Beamer Class Tutorial

Introduction to creating presentations in LaTeX using beamer class

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Presentation structure
Animations
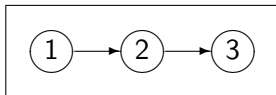Where to find more

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Blocks

Document

```
\documentclass{beamer}
\usetheme{Warsaw}
\usepackage{array}
\usepackage{graphicx}
\title{Beamer Class Tutorial}
\subtitle{Introduction to creating presentations in \LaTeX{}
    using beamer class}
\author{Krzysztof Fleszar}
\institute{Institute of Control \& Computation Engineering\\
    Warsaw University of Technology}
\date{March 31, 2005\\Translated on May 10, 2007}
\begin{document}
\maketitle
...
\end{document}
```

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Example slide

1. First item
   - First subitem
   - Second subitem
2. Second item
3. Third item

   $$y = \sum_{i \in A} a_i x_i$$

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Example slide

1. First item
   - First subitem
   - Second subitem
2. Second item
3. Third item

$$y = \sum_{i \in A} a_i x_i$$


```
\begin{frame}
\frametitle{Example slide}
\begin{enumerate}
   \item First item
   \begin{itemize}
      \item First subitem
      \item Second subitem
   \end{itemize}
   \item Second item
   \item Third item
\end{enumerate}
\[ y = \sum_{i \in A} a_i x_i \]
\includegraphics{figure.pdf}
\end{frame}
```

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Example slide

1. First item
   - First subitem
   - Second subitem
2. Second item
3. Third item

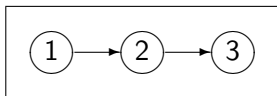$$y = \sum_{i \in A} a_i x_i$$


```
\begin{frame}
\frametitle{Example slide}
\begin{enumerate}
   \item First item
   \begin{itemize}
      \item First subitem
      \item Second subitem
   \end{itemize}
   \item Second item
   \item Third item
\end{enumerate}
\[ y = \sum_{i \in A} a_i x_i \]
\includegraphics{figure.pdf}
\end{frame}
```

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Example slide

1. First item
   - First subitem
   - Second subitem
2. Second item
3. Third item

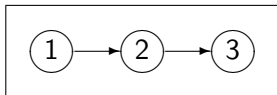$$y = \sum_{i \in A} a_i x_i$$


```
\begin{frame}
\frametitle{Example slide}
\begin{enumerate}
   \item First item
   \begin{itemize}
      \item First subitem
      \item Second subitem
   \end{itemize}
   \item Second item
   \item Third item
\end{enumerate}
\[ y = \sum_{i \in A} a_i x_i \]
\includegraphics{figure.pdf}
\end{frame}
```

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Example slide

1. First item
   - First subitem
   - Second subitem
2. Second item
3. Third item

$$y = \sum_{i \in A} a_i x_i$$
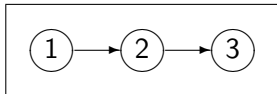


```
\begin{frame}
\frametitle{Example slide}
\begin{enumerate}
    \item First item
    \begin{itemize}
        \item First subitem
        \item Second subitem
    \end{itemize}
    \item Second item
    \item Third item
\end{enumerate}
\[ y = \sum_{i \in A} a_i x_i \]
\includegraphics{figure.pdf}
\end{frame}
```

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Example slide

1. First item
   - First subitem
   - Second subitem
2. Second item
3. Third item

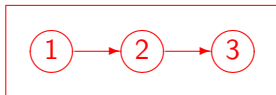$$y = \sum_{i \in A} a_i x_i$$


```
\begin{frame}
\frametitle{Example slide}
\begin{enumerate}
   \item First item
   \begin{itemize}
      \item First subitem
      \item Second subitem
   \end{itemize}
   \item Second item
   \item Third item
\end{enumerate}
\[ y = \sum_{i \in A} a_i x_i \]
\includegraphics{figure.pdf}
\end{frame}
```

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Blocks

Block title

Text within the block...

- First item
- Second item

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Blocks

> ### Block title
> Text within the block...
> - First item
> - Second item

```
\begin{block}{Block title}
   Text within the block...
   \begin{itemize}
      \item First item
      \item Second item
   \end{itemize}
\end{block}
```

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Blocks

Block title

Text within the block...

