

Introduction to Beamer

Using \LaTeX to Make Presentations

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What is Beamer?

- Beamer is a flexible LaTeX class that is used to create presentations.
- It is not the only way to make presentations in LaTeX, but it is commonly used.
- Presentations are created in .pdf form

Motivation

Why use LaTeX to create presentations?

- Unlike other presentation software, LaTeX is well equipped to embed equations into the presentation
- Users can focus on content rather than colours, text sizes, layout, etc etc.
- Can handle transitions of text and pictures, similar to Powerpoint
- Presentations created in Beamer will look the same on a Mac and PC
- NB: This presentation was created using Beamer

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You can use the following as a template:

```
\documentclass[pdf]{beamer}
\mode<presentation>{\usetheme{Warsaw}}
% Preamble - you can add additional packages here
\title{}
\subtitle{}
\author{}
\begin{document}
%% title frame
\begin{frame}
\titlepage
\end{frame}
%% normal frame
\begin{frame}
\end{frame}
\end{document}
```

How to Use Beamer

Slides are handled as “Frames”

- Use `\begin{frame}` and `\end{frame}` to create new slides
- You can then edit the contents of the slides by placing text between `\begin{frame}` and `\end{frame}`

How to create a bulleted list?

Largely makes use of LaTeX's `itemize` command: Example:

- This is item 1
 - This is sub-item 1
- This is item 2
- This is item 3

How to create a bulleted list?

LaTeX Code:

```
\begin{itemize}
\item This is item 1
\begin{itemize}
\item This is sub-item 1
\end{itemize}
\item This is item 2
\item This is item 3
\end{itemize}
```

Transitions in Beamer

Sometimes in presentations, we like to hide text temporarily, and then make it appear later.

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- Instead of animations, we use the “pause” command

Transitions in Beamer

LaTeX Code:

Sometimes in presentations, we like to hide text temporarily, and then make it appear later.

```
\pause
```

```
\begin{itemize}
```

```
\item This is usually done with animations in powerpoint
```

```
\pause
```

```
\item We can do this in Beamer too!
```

```
\pause
```

```
\item Although, the way we do this is quite different
```

```
\pause
```

```
\item Instead of animations, we use the “‘pause’” command
```

```
\end{itemize}
```

Inserting an image into Beamer

Works the same way as in a document:

LaTeX Code:

```
\begin{figure}[h]
  \centering
  \includegraphics[height=2 in, width = 3 in]{Photo}
  \caption{Chicago Skyline}
\end{figure}
```


Inserting an image into Beamer

Output:



Figure : Chicago Skyline

Sections in Beamer

Notice that at the top, we have the sections of the presentation displayed

- In powerpoint, we usually summarize the sections at the beginning, and then move on from there.
- With Beamer, we can keep all sections at the top (if we choose to)
- The current section we are on will be highlighted at the top.
- Just type `\section{}` before a group of slides to group slides into sections. You can jump to a certain section by clicking on that section at the top.

We can also have the section title page re-appear every time we move to a new section (just like in this presentation). To do this, you can use the following code near the beginning of your presentation:

```
\AtBeginSection[]  
{  
  \begin{frame}{Table of Contents}  
  \tableofcontents[currentsection]  
  \end{frame}  
}
```

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Inserting Math works the same way in both LaTeX documents and presentations

- Beamer is better suited for math than other presentation software.
- We can type equations directly into the presentation, and these equations will look the same on a Mac or PC

Examples

Summation:

$$\bar{y}_i = \frac{1}{T} \sum_{t=1}^T y_{it} = \beta_{1i} + \beta_2 \frac{1}{T} \sum_{t=1}^T x_{2it} + \beta_3 \frac{1}{T} \sum_{t=1}^T x_{3it} + \frac{1}{T} \sum_{t=1}^T e_{it}$$

Integrals:

$$\text{Max}_{\{\hat{t}, \hat{c}_t\}} U = \int_0^{\infty} \frac{\hat{c}_t^{1-\theta}}{1-\theta} e^{(-\rho-n-(1-\theta)x)t} dt$$

Limits:

$$\lim_{x \rightarrow \infty} \exp(-x) = 0$$

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In this presentation, we used the Warsaw theme with the default colour scheme.

- We can change the theme at the top by changing “Warsaw” to something else
 - I.e.

```
\mode<presentation>{\usetheme{insert theme here}}
```

- We can also change the colour by using
`\usecolortheme{colorthemename}`

For a list of possible Beamer themes/colours, please see <http://www.hartwork.org/beamer-theme-matrix/>

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- 1 Beamer User Manuel:
`http://www.math.mun.ca/tex-archive/macros/latex/contrib/beamer/doc/beameruserguide.pdf`
- 2 Wikipedia Page on Beamer:
`http://en.wikibooks.org/wiki/LaTeX/Presentations`
- 3 Introduction to Beamer and examples: `http://www.tug.org/pracjourn/2005-4/mertz/mertz.pdf`
- 4 Quick Tutorial on Beamer: `http://heather.cs.ucdavis.edu/~matloff/beamer.html`