

# Dynamic Reporting

## Using R and Sweave/Knitr in $\text{L}\text{a}\text{T}\text{E}\text{X}$

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Department of Sociology  
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October 2, 2018

# Outline

Dynamic  
Reporting

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LaTeX

Dynamic

Sweave

**1** LaTeX for Document Preparation

2 Dynamic Report

3 Sweave

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- a typesetting system released in 1978
- low-level commands rarely used directly by users
- Donald Knuth
  - a computer scientist, mathematician, professor emeritus at Stanford
  - *Art of Computer Programming*
  - wrote Tex while the second volume was being typeset
  - [Tex] is "intended for the creation of beautiful books - and especially for books that contain a lot of mathematics".

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- “a document preparation system and document markup language”
- $\text{\TeX}$  typesetting program for formatting its output
- written in the  $\text{\TeX}$  macro language by Leslie Lamport
- a standalone document preparation system
- get a flavor of it?

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- “is an up-to-date implementation of T<sub>E</sub>X/L<sup>A</sup>T<sub>E</sub>X and related programs for Windows”
- it can be downloaded from [MikTeX website](#)
- proT<sub>E</sub>Xt: “an easy-to-install TeX distribution for Windows, based off MikTeX”

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  - GNU project and the free software movement
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- ESS (*Emacs speaks statistics*) is what you want to have for GNU Emacs
  - click the download tab
  - go to “ESS for MS Windows and Mac OS X”
- Example



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- can be downloaded at the [TexMaker](#) website
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- “based on the structure of your documents (WYSIWYM)”
- “not simply their appearance (WYSIWYG)”
- can be downloaded at the [LyX](#) website
- Example (this pdf file)

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# Traditional Workflow in Teaching Social Statistics

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LaTeX

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Sweave

- The old way
  - Run SPSS, SAS, Stata, R, etc.
  - Copy results from output window
  - Paste into a text processor
- Problems?
  - error-prone
  - tedious
  - inefficient

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# Get all the tools

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- Install [MikTeX](#) a typesetting system for Windows and an implementation of TeX.
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# Nitty-Gritty: Get the Path Parameter for R

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LaTeX

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Sweave

- In R, type `"R.home("bin")"` to find the path to Rscript application file.

# Nitty-Gritty: Activate R in LyX

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LaTeX

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Sweave

- In LyX 2.0 and above
  - go to tools
  - preferences
  - paths
  - enter the path information from above
- Pitfalls
  - use“\” in the path parameter
  - no space after the semicolon
  - clike apply and then save
  - click reconfigure

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- In LyX, go to
  - document
  - settings
  - Modules
  - select sweave/knitr
  - Then click save and then ok.
- use the directory where the Lyx file sits as the working directory
  - read
  - save
  - cannot use `setwd()`

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- use the directory where the Lyx file sits as the working directory
  - read
  - save
  - cannot use setwd()



# Nitty-Gritty: Activate the Sweave Package

Dynamic  
Reporting

Jun Xu

LaTeX

Dynamic

Sweave

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# RSweave Syntax

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Dynamic

Sweave

```
« » =
```

```
your R syntax here
```

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@
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