- First item
- Second item

```
\begin{block}{Block title}
    Text within the block...
    \begin{itemize}
        \item First item
        \item Second item
    \end{itemize}
\end{block}
```

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Blocks

> ## Block title
> Text within the block...
> - First item
> - Second item

```
\begin{block}{Block title}
    Text within the block...
    \begin{itemize}
        \item First item
        \item Second item
    \end{itemize}
\end{block}
```

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Sections and subsections
Table of contents

Sections and subsections

```
\begin{document}
\section{Basics}
    \subsection{Document}
        \begin{frame} ... \end{frame}
        \begin{frame} ... \end{frame}
    \subsection{Slides}
        \begin{frame} ... \end{frame}
    \subsection{Blocks}
        \begin{frame} ... \end{frame}
\section{Presentation structure}
    \subsection{Sections and subsections}
        \begin{frame} ... \end{frame}
    \subsection{Table of contents}
        \begin{frame} ... \end{frame}
...
\end{document}
```

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Sections and subsections
Table of contents

Table of contents

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Sections and subsections
Table of contents

Table of contents

```
\begin{frame}
\frametitle{Table of
contents}
\tableofcontents
\end{frame}
```

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Overlays

- Overlays — multiple versions of each frame displayed consecutively
- By default each slide has one overlay
- Overlays are added when commands followed by <...> are encountered
- Examples:
  - <2-4> — do something for overlays from 2 to 4
  - <-3> — do something for overlays from 1 to 3
  - <2-> — do something for overlays from 2 to the last
  - <2-4,6,8-> — do something for overlays 2, 3, 4, 6, and from 8 onwards

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Commands

- \only<...>{text}
  put text only in specified overlays

- \uncover<...>{text}
  put text only in specified overlays saving empty space in all overlays

- \item<...>{text}
  within itemize show item in specified overlays

- \alert<...>{text}
  highlight text in specified overlays

- \textbf<...>{text}
  change to boldface in specified overlays

- many more commands...

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Using \uncover

```
\uncover<1->{
\begin{block}{Block 1}
First\ldots
\end{block}
}
\uncover<2->{
\begin{block}{Block 2}
Second\ldots
\end{block}
}
```

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Using \uncover

> **Block 1**
>
> First. . .

```
\uncover<1->{
\begin{block}{Block 1}
First\ldots
\end{block}
}
\uncover<2->{
\begin{block}{Block 2}
Second\ldots
\end{block}
}
```

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Using \uncover

Block 1
First. . .

Block 2
Second. . .

```
\uncover<1->{
\begin{block}{Block 1}
First\ldots
\end{block}
}
\uncover<2->{
\begin{block}{Block 2}
Second\ldots
\end{block}
}
```

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Using \uncover (2)

```
\uncover<1>{
\begin{block}{Block 1}
First\ldots
\end{block}
}
\uncover<2>{
\begin{block}{Block 2}
Second\ldots
\end{block}
}
```

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Using \uncover (2)

Block 1

First. . .

```
\uncover<1>{
\begin{block}{Block 1}
First\ldots
\end{block}
}
\uncover<2>{
\begin{block}{Block 2}
Second\ldots
\end{block}
}
```

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Using \uncover (2)

> ### Block 2
> Second...

```
\uncover<1>{
\begin{block}{Block 1}
First\ldots
\end{block}
}
\uncover<2>{
\begin{block}{Block 2}
Second\ldots
\end{block}
}
```

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Using \only

```
\only<1>{
\begin{block}{Block 1}
First\ldots
\end{block}
}
\only<2>{
\begin{block}{Block 2}
Second\ldots
\end{block}
}
```

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Using \only

Block 1

First...

```
\only<1>{
\begin{block}{Block 1}
First\ldots
\end{block}
}
\only<2>{
\begin{block}{Block 2}
Second\ldots
\end{block}
}
```

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Using \only

Block 2
Second...

```
\only<1>{
\begin{block}{Block 1}
First\ldots
\end{block}
}
\only<2>{
\begin{block}{Block 2}
Second\ldots
\end{block}
}
```

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Animated items

```
\begin{enumerate}
    \item<1-> First item
    \begin{itemize}
        \item<2-> First subitem
        \item<3-> Second subitem
    \end{itemize}
    \item<4-> Second item
    \item<5-> Third item
\end{enumerate}
```

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Animated items

1. First item

```
\begin{enumerate}
    \item<1-> First item
    \begin{itemize}
        \item<2-> First subitem
        \item<3-> Second subitem
    \end{itemize}
    \item<4-> Second item
    \item<5-> Third item
\end{enumerate}
```

