Latex: Presentations Using Beamer and Tikz
Biometry 789-02

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1 Introduction to Beamer

Outline

1. Introduction to Beamer

2. The Basics

3. Adding Bells and Whisles

Outline

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What is Beamer?

- Beamer is a LaTeX document class for producing slides created by Til Tantau at the University of Leubeck
- Original version from 2003
- Makes creating PDF presentations with bells and whistles straightforward
- A guide to help you get started can be found: `http://www.math.umbc.edu/~rouben/beamer/quickstart.html`
- You have learned `\documentclass{article}`
- Today we are discussing `\documentclass{beamer}`

- Unlike PowerPoint (particularly when using Equation Editor or importing figures), presentation will appear the same regardless of computer (MAC, PC)
- Once you learn basic LaTeX commands, you can create presentations with varying layouts etc
- Creates an automatic table of contents with clickable links (see header)
- Themes allow changing appearance of the presentation
- Inclusion of overlays and dynamic effects

- If you are writing your dissertation in LaTeX it is easy to cut and paste code to make conference/defense presentations or vice versa
- Useful templates available with the Beamer download:

```
C:\Program Files\MikTex 2.9\doc\latex\beamer
    \solutions\
```

- A 247 page user guide is also available in the same folder:

```
C:\Program Files\MikTex 2.9\doc\latex\beamer\
    doc\beameruserguide.pdf
```

- Let's try a template
- Open template from class website and copy into WinEdt
- Select tab "Tex" and PDF and PDFtexify
- Nice elements not available in PowerPoint - table of contents, links to sections and subsections, etc

- Beamer document class allows the user to select one of many themes to specify appearance
- This lecture uses the theme Darmstadt
- Many other themes are available: default, Boadilla, Madrid, Pittsburgh, Rochester, Copenhagen, Warsaw, Singapore, Malmoe, etc

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To change the colors of the presentation you need to change
`\usecolortheme{default}` in the preamble (before you begin the
document)

Color Options

albatross crane beetle dove fly seagull wolverine beaver

Title Page

- Very easy to change \title, \subtitle, \author, \institute, \date in template
- Notice [short paper title] for shorter titles, dates etc that display throughout presentation
- Notice % for commenting code

- Each slide is coded as a frame: \begin{frame} and end{frame}
- Can also code as \frame{ ... }
- Notice how \titlepage and \tableofcontents are specified
- Sometimes I use the [pausesections] option after \tableofcontents
- Specify titles on each slide with \frametitle{} or with \begin{frame}{TITLE}
- Notice I can get rid of headers and footers with the frame option [plain]

- To create a section: `\section{TITLE}`
- Notice my sections in the header: Introduction to Beamer, Getting Started, etc
- Also determines entries in the table of contents
- Section and subsection commands are given *outside* of frames!

- If you want to define something, specify \begin{definition} and \end{definition}:

Definition

π is a mathematical constant that is the ratio of a circle's circumference to it's diameter.

- If you want to highlight an example, specify `\begin{example}` and `\end{example}`:

Example

PDF for the Cauchy Distribution

$$f(x) = \frac{1}{\pi(1 + x^2)}$$

- If you want to highlight any text, specify `\begin{block}{TITLE}` and `\end{block}`:

PDF for the Cauchy Distribution

$$f(x) = \frac{1}{\pi(1 + x^2)}$$

Column 1 can be specified with
\begin{columns} and
\column{.5\textwidth}

Column 2 specified by with
\column{.5\textwidth} and
\end{columns}

- I use bullets on most slides with: \begin{itemize} and \end{itemize}

- I use bullets on most slides with: \begin{itemize} and \end{itemize}
- Each bullet is specified with: \item

- I use bullets on most slides with: \begin{itemize} and \end{itemize}
- Each bullet is specified with: \item
- Then add \pause after each item

- I use bullets on most slides with: \begin{itemize} and \end{itemize}
- Each bullet is specified with: \item
- Then add \pause after each item
- This allows showing each bullet incrementally

1. You can also enumerate with: \begin{enumerate} and \end{enumerate}

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2. Each number is specified with: \item

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3. Then add \pause after each item

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2. Each number is specified with: \item
3. Then add \pause after each item
4. This allows showing each number incrementally

- Show only the 1st item with \item<1->

- and last item with \item<1->!

- Show only the 1st item with \item<1->
- Then add each additional item by specifying \item<2->

- and last item with \item<1->!

- Show only the 1st item with \item<1->
- Then add each additional item by specifying \item<2->
- Then add each item with with \item<3->

- and last item with \item<1->!

- Show only the 1st item with \item<1->
- Then add each additional item by specifying \item<2->
- Then add each item with with \item<3->
- You don't need \pause just specify the order in the <>
- and last item with \item<1->!

Without bullets use *uncover*

Without bullets use *uncover* instead of *item*.

Without bullets use *uncover* instead of *item*. Or you can use *only* instead of *item*.

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Without bullets use *uncover* instead of *item*. Or you can use *only* instead of *item*. You still need to specify on which slide the text should appear. But this is less readable.
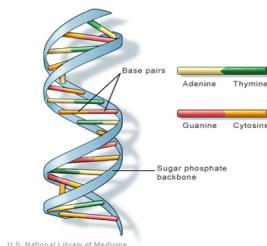
- Highlight only on some slides
- For example only highlight this slide 2
- To do this use \alert<2>{}

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- Instead of highlighting you can change the colors of items
- For example make green and blue bullets
- To do this use \color<2>{green} or \color<2>{blue}

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Let's add an image with code: \includegraphics[height]{filename}

Let's add an hyperlink with code:
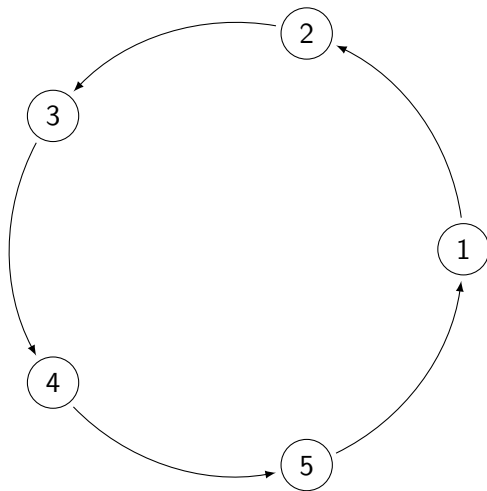`\url{http://people.musc.edu/~elg26/teaching/...}`

http://people.musc.edu/~elg26/teaching/statcomputing.2012/
statcomputingI.2012.htm

- Sometimes it's nice to provide handouts for your presentation
- Need to change the document class option to
  `documentclass[handout]{beamer}`
- You also probably want to save paper by printing multiple slides/page

  ```
  \usepackage{pgfpages}
  \pgfpagesuselayout{4 on 1}
  [landscape,letterpaper,border shrink=2.5mm]
  ```

- You can even draw in Beamer!
- Need to add the tikz package \usepackage{tikz}
- To start drawing \begin{tikzpicture} and you know how to end the picture
- You need to end tikz commands with ;

devilish

Questions?