

Lecture 8 - Beamer Part 1

\LaTeX for Math and Science
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Spring 2011 Lecture 8

Outline

- 1 Advantages of Beamer
- 2 Starting out Beamer
- 3 Frames
- 4 Beamer functionality
- 5 Overlays
- 6 Columns
- 7 Verbatim
- 8 Notes

Advantages (and disadvantages) of Beamer

■ Advantages

- Math environments are easier in Beamer
- Automated outlines, easy links within your presentation
- create overlays and transitions
- easily add graphics
- clean way to present math/engineering without worrying about spacing
- many themes to choose from
- great functionality (globally changing layouts, colors, fonts and also local control)

■ Disadvantages

- First template is usually hard to start
- Due to learning curves, it might take a little longer to create your first few presentations

Installing Beamer

If your compiler doesn't have Beamer class, you can download the beamer package from the website: `latex.berkeley.edu`

An easy 'hacky' way (but not recommended) is to simply save the .tex file in the same folder where the beamer subdirectory can be located. You should be able to use the beamerclass this way.

The folks who created beamer (2003): Till Tantau, Joseph Wright, Vedran Miletic

Documentclass

First test if your $\text{T}_{\text{E}}\text{X}$ center or \LaTeX has the beamer class installed.

Documentclass

```
\documentclass[options]{beamer}
\mode<presentation>
{
\usetheme{Luebeck}
\usecolortheme{crane}
}
```

fragile: Allows you to insert graphics into your powerpoint (different from fragile frame option)

envcountsect: Theorem environment counting is localized to section (ie 2.1, 2.2, 3.1, 3.1...)

compress: makes navigation bars as small as possible

Themes

What themes are available?

Think: Universities

Berkeley, Antibeles, AnnArbor, Copenhagen, CambridgeUS,
PaloAlto, Pittsburgh, Warsaw

What color themes are available?

Think: Animals and Plants

crane, albatross, whale, beaver, dolphin, dove, orchid, rose,
seagull, seahorse, lily

For more information you can check:

<http://www.hartwork.org/beamer-theme-matrix/>

Warsaw Theme

This is crane color theme.

Definition

*Suppose f and g are two square-integrable functions. The convolution of f and g , denoted $f * g$, is defined by*

$$(f * g)(t) = \int_{-\infty}^{\infty} f(t - x)g(x)dx$$

Generating your title page

Title Page

```
\title{}  
\author{}  
\institute{}  
\date{}  
  
\begin{document}  
  
\begin{frame}  
\titlepage  
\end{frame}
```


Generating a slide / outline:

Frames

```
\section[short name]{full name}
\begin{frame}[options]
\frametitle{title of slide here}
\end{frame}
```

Outline

```
\AtBeginSection
{
  \begin{frame}
    \frametitle{Outline}
    \tableofcontents
  \end{frame}
}
```

Generating a slide / outline:

Frames

```
\section[short name]{full name}
\begin{frame}[options]
\frametitle{title of slide here}
\end{frame}
```

Options:

shrink: starts the first line at the top of the slide instead of starting in the middle

fragile: allows you to do more sophisticated overlays (pdf versus presentation)

containsverbatim: allows you to use verbatim environment (more on this later)

Hyperlinks

Here's a link to the [warsaw](#) theme page.

Here's a fancy link to the [▶ previous page](#)

Here's a normal text link to the previous page

Hyperlink a frame

```
\begin{frame}[label=mylabel]
\end{frame}

\hyperlink{mylabel}{\beamergotobutton{Link}}
```

You can also use `\usepackage{hyperref}` and use it with `\url{}` command.

Itemize

```
\begin{itemize}
\item<1-> Apple
\item<2-> Banana
\item<3-> Banapple
\item<2> Disappearing Banana!
\end{itemize}
```

- Apple
- Banana
- Strawberry
- Banapple
- Smapple
- Banamappleberry

Itemize

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\begin{itemize}  
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Alternative to itemize/enumerate overlay is the `\pause` command.

Pause

```
1 Potato \pause
2 Potato \pause
3 Potato \pause
Four...
\alert<4>{Potato Alert 1!}
\alert<5>{Potato Alert 2!}
\alert<4->{Permanent Potato Alert !}
```

1 Potato

2 Potato

3 Potato

Four....

Potato Alert! Potato Alert 2! Permanent Potato Alert!

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1 Potato
2 Potato
3 Potato
Four....

Potato Alert! Potato Alert 2! **Permanent Potato Alert !**

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```

1 Potato

2 Potato

3 Potato

Four....

Potato Alert! Potato Alert 2! Permanent Potato Alert !

Overlays Continued

<code>\textbf<2>\{Potatoes}</code>	Potatoes
<code>\textit<2>\{Potatoes}</code>	Potatoes
<code>\alert<2>\{Potatoes}</code>	Potatoes
<code>\invisible<2>\{Potatoes}</code>	Potatoes
<code>\visible<2>\{Potatoes}</code>	Potatoes
<code>\color<2>\{green\}\{Potatoes}</code>	Potatoes

Overlays Continued

<code>\textbf<2>\{Potatoes}</code>	Potatoes
<code>\textit<2>\{Potatoes}</code>	<i>Potatoes</i>
<code>\alert<2>\{Potatoes}</code>	Potatoes
<code>\invisible<2>\{Potatoes}</code>	
<code>\visible<2>\{Potatoes}</code>	Potatoes
<code>\color<2>\{green\}\{Potatoes}</code>	Potatoes

Columns

This is the first column.
On the other column is
the actual code that
generated this page.

```
begin{frame}[containsverbatim]
\frametitle{Columns}
\begin{columns}
\column{.4\textwidth}
This is the first column.
On the other column is the
actual code that generated
this page.
\column{.6\textwidth}
\end{columns}
```


Verbatim Code

```
\begin{verbatim} \end{verbatim}
```

or alternatively

```
\verb| |
```

\LaTeX has great support for pseudo code (which unfortunately won't go over in much detail). Check out

```
\usepackage{algorithmic} or
```

```
\usepackage{program}.
```

I don't recommend the program package when working with beamerclass. I suggest using algorithmic package.

Example of Verbatim

Verbatim Code

```
int main (void)
{
  std::vector<bool> is_prime (100, true);
  for (int i = 2; i < 100; i++)
    if (is_prime[i])
    {
      std::cout << i << " ";
      for (int j = i; j < 100; is_prime [j] = false, j+=i);
    }
  return 0;
}
```

You can use the `\begin{block}` environment instead of the theorem environment.

```
\begin{block}{Block name}  
Enter Block contents here  
\end{block}
```

Block name

Enter Block contents here

Debugging and other small details

You have to compile twice to generate the beamer outline correctly.

What happens if I compile and i come across an error '*File ended while scanning use of writefile*'. One source of this error is when you accidentally forget the verbatim options and you compile. Delete all other extensions generated when typesetting except for your .tex file and compile again.

You can change the font size globally by adding [10pt] option before the documentclass:

```
\documentclass[10pt]{beamer}
```

HW 7

HW 7 is posted on the website.