Introduction to Beamer for AU-AUM Ph.D. Students

David A. Hughes*

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1 Introduction to Beamer

Beamer uses the language of LaTeX to create scientific slideshows. Therefore, much like the article class of documents, Beamer is a highly flexible means of crafting beautiful presentations. Its principle benefits are for presentations that use mathematics or tables. The downsides of Beamer is that it can look—to those used to a more graphically sophisticated program like Power Point or Keynote—a little bland. Below, I have included excerpts of code sufficient to produce your own Beamer slideshow. However, if you would like to download a template in whole, you may do so from the following Overleaf webpage: `https://www.overleaf.com/18576369vhxgngrtnsvc#/69994227/`.

2 The Beamer Preamble

Just like with an article class document, you will need to declare some preliminaries so that LaTeX knows what kind of document you are trying to compile. The most important difference between a slideshow and an article is that your "documentclass" is now "beamer": `\documentclass{beamer}`. Below is an extensive preamble you can cut and paste into a blank LaTeX text editor. You'll notice that it has much of its body commented out. You can change the color scheme and themes of your slideshow by changing which line is *not* commented out.

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Beamer Presentation
% LaTeX Template
% Version 1.0 (10/11/12)
%
```

*Associate Professor, *Auburn University at Montgomery*. Contact: `david.hughes@aum.edu`

```
% This template has been downloaded from:
% http://www.LaTeXTemplates.com
%
% License:
% CC BY-NC-SA 3.0 (http://creativecommons.org/licenses/by-nc-sa/3.0/)
%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

%----------------------------------------------------------------
% PACKAGES AND THEMES
%----------------------------------------------------------------

\documentclass{beamer}

\mode<presentation> {

% The Beamer class comes with a number of default slide themes
% which change the colors and layouts of slides. Below this is a list
% of all the themes, uncomment each in turn to see what they look like.

%\usetheme{default}
%\usetheme{AnnArbor}
%\usetheme{Antibes}
%\usetheme{Bergen}
%\usetheme{Berkeley}
%\usetheme{Berlin}
%\usetheme{Boadilla}
\usetheme{CambridgeUS}
%\usetheme{Copenhagen}
%\usetheme{Darmstadt}
%\usetheme{Dresden}
%\usetheme{Frankfurt}
%\usetheme{Goettingen}
%\usetheme{Hannover}
%\usetheme{Ilmenau}
%\usetheme{JuanLesPins}
%\usetheme{Luebeck}
%\usetheme{Madrid}
%\usetheme{Malmoe}
%\usetheme{Marburg}
%\usetheme{Montpellier}
%\usetheme{PaloAlto}
%\usetheme{Pittsburgh}
```

```
%\usetheme{Rochester}
%\usetheme{Singapore}
%\usetheme{Szeged}
%\usetheme{Warsaw}

% As well as themes, the Beamer class has a number of color themes
% for any slide theme. Uncomment each of these in turn to see how it
% changes the colors of your current slide theme.

%\usecolortheme{albatross}
%\usecolortheme{beaver}
%\usecolortheme{beetle}
%\usecolortheme{crane}
%\usecolortheme{dolphin}
%\usecolortheme{dove}
%\usecolortheme{fly}
%\usecolortheme{lily}
%\usecolortheme{orchid}
%\usecolortheme{rose}
%\usecolortheme{seagull}
%\usecolortheme{seahorse}
%\usecolortheme{whale}
%\usecolortheme{wolverine}

%\setbeamertemplate{footline} %To remove the footer line in all slides uncomment
% this line
%\setbeamertemplate{footline}[page number] % To replace the footer line in all
% slides with a simple slide count  uncomment this line

%\setbeamertemplate{navigation symbols}{} % To remove the navigation symbols
% from the bottom of all slides uncomment this line
}

\usepackage{graphicx} % Allows including images
\usepackage{booktabs} % Allows the use of \toprule, \midrule and \bottomrule
%  in tables
```

In addition to the canned color schemes, Beamer is flexible enough for you to create your own. For example, I usually like to change the color scheme to match the school colors of wherever I'm teaching. Here's the preamble I came up with for AUM:

```
\documentclass{beamer}
\usepackage{tabularx}
```

```
\usepackage{graphicx}
\usepackage{adjustbox}

\mode<presentation> {

\usefonttheme{professionalfonts}
    \setbeamertemplate{itemize item}{\color{black}$\blacksquare$}
    \setbeamertemplate{itemize subitem}{\color{orange}$\blacktriangleright$}
\usetheme{Copenhagen}
\definecolor{big_orange}{rgb}{1.0, .35,  0.0}
\usecolortheme[named=big_orange]{structure}
\setbeamertemplate{navigation symbols}{} }
\usepackage{hyperref}
\usepackage{graphicx}
\usepackage{booktabs}
```

3 The Title Page

As with any slideshow, you'll want to include a title page that displays the title of your presentation, your name, institutional affiliation, contact, date, etc. The commands for doing so are relatively straightforward and appear below. Depending upon which theme you choose for your Beamer presentation, some options for your presentation may or may not be available to you.

