

L^AT_EX for Economics and Business Administration (Part II)

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Introduction

Previously

- Pros and cons of \LaTeX
- Why bother with learning \LaTeX
 - for consistent/structured lay-out
 - better automation of workflow
- Compiling, referencing, formula's, text control

This session we look at

- Packages (controlling the preamble)
- Figures (how to insert them?)
- Tables (inserting plain tables)
- Automatizing tables (complex tables)
- Better looking references
- Making slides

Note: we will only touch upon these subjects Note2: All materials can be downloaded from <http://thomasdegraaff.nl/LaTeX-Workshop/notes/02-more-notes.html>

Packages, packages, and packages

The use of packages

- Typically, packages are used to change appearance
- To ensure no errors, usually opt for the full installation or have access to internet
- There are lots of them, see [CTAN](#)
- Often used packages
 - amsmath, graphicx, subfig, marvosym, microtype, booktabs, lipsum, pdfscape, fullpage, natbib
- format:

```
1 \usepackage[colorlinks=true,citecolor=magenta,  
2 urlcolor=magenta]{hyperref}
```

The use of classes

- Typically one uses the `article` class
- However, there is as well a `book`, `mininal`, `report`, `beamer` class etcetera
- Specific user written classes are `memoir` and `elsarticle` classes
- Classes come with options such as

```
1 \documentclass[12pt, a4paper]{article}
```

General structure

```
1 \documentclass[twocolumn, a4paper]{article}
2 % Preamble: how should it look like
3 \usepackage{multicol, lipsum}
4 \usepackage[english, german]{babel}
5 \begin{document}
6     % Body: the real contents
7     \lipsum
8 \end{document}
```


Exercise: fluff it up!

With a cool paper:

1. Use the `scrartcl` class with options: `11pt`, `abstracton`, `notitlepage`
2. Now add option `parskip` (and perhaps `twocolumn`)
3. One by one add the following packages and see what happens:
 - 3.1 `package fullpage`
 - 3.2 `package fourier`
 - 3.3 `package setspace` with command thereafter `doublespace`

natbib & biblatex

Default format is BibTeX—customizable (however limited).

Default is good (except: use natbib!)

If you want to customize quite a lot: biblatex package!

```
1 \usepackage[style= authoryear-icomp,  
2         backend=bibtex,  
3         natbib=true,  
4         firstinits=true,  
5         backref=true,  
6         maxnames=2,  
7         maxbibnames=10]  
8         {biblatex}  
9 \bibliography{mybib.bib}  
10  
11 \printbibliography
```

Exercise: cite or perish

Create a reference list by:

1. citing some people, note:

```
1 \cite{refid} % in text citation  
2 \citep[][]{refid} % between parentheses  
3
```

2. Indicate where the bibliography should be

Figures

Figures

Figures/graphs and tables in a floating environment

```
1 \begin{figure}[htbp!]{  
2     \center  
3     \includegraphics[] {ligatures_latex}  
4     \caption{A figures about ligatures}  
5     \label{fig:ligatures}  
6 \end{figure}
```

Figures can be .pdf, .jpg, .png and a whole lot of other types
(but not bitmaps!)

Exercise: insert cool picture

1. Insert the file `Powerphluff.jpg` and use the command

```
1 width = 0.8\textwidth
```

to control the size

2. Give the figure an appropriate caption (something perhaps with source)

Tables

Tables

```
1 \begin{table}[t!]  
2     \caption{This is the caption}  
3     \begin{tabular}{lcr}  
4         \hline  
5         first & row & data \\  
6         second & row & data \\  
7         \hline  
8     \end{tabular}  
9     \label{tab:example}  
10 \end{table}
```


Internal references are a breeze

```
1 \label{}           % Label something
2 \ref{}             % Refer to that
3 \footnote{}        % Add footnote
4 \thanks{}           % For in title
5
```

dcolumn and booktabs package

```
1 \usepackage{booktabs, dcolumn} % in preamble
2 \newcolumntype{d}{D{.}{.}{2}} % in preamble
3 \begin{table}[t!]
4     \caption{This is the caption}
5     \begin{tabular}{l d d}
6         \toprule
7         Student & Grade 1 & Grade 2 \\
8         \midrule
9         Mike & 7.8 & 9 \\
10        Andrea & 6 & 8.2 \\
11        \bottomrule
12    \end{tabular}
13    \label{tab:example2}
14 \end{table}
```

Exercise: Create a lame table

Create the following table

Table 1: Average grades

First name	Surname	Grade
Sherlock	Holmes	7.9
John H.	Watson	8.1

Some R code

```
library(stargazer)

control <- c(4.17, 5.58, 5.18, 6.11, 4.50,
             4.61, 5.17, 4.53, 5.33, 5.14)
treated <- c(5.81, 6.17, 5.41, 6.59, 5.87,
             5.83, 6.03, 4.89, 4.32, 6.69)
group <- gl(2, 10, 20, labels = c("Control", "Treated"))
weight <- c(control, treated)
m1 <- lm(weight ~ group - 1)
m2 <- lm(weight ~ group)

stargazer(m1, m2, out = "./table.tex",
          title = "My experiment", keep.stat=c("rsq", "n"),
          no.space=TRUE, align = TRUE)
```

which saves a file "table.tex" to the same directory

Table 2: My experiment

	<i>Dependent variable:</i>	
	weight	
	(1)	(2)
groupControl	5.032*** (0.209)	
groupTreated	5.761*** (0.209)	0.729** (0.295)
Constant		5.032*** (0.209)
Observations	20	20
R ²	0.987	0.253

Note:

*p<0.1; **p<0.05; ***p<0.01

Exercise: Be as lazy as possible!

Now

```
1 \input{Table.tex}
```

produces your table

- Do it!

Slides

Slides are typically made with the beamer class

You can change the beamer style by:

```
1 \usetheme{Hannover}  
2 \usecolortheme{dove}  
3  
4 % to remove those navigation symbols  
5 \beamertemplatenavigationsymbolempty  
6
```

(<https://www.hartwork.org/beamer-theme-matrix/> gives all possible combinations

Exercise: Create slides or powerphluff!

Create a couple of slides containing at least

- Titlepage
- Introduction
- Conclusion

Conclusion

In conclusion

- \LaTeX is a very powerful structured language especially suitable for
 - large complex documents;
 - documents with many formula's.
- Big advantage: you really need to think
- Not for every one; steep learning curve, but
- large community (google it)
- Markup language (especially, Markdown) becomes more and more wide-spread: \LaTeX is a good start