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Animated items

1. First item
   - First subitem

```
\begin{enumerate}
    \item<1-> First item
    \begin{itemize}
        \item<2-> First subitem
        \item<3-> Second subitem
    \end{itemize}
    \item<4-> Second item
    \item<5-> Third item
\end{enumerate}
```

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Animated items

1. First item
   - First subitem
   - Second subitem

```
\begin{enumerate}
    \item<1-> First item
    \begin{itemize}
        \item<2-> First subitem
        \item<3-> Second subitem
    \end{itemize}
    \item<4-> Second item
    \item<5-> Third item
\end{enumerate}
```

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Animated items

1. First item
   - First subitem
   - Second subitem
2. Second item

```
\begin{enumerate}
   \item<1-> First item
   \begin{itemize}
      \item<2-> First subitem
      \item<3-> Second subitem
   \end{itemize}
   \item<4-> Second item
   \item<5-> Third item
\end{enumerate}
```

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Animated items

1. First item
   - First subitem
   - Second subitem
2. Second item
3. Third item

```
\begin{enumerate}
   \item<1-> First item
   \begin{itemize}
      \item<2-> First subitem
      \item<3-> Second subitem
   \end{itemize}
   \item<4-> Second item
   \item<5-> Third item
\end{enumerate}
```

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Animated items (2)

```
\setbeamercovered{transparent}
\begin{enumerate}
    \item<1-> First item
    \begin{itemize}
        \item<2-> First subitem
        \item<3-> Second subitem
    \end{itemize}
    \item<4-> Second item
    \item<5-> Third item
\end{enumerate}
```

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Animated items (2)

1. First item
   - First subitem
   - Second subitem
2. Second item
3. Third item

```
\setbeamercovered{transparent}
\begin{enumerate}
    \item<1-> First item
    \begin{itemize}
        \item<2-> First subitem
        \item<3-> Second subitem
    \end{itemize}
    \item<4-> Second item
    \item<5-> Third item
\end{enumerate}
```

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Animated items (2)

1. First item
   - First subitem
   - Second subitem
2. Second item
3. Third item

```
\setbeamercovered{transparent}
\begin{enumerate}
    \item<1-> First item
    \begin{itemize}
        \item<2-> First subitem
        \item<3-> Second subitem
    \end{itemize}
    \item<4-> Second item
    \item<5-> Third item
\end{enumerate}
```

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Animated items (2)

1. First item
   - First subitem
   - Second subitem
2. Second item
3. Third item

```
\setbeamercovered{transparent}
\begin{enumerate}
    \item<1-> First item
    \begin{itemize}
        \item<2-> First subitem
        \item<3-> Second subitem
    \end{itemize}
    \item<4-> Second item
    \item<5-> Third item
\end{enumerate}
```

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Animated items (2)

1. First item
   - First subitem
   - Second subitem
2. Second item
3. Third item

```
\setbeamercovered{transparent}
\begin{enumerate}
   \item<1-> First item
   \begin{itemize}
      \item<2-> First subitem
      \item<3-> Second subitem
   \end{itemize}
   \item<4-> Second item
   \item<5-> Third item
\end{enumerate}
```

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Animated items (2)

1. First item
   - First subitem
   - Second subitem
2. Second item
3. Third item

```
\setbeamercovered{transparent}
\begin{enumerate}
   \item<1-> First item
   \begin{itemize}
      \item<2-> First subitem
      \item<3-> Second subitem
   \end{itemize}
   \item<4-> Second item
   \item<5-> Third item
\end{enumerate}
```

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Dynamic highlighting

```
Sometimes we want to
\alert<2>{highlight}
something,
and sometimes we want to
use \textbf<3>{boldface}.
```

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Dynamic highlighting

Sometimes we want to
highlight something,
and sometimes we
want to use boldface.

```
Sometimes we want to
\alert<2>{highlight}
something,
and sometimes we want to
use \textbf<3>{boldface}.
```

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Dynamic highlighting

Sometimes we want to highlight something, and sometimes we want to use boldface.

```
Sometimes we want to
\alert<2>{highlight}
something,
and sometimes we want to
use \textbf<3>{boldface}.
```

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Dynamic highlighting

Sometimes we want to highlight something, and sometimes we want to use **boldface**.

```
Sometimes we want to
\alert<2>{highlight}
something,
and sometimes we want to
use \textbf<3>{boldface}.
```

Where to find more

- Beamer class is included by default in Miktex
- With beamer class attached are
  - a comprehensive documentation in `beameruserguide.pdf`
  - example presentations with source files
- For best results use `pdflatex`
- Good presentations and good luck!