```
\title[Short Title Here]{Full Title Here} % The short title appears at the
% bottom of every slide, the full title is only on the title page

\author{Author Name Here} % Your name
\institute[Your Institution] % Your institution as it will appear on the
% bottom of every slide, may be shorthand to save space

{Your University  \\ % Your institution for the title page
\medskip
\textit{email} % Your email address
}
\date{\today} % Date, can be changed to a custom date
```

Finally, you can call your slideshow and title page into existence.

```
\begin{document}

\begin{verbatim}
```

```
\titlepage % Print the title page as the first slide
\end{frame}
```

4 The Body of the Slideshow

Next comes the body of the slideshow itself. This is going to work much like the body of any other LaTeX document. You are permitted to include section and subsection headings. Doing so will cause these headers to appear on your slides, and in the event that you opt to include a table of contents, these section headings are going to be what Beamer displays.

When typing slides in LaTeX, every unique slide is book-ended by the following:

```
\begin{frame}
\frametitle{Title Goes Here}

\end{frame}
```

That code alone will generate a new, blank slide with only the title filled in. If you would like to include a table of contents, this is easily accomplished as follows:

```
\begin{frame}
\frametitle{Preview}
\tableofcontents
\end{frame}
```

Most people fill up their slides using bullet points—oftentimes in columns. Others might want some bullet points accompanied by a figure or table. Others still might want to write some mathematical formulas. All the commands you learned for writing a LaTeX manuscript will work in the Beamer environment as well. For example, if you want a slide that consists solely of bullet points, you would construct the following:

```
\begin{frame}
\frametitle{Slide Title Here}
\begin{itemize}
\item{Point a}
\item{Point b}
\item{Point c}
\end{itemize}
```

If you want to add columns, you simply add a few extra lines of code. The code below shows a slide with two columns—the right column is a little fatter—with an enumerate list in the left column and an image in the right column.

```
\begin{frame}
\frametitle{A Slide with Multiple Columns}
\begin{columns}[c] % The "c" option specifies centered vertical alignment while
% the "t" option is used for top vertical alignment

\column{.45\textwidth} % Left column and width
\begin{enumerate}
\item{Thing 1}
\item{Thing 2}
\item{Thing 3}
\end{enumerate}

\column{.5\textwidth} % Right column and width
\centering
\includegraphics[width=2.5in]{filename}
\end{columns}
\end{frame}
```

In the event that you want to type a slide that uses the "verbatim" environment, you'll need to add on the option "fragile" to your slide.

```
\begin{frame}[fragile]
\frametitle{Slide Title}
Some verbatim information goes here.
\end{frame}
```

In the event you would like to include a bibliography, you'll have to key your citations and references in by hand as Beamer does not support BibTex. Perhaps more importantly, it's just bad form to clutter a slideshow with references. Your presentation should, for the most part, be self-evident.

If you're giving a longer talk in which you expect a round of Q&A, you might want to construct an Appendix of "questions I anticipate and would like ready-made answers for." That's very good practice and is encouraged. However, adding on a lot of extra slides to the back end of your presentation can add to the slide count in the bottom of your slideshow, leading your viewers to get the wrong impression of the scope of your presentation. To hack your slide counter, add the following line of code directly *before* the command `\begin{document}`:

```
\newcounter{mylastframe}
```

Then, you will include the next line of code *inside* the last slide of your talk (that is, before you type `\end{frame}`) before the Appendix:

```
\setcounter{mylastframe}{\value{framenumber}}
```

5 Ending Your Presentation

Some people like to include a slide for "Thanks." That's not a bad idea. If you're on the job market, this is where your slideshow is likely to sit for the next several minutes during the Q&A, which means you can use this visual opportunity to remind your audience who you are, what the title of your talk was, and (importantly) what your contact information is if they want to get in touch with you again and ask further questions or offer feedback. This might look like:

```
\begin{frame}
\centering
\vspace{.5cm}

Thank you! I'm happy to answer any questions you may have at this time.

\vspace{1.25cm}
\url{your email}
\end{frame}
```

Once you've said all there is to say, use the same line of code as you would an article to end your script file:

```
\end{document}
```