

Presentations with beamer

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Advantages

- *Optimal for teaching*
- Cheap
- Common
- Low failure rate

Disadvantages

- Handwriting
- Unable to show graphics/tables
- Back to audience

Advantages

- Low failure rate
- Can be high quality
- Allows audience to move at own pace

Disadvantages

- Cost
- Handouts can be heavy
- Environment

Advantages

- Common
- Low failure rate
- Better(?) than blackboard

Disadvantages

- Handwriting
- Unable to show hi-res graphics
- Preparation time
- Must create the overhead

Computer projection

Advantages

- Can look quite good
- Can use real-time computing for hi-res graphics, animations, etc.
- Often easy to make handouts

Disadvantages

- Still not universal
- High failure rate
- Preparation time
- Tendency for medium to be message

PowerPoint is a competent slide manager and projector. But rather than supplementing a presentation, it has become a substitute for it.

The presentation needs

- Content
- Simple, logical structure
- Appropriate detail
- Appropriate emphasis

Does not need fancy animations, transitions, etc.

- Ubiquitous
- Large user base
- Stinks at mathematics, but. . .
- Extremely easy to use if no mathematics
- PowerPoint cost money, but free versions exist

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*Bill Gates is the antiChrist and MicroSoft is the spawn of Satan.
G.W. Oehlert and others*

Check <http://www.norvig.com/Gettysburg/>

- Available on most platforms
- Great at math
- Great flexibility
- Mostly academic user base
- **For using only text plus pictures, PowerPoint is much easier**
- **beamer**, and other, packages designed to create talks
- Great flexibility (also bad)
- Multimedia much harder

Slides for this class use Beamer.

- 1 \LaTeX file `mystuff.tex` at
`http://www.stat.umn.edu/~sandy/courses/8801`
- 2 Fill `mystuff.tex` with Beamer commands
- 3 `pdflatex mystuff.tex` on Linux produces `mystuff.pdf`
- 4 Use Adobe Reader or other pdf viewer

Link to user manual at

`http://www.stat.umn.edu/~sandy/courses/8801`.

Beamer, top information

```
\documentclass{beamer}

\usepackage{wasysym,graphicx,pgfpages}
\usetheme{Frankfurt}
%\usetheme{Boadilla}


\title{Oral Presentation}
\author{Ima G. Student}
\date{January 22, 2008}
% (see `man colors' on Linux for list of colors)
\definecolor{maroon}{rgb}{.6902,.1882,.3765}
\definecolor{sienna}{rgb}{.53,.31,.16}
\definecolor{gold}{rgb}{1,.84314,.0000}
\setbeamercolor{frametitle}{fg=maroon,bg=gold}
\usecolortheme[named=maroon]{structure}
```

Beamer title and table of contents

```
\begin{document}  
  
\frame{\titlepage}           %create titlepage  
  
\frame{\tableofcontents} %create table of contents page  
  
\section{Name of first section in table of contents}
```

Entries in the table of contents are generated by `\section{}` commands

Beamer example, continued

```
\begin{frame}
\frametitle{This is the frame title}

\begin{block}{This is a block title}
This is the block content.
\end{block}

\pause
This appears after the pause:
\[
E(y|x) = \beta_0 + \beta_1 x
\]

\alert{This is an alert in the alert color.}
%\end{frame}
```

This is the frame title

This is a block title

This is the block content

This is the frame title

This is a block title

This is the block content

This appears after the pause:

$$E(y|x) = \beta_0 + \beta_1 x$$

This is an alert in the alert color.

Frames with computer output:

Use `verbatim` for computer output. This requires using *containsverbatim*.

```
\begin{frame}[containsverbatim]
\frametitle{Some computer output}
This has computer output:
% begin{verbatim}
Coefficients:
      Estimate Std. Error t value Pr(>|t|)
(Intercept)  90.9609    37.3532   2.435   0.0289 *
Pressure      0.7650     0.6608   1.158   0.2664
Lpres        0.6649     0.3859   1.723   0.1069
% end{verbatim}
% end{frame}
```


Some computer output

This has computer output:

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	90.9609	37.3532	2.435	0.0289	*
Pressure	0.7650	0.6608	1.158	0.2664	
Lpres	0.6649	0.3859	1.723	0.1069	

- Use `itemize`, `description`, and `enumerate` environments.
- To include graphics, save as pdf or png (or others), and use, for example

```
\includegraphics[width=.8\textwidth]{mypic.pdf}
```

- You can create pdf graphics in R using the `pdf()` device:

```
> pdf("mypic.pdf")  
> plot(Y~X,dataframe)  
> dev.off()
```

You can use Beamer and Sweave at the same time to use R output in your presentation.

