

Bayesian Statistics and Computing

Lecture 6: Reproducible learning via `rmarkdown`

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Why R markdown?

- Much **easier** *syntax* ~~syntax~~ than LaTeX or Html
- Dynamic: easy to update and work with the R codes
- Multiple output formats
- Makes presentation easy
- Keep me (and my group) organized of weekly research progress reports, slides, papers etc.

Header 1

Header 2

Creation of lists

unordered

- Item 1
- Item 2

ordered

1. Item 1
2. Item 2
 - item 2a
 - item 2b

Inline codes

Write inline **R** code using backtick quotes: `forecast()`.

Equations

- $x + y = z$ for inline equations
-

$$x^2 + \sqrt{y} = \epsilon$$

Hyperlink

1. R markdown website
 2. R markdown guide
-

R code with errors

```
x > 1
```

```
## Error in eval(expr, envir, enclos): object 'x' not found
```

R code chunks with plot

See Hong, Pinson, and Fan (2014).

```
library(tscompdata)
library(ggplot2)
library(forecast)
autoplot(gefcom2012_temp$`1`) + ggtitle("Temperature") + xlab("Time")
```

Interactive plots

You can use interactive plots for if you output html documents.

R code chunks with table

```
knitr::kable(head(iris))
```

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
5.1	3.5	1.4	0.2	setosa
4.9	3.0	1.4	0.2	setosa
4.7	3.2	1.3	0.2	setosa
4.6	3.1	1.5	0.2	setosa
5.0	3.6	1.4	0.2	setosa
5.4	3.9	1.7	0.4	setosa

Plain code block

```
library(forecast)
library(ggplot2)
autoplot(AirPassengers)
```

References

Hong, Tao, Pierre Pinson, and Shu Fan. 2014. "Global Energy Forecasting Competition 2012." *International*

Journal of Forecasting 30 (2): 357–63.