

The beamer Class: a L^AT_EX Presentation System

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Installing Beamer

Get the `beamer` folder from any CTAN site. Put it in the `latex` folder of your `texmf` tree.

The beamer Document Class

The original version of the beamer class was written by Till Tantau in 2003.

A beamer file begins with `\documentclass[options]{beamer}`.

Some Options:

- ▶ `xcolor=(options for the xcolor package)`
- ▶ `t, b, c` (default) preferred is `t`.
- ▶ `handout` Sets options to be suitable for handouts.
- ▶ Some other class options.

Beamer automatically loads the `amsmath`, `amsthm`, `array`, `hyperref`, `xcolor` packages and perhaps others. The user may load additional packages but with caution. Load them as needed!

Other Preamble Items

These items are needed to create a title page.

- ▶ `\title[short title]{title}`. The short title is used in the table of contents and in the headline (or footline) provided
- ▶ `\author[short_name(s)]{author 1_name\inst{1} \and author 2 name\inst{2}}`.
- ▶ `\institute{\inst{1}author 1 address\and\inst{2}author 2 address}`.
- ▶ `\date{desired date}`.

If no date is entered, the current date is automatically entered. If no date is wanted, type `\date{}`.

Frames

The material to be covered in a beamer presentation is contained in “frames“. Frames are environments that contain text and standard \LaTeX commands, environments and other structures. Care must be taken not to put too much material into a single frame. `\begin{frame}[options]{Frame Title}` begins a frame. Options:

- ▶ `allowframebreaks`
- ▶ `allowdisplaybreaks`
- ▶ `b, t, c` (default)
- ▶ `fragile`
- ▶ `label=` (name for frame)
- ▶ `plain`
- ▶ `squeeze`

`\end{frame}` ends the frame.

Title Page

With the information in the arguments of `\title`, `\author`, `\institute`, and `\date` the title page is created by typing

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

Special beamer Commands

- ▶ `\alert{Text to stress}`. For example **this is an alert**.
- ▶ `\againframe{Frame name}`. With the option `name=Title Page` for that frame, type `\againframe{Title Page}` and the Title Page will appear again.
- ▶ `\begin{columns}` and `\column[pos]{width}`.

For example in the next slide the two columns were produced by

```
\begin{columns}
\column[t]{.5\textwidth}
\begin{itemize}
\item allowframebreaks
\item allowdisplaybreaks
\item \rtt{b, t, c} (default)
\item fragile
\end{itemize}
\column[t]{.5\textwidth}
\begin{itemize}
\item label= (name for frame)
\item plain
\item squeeze
\end{itemize}
\end{columns}
```

The material to be covered in a beamer presentation is contained in “frames“. Frames are environments that contain text and standard \LaTeX structures; text, commands and environments. Care must be taken not to put too much material into a single frame.

`\begin{frame}[options]{Frame Title}` begins a frame.

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- ▶ `allowdisplaybreaks`
- ▶ `b, t, c` (default)
- ▶ `fragile`
- ▶ `label=` (name for frame)
- ▶ `plain`
- ▶ `squeeze`

`\end{frame}` ends the frame.

The Table of Contents

The divisions listed in the table of contents are the same as those for the `article` class. The user must insert `\section` commands etc. outside of frames for them to be recognized and listed in the table of contents. To create the table of contents type

```
\begin{frame}{Name of table of contents; e.g., Outline}  
\tableofcontents  
\end{frame}
```

To present the table of contents one section at a time, type `\tableofcontents[pausesections]`.

While the material to be presented is contained in frames, the output; that is, what's in the compiled file and what's seen on the screen, is contained in "slides". Slides are composed of all or part of what's in the frame. There are several ways to determine what parts of a frame appear in any one slide and how many slides will be constructed from one frame.

The `\pause` Command

The easiest method for creating multiple slides from one frame is with the `\pause` command.

```
\begin{itemize}
\item Item for all slides\pause
\item Item for slides 2 & 3\pause
\item Item for slide 3 only
\end{itemize}
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- ▶ Item for all slides

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This command and similar ones to follow don't work inside of the `amsmath` environments.

The `\only` Command

`\only<spec>{content}` is used to specify on which slides specific *content* will appear.

This text will be on all slides.

```
\only<2,4>{This text, on slides  
2 \& 4.}
```

```
\only<1,3->{This text, on slides  
1, 3 and all subsequent slides}
```

```
\only<3>{This text, on slide  
3 only.}
```

And this text will be on all slides.

This text will be on all slides. This text, on slides 1, 3 and all subsequent slides And this text will be on all slides.

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The `\onslide` Command

The effect of the `\only` command is as if all material not selected for a slide by `\only` were removed from the frame. The `\onslide` command has the same syntax as the `\only` command but the effect is as if all material not selected for the slide was simply covered. Here's the previous frame with `\only` replaced by `\onslide`.

An \onslide Example

This text will be on all slides.

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An `\onslide` Example Repeated

One great advantage of the `\onslide` command over the `\only` command is that the text that is “covered” can be made slightly transparent with the command

`\setbeamercovered{transparent=% of transparency}`. Here the % is 20.

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Navigation Bar



1. Slides
2. Frames
3. Subsubsections
4. Subsections
5. Sections
6. Search

The Structure of a Frame

- ▶ headline and/or footline
- ▶ left or right sidebar
- ▶ navigation bar
- ▶ logo
- ▶ background color
- ▶ content

Beamer Themes

- ▶ themes: 26 Loaded with `\usetheme{theme_name}`.
- ▶ outer themes: 9 Loaded with `\useoutertheme{outer_theme_name}`.
- ▶ inner themes: 5 Loaded with `\useinnertheme{inner_theme_name}`.
- ▶ color themes: 15 Loaded with `\usecolortheme{color_theme_name}`.

Beamer Modes

- ▶ beamer (default)
- ▶ presentation
- ▶ handout
- ▶ trans (transparencies)
- ▶ article
- ▶ all

These modes are loaded with `\mode<mode_name>`.

Theorem

Let $f : [a, b] \rightarrow \mathbb{R}$ be continuous and differentiable on (a, b) . Then there is a $c \in (a, b)$ such that $f'(c) = \frac{f(b)-f(a)}{b-a}$.

The above is created with

```
\begin{theorem}
```

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Let  $f:[a,b] \to \mathbb{R}$  be continuous and  
differentiable on  $(a,b)$ . Then there is a  $c \in (a,b)$   
such that  $f'(c) = \frac{f(b)-f(a)}{b-a}$ .
```

```
\end{theorem}
```

Restoring Math Italics

Define a new command.

```
\newcommand{\rit}[1]{\textrm{\textit{#1}}}
```

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is produced by

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\begin{theorem}
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Let  $\rit{f}: [\rit{a}, \rit{b}] \to \mathbb{R}$  be continuous and  
differentiable on  $(\rit{a}, \rit{b})$ . Then there is a  
 $\rit{c} \in (\rit{a}, \rit{b})$  such that  $\rit{f}'(\rit{c}) =$   
 $\frac{\rit{f}(\rit{b}) - \rit{f}(\rit{a})}{\rit{b} - \rit{a}}$ .  
\end{theorem}
```

References



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