

V482 - Statistical Data Analysis class

Practical information

Class dates

The V Modul will take place from 20th to 30th of April 2015

Exams

Coming soon

Contacts

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Resources

Material

BOOK: McKillup, **Statistics Explained - An Introductory Guide for Life Scientists**

BOOK: Popper, K. R. (1968) [The Logic of Scientific Discovery](#) . London: Hutchinson

BOOK: Popper, K. R. (1935) [Logik der Forschung](#). Springer, Wien

BOOK: Jaynes, E. T. (2003) [Probability Theory](#). Cambridge University Press. A somewhat different view on probability and statistics.

LaTeX and RStudio

Brief introduction to LaTeX

LaTeX is a language that allows you to create beautifully formatted text documents (.pdf or .ps) without too much effort. RStudio provides a good enough environment for writing LaTeX documents but if you want something specific to LaTeX you can check e.g. [Kile](#).

The internet is full of tutorials to start with LaTeX, see e.g.

- <http://en.wikibooks.org/wiki/LaTeX>
- <http://latex.tugraz.at/latex/tutorial>
- <http://www.latex-tutorial.com/tutorials/>

You can of course copy-paste your R code in LaTeX (using e.g. the package [listings](#) for syntax formatting) and save graphics to include, but here the advantage is:

This enables the creation of dynamic reports that are updated automatically if data or analysis changes.

This means Sweave is very useful for "on going" projects, where things are expected to change, as well as quick notes on something you are working on.

Ref:

<https://support.rstudio.com/hc/en-us/articles/200552056-Using-Sweave-and-knitr>

LaTeX in RStudio

First, install the [knitr](#) package:

```
> install.packages("knitr")
```

Set knitr as default for Rnw files: <https://support.rstudio.com/hc/en-us/articles/200532247>

Open a new file of type "R Sweave", it will automatically contain:

```
\documentclass{article}
```

```
\begin{document}

\end{document}
```

This is the basic of a LaTeX document. You can write something like:

```
\documentclass{article}

\usepackage[utf8]{inputenc}

\usepackage{framed}

\usepackage{graphicx}

%\usepackage{hyperref}

%\usepackage[hdivide={2cm, *, 2cm}, vscale=0.85]{geometry}

%\usepackage[backend=bibtex]{biblatex}

%\usepackage{listings}


\title{Correlation analysis of the wildlings' deaths and the rise of white walkers}

\author{John Snow}

\date{}

\begin{document}

\maketitle

\section{Introduction}

\end{document}
```

save the file (the automatic file extension will be .Rnw) and try to compile the file ("Compile PDF" button). You should be prompted a PDF: congratulations, this is your first LaTeX file!

Sweave

Readapting the file <http://leisch.userweb.mwn.de/Sweave/example-1.Snw> to work with knitr, we can add this example of including a plot in LaTeX from a R built-in dataframe:

```
\begin{figure}

<<boxplot, eval=TRUE, echo=FALSE>>=

boxplot(Ozone ~ Month, data = airquality)

@

\caption{This is some caption.\label{lab}}

\end{figure}
```

<http://www.statistik.lmu.de/~leisch/Sweave/Sweave-manual.pdf>

Links

Coming soon