This is a Beamer presentation made using R Markdown

`rmarkdown::beamer_presentation`

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Section 1

Basics

Setting up the YAML

R Markdown YAML

```
output: beamer_presentation
```

Also check out the `binb` R-package.

Section 2

Clean syntax

Example: Writing mathematics is as usual

Consider a general linear mixed models:

$$\boldsymbol{y} = \mathbf{X}\beta + \mathbf{Z}\boldsymbol{u} + \boldsymbol{e}$$

where

- $\boldsymbol{y}$ is a $n \times 1$ vector of observations,
- $\mathbf{X}$ is a $n \times p$ design matrix for fixed effects β,
- $\mathbf{Z}$ is a $n \times q$ design matrix for fixed effects $\boldsymbol{u}$, and
- $\boldsymbol{e}$ is a $n \times 1$ vector of random error.

Simplified content writing: itemized list

Plain LaTeX

```
\begin{itemize}
\item
  $\boldsymbol{y}$ is a
  $n\times 1$ vector of
  observations,
\item
  $\mathbf{X}$ is a $n\times p$
  design matrix for fixed effects
  $\boldsymbol{\beta}$$,
\item
  $\mathbf{Z}$ is a $n\times q$
  design matrix for fixed effects
  $\boldsymbol{u}$, and
\item
  $\boldsymbol{e}$ is a $n\times 1$
  vector of random error.
```

Markdown syntax

```
* $\boldsymbol{y}$ is a $n\times 1$
  vector of observations,

* $\mathbf{X}$ is a $n\times p$
  design matrix for fixed effects
  $\boldsymbol{\beta}$,

* $\mathbf{Z}$ is a $n\times q$
  design matrix for fixed effects
  $\boldsymbol{u}$, and

* $\boldsymbol{e}$ is a $n\times 1$
  vector of random error.
```

Make new frame

Instead of

LaTeX

```
\begin{frame}{Title}
Content
\ end{frame}
```

do

markdown

```
## Title
Content
```

In the **R Markdown YAML** set:

```
output:
  beamer_presentation:
    slide_level: 2
```

- then a heading at slide level starts a new frame; or
- a horizontal line, like `---`, starts a new frame.

Multi-column output

Stick with LaTeXor Pandoc syntax (both will work)

Plain LaTeX

```
\begin{columns}
\begin{column}{0.5\textwidth}
Column 1 content
\end{column}
\begin{column}{0.5\textwidth}
Column 2 content
\end{column}
\end{columns}
```

Pandoc syntax

```
:::: columns
::: column
Column 1 content
:::
::: column
Column 2 content
:::
::::
```

Section 3

Appearance

Pandoc options

- See Pandoc manual for all the variables available to modify in the YAML.
  - E.g. `aspectratio: 43` for 4:3 ratio.
- See also Producing slide shows with pandoc
  - E.g. Speaker notes

Beamer frame atributes

Beamer frame atributes {.shrink}

- The frame attributes in Section 8.1 of the Beamer User's Guide can be used if inserted after header level as {.attribute} where attribute replaced with
  - allowdisplaybreaks
  - allowframebreaks
  - b
  - c
  - t
  - environment
  - label
  - plain
  - shrink
  - standout
  - noframenumbering

Section 4

Animation

Animation

- First step

Animation

- First step
- Second step

Animation

- First step
- Second step
- Third step

Animation

- First step
- Second step
- Third step

Animation

- First step
- Second step
- Third step

You can also include pauses with . . .