- 1 Name your main file `myfile.Rnw` rather than `myfile.tex`
- 2 Add the line
`\usepackage{Sweave}`
to the preamble.
- 3 Create .tex file with R CMD Sweave `myfile.Rnw`
- 4 Create .pdf file with `pdflatex myfile.tex`
- 5 View the resulting .pdf file with konqueror on Linux or Acrobat reader on Mac/Windows.
- 6 Links to Sweave documentation on class website

Sweave, echo commands and output

```
\<<echo=TRUE>>=  
library(alr3)  
data(forbes)  
m1 <- lm(Lpres~Temp,forbes)  
summary(m1)$coef  
\@
```

Produces this:

```
> library(alr3)  
> data(forbes)  
> m1 <- lm(Lpres ~ Temp, forbes)  
> summary(m1)$coef
```

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-42.1377793	3.34019890	-12.61535	2.175977e-09
Temp	0.8954937	0.01645176	54.43147	1.186078e-18

Sweave, output, do not echo commands

```
\<<echo=FALSE>>=  
library(alr3)  
data(forbes)  
m1 <- lm(Lpres~Temp,forbes)  
summary(m1)$coef  
\@
```

Produces this:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-42.1377793	3.34019890	-12.61535	2.175977e-09
Temp	0.8954937	0.01645176	54.43147	1.186078e-18

Using xtable

The xtable package outputs data in \LaTeX format:

```
\<<echo=FALSE,results=tex>>=  
library(xtable)  
xtable(summary(m1)$coef)  
\@
```

Produces:

	Estimate	Std. Error	t value	$\text{Pr}(> t)$
(Intercept)	-42.14	3.34	-12.62	0.00
Temp	0.90	0.02	54.43	0.00

Draw graphics

Name the section of output, for example:

```
\<<one,echo=TRUE,fig=TRUE,include=TRUE>>=  
plot(Lpres~Temp,forbes)  
abline(m1)  
\@
```

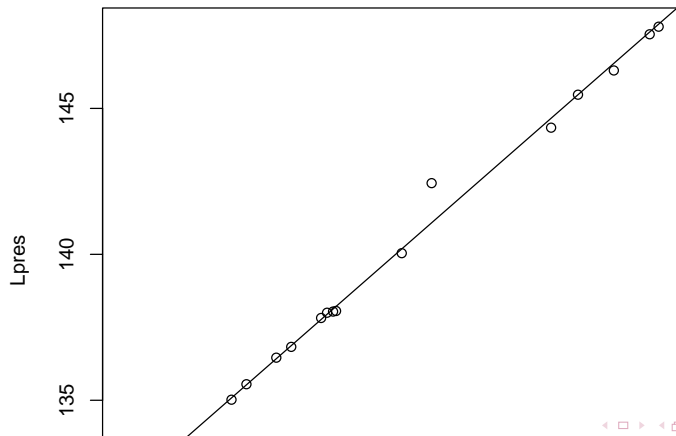
creates a file called mystuff1-one.pdf because fig=TRUE, and then automatically prints it in the presentation because include=TRUE.

Hint: When using lattice graphics, you must use a command like

```
print(xyplot(Lpres~Temp,data=forbes))
```

Draw a graph automatically

```
> plot(Lpres ~ Temp, forbes)
> abline(m1)
```



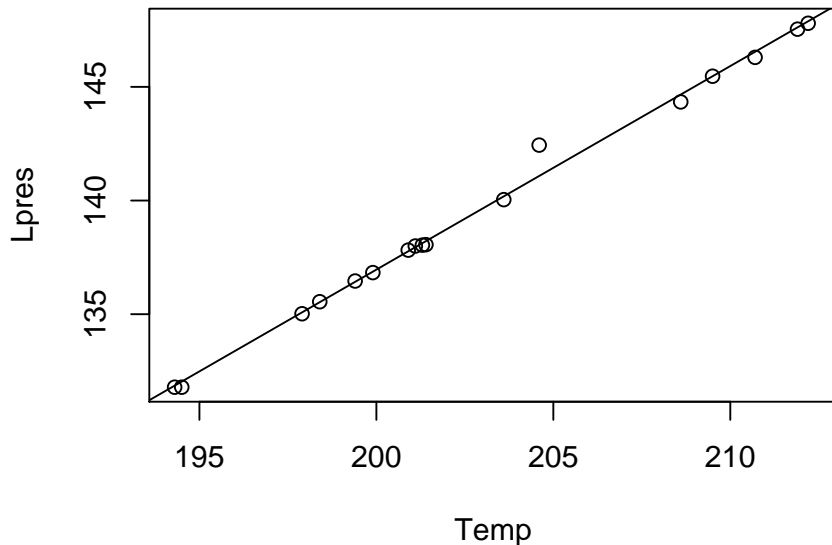
Draw a graph but you size it

```
\<<two,echo=FALSE,height=4,width=5,fig=TRUE,include=FALSE>>=  
plot(Lpres~Temp,forbes)  
abline(m1)  
\@
```

```
\vspace{-.5in}
```

```
\includegraphics[width=\textwidth]{presentations2-two.pdf}
```

Create a graph, but you size it



- Imitate other Beamer files when making first presentation.
- Many pictures, short phrases
- Simple styles/options are generally better
- Be consistent (don't *keep* **changing**)
- Beware of gratuitous use of color; some people can't see colors

- Have full references available.
- Your name, the date, and contact info should be included
- Graphs need axis labels and *need to be discussed*
- Generally, keep math to a minimum
- Tabled data should be relevant and properly laid out

The beginning of the beamer manual is a good reference for structuring your beamer document.