetle
  - dove
  - fly
  - seagull
  - wolverine

# Inner/Outer Color Themes

- Selected the same way
- Put `\usecolortheme{default}` in the preamble
- and replace `default` with the themes for **inner elements** (blocks)
  - `lily`
  - `orchid`
  - `rose`
- or replace `default` with the themes for **outer elements** (headline, footline, and sidebar)
  - `whale`
  - `seahorse`
  - `dolphin`

# Font Themes

- Font themes change the attributes of the fonts used in the presentation
- Each font theme has its own set of options (c.f. Guide)
- Themes can be selected by using the `\usefonttheme{default}` command
- and replace `default` with the themes
  - `serif`
  - `structureitalicserif`
  - `structurebold`
  - `structuresmallcapserif`

# Font Families

- To personalize the presentation
- Selected by loading the appropriate package
  - `usepackage{helvet}`
- Families typically available:
  - `avant, bookman, chancery, charter, euler`
  - `helvet, mathptm, mathptmx, mathtime, newcent`
  - `palatino, pifont, serif, utopia`

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# Creating the Handout

- The easiest way of creating a handout for your audience is to use the `handout` option

```
\documentclass[handout]{beamer}
```

- Create a version that uses the handout overlay specifications

```
\mode<handout>{
  \setbeamercolor{background canvas}{bg=black!5}
}
```

- To print at least two and possibly four slides on each page

```
\usepackage{pgfpages}
\pgfpagesuselayout{2 on 1}[a4paper,border shrink=5mm]
```



## Specifying Notes

```

\begin{itemize}
\item<1-> Eggs
\item<2-> Plants
\note[item]<2>{Tell joke about plants.}
\note[item]<2>{Make it short.}
\item<3-> Animals
\end{itemize}

```

- produces a 2 entries note page that follows the second slide
- `\note[enumerate]{ \item ... }`  
encloses the whole note page in an enumerate environment
- `\setbeameroption{show notes}` includes notes in the output

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# Templates

## ■ Presentations:

- <https://www.sharelatex.com/learn/Beamer>
- <https://www.overleaf.com/gallery/tagged/presentation>

## ■ Posters:

- <https://www.ctan.org/pkg/beamerposter?lang=en>
- <https://www.sharelatex.com/learn/Posters>
- <https://www.overleaf.com/gallery/tagged/poster>