

Forschungskolleg / ACSE Exercise 2

Tools around LaTeX

23.10.2012

LAST WEEK

Any Questions?

Agenda

- **LaTeX – Some further hints ...**
- **BibTeX – Some further hints ...**
- **Figures – Handling figures in LaTeX**
- **JabRef – Management of BibTeX entries**
- **Lyx – A WYSIWYM-Frontend for LaTeX**

LITERATURE

- [1] LaTeX @ WikiBooks
<http://en.wikibooks.org/wiki/LaTeX/>

- [2] LaTeX Page Styles
<http://www.personal.ceu.hu/tex/pagestyl.htm>

LATEX

Some further hints

Dates

Easy use of the **today variable**.
Submitted on `\today`.

Submitted on Tuesday, October
23rd, 2012.

Or, **when language is** set to
German:
Eingereicht am `\today`.

Eingereicht am Dienstag, 23.
Oktober 2012.



Sections

```
\section{A Section}
```

1. Section

```
\section*{A Section not to be numbered}
```

Will also not appear in the table of contents.

```
\section{Next Section}
```

2. Next Section



Appendix

`\section{A Section}`

1. Section

`\appendix`

`\section{Section in Appendix}` **A. Section in Appendix**



References

Besides numbers of figures, tables, sections, ... you can also refer to **page numbers**:

See figure~\ref{fig:test} on page~\pageref{fig:test}.



See figure 1.2 on page 8.

Page Numbering

- Specify the **style of page numbers**
- `\pagenumbering{arabic}`
 - `arabic`: Arabic numerals (1, 2, 3, ...)
 - `roman`: Lowercase roman numerals (i, ii, iii, iv, ...)
 - `Roman`: Uppercase roman numerals (I, II, III, IV, ...)
 - `alph`: Lowercase letters (a, b, c, ...)
 - `Alph`: Uppercase letters (A, B, C, ...)
- You can even **use multiple styles** within the same document

Your Own Commands

Place holder for content.

- A typical command, I define often (in header):

```
% requires \usepackage{color}
\newcommand{\todo}[1]
  {\color{red}\textbf{TODO #1}\color{black}}
}
```
- **Usage:**
Bla bla.\todo{Write something on X here.} Bla.




Bla bla. **TODO Write something on X here.** Bla.

Hyphenation

- Sometimes, hyphenation won't work at all:
Overfull \hbox (305.0842pt too wide) in paragraph
at lines 20--22

- Means that somewhere a word is longer than its current line:

Especially URLs are sometimes tricky when breaking to new lines: `http://www.somedomain.com/` 
You know that? Especially URLs are sometimes tricky when breaking to new lines:
`http://www.somedomain.com/` You know that? Especially URLs are sometimes tricky
when breaking to new lines: `http://www.somedomain.com/` You know that? Especially
URLs are sometimes tricky when breaking to new lines: `http://www.somedomain.com/`
You know that? Especially URLs are sometimes tricky when breaking to new lines:
`http://www.somedomain.com/`

- *% Marks overful lines with black bar.*
`\setlength{\overfullrule}{4pt}`

LaTeX and Math

- One of the top most advantages of LaTeX are the **math packages**

- `\usepackage{mathtools}`

- **In text**, use the `$` delimiter:

`$4 * 3 = 12$`

- **Equations:**

```
\begin{equation}
  4 * 3 = 12
  \label{equ1}
\end{equation}
```

$$4 * 3 = 12$$

LaTeX and Math

- **Quantors** [1]:

`\forall x \in X, \quad \exists y \leq \epsilon`

$$\forall x \in X, \quad \exists y \leq \epsilon$$

- **Greek letters** [1]:

`\alpha, \beta, \gamma, \Gamma, \pi, \Pi, \phi, \varphi, \Phi`
`\varphi, \Phi`

$$\alpha, \beta, \gamma, \Gamma, \pi, \Pi, \phi, \varphi, \Phi$$

LaTeX and Math

- **Fractions [1]:**

$$\text{\frac{n!}{k!(n-k)!}} = \text{\binom{n}{k}}$$

$$\frac{n!}{k!(n-k)!} = \binom{n}{k}$$

- **Sums [1]:**

$$\text{\sum_{i=1}^{10} t_i}$$

$$\sum_{i=1}^{10} t_i$$

BIBTEX

Some further hints ...

BibTeX Citations

Citation in document:

```
\cite{Rei2012}
```

[RWB+12] or [1]

Citation with page number:

```
\cite[pp. 1-3]{Rei2012}
```

[RWB+12, p. 1-3] or [1, p. 1-3]

Multiple citations:

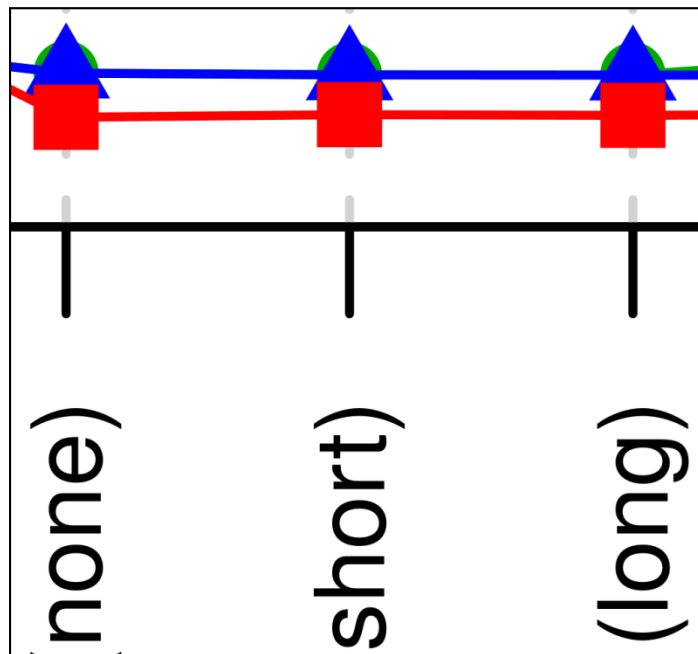
```
\cite{Rei2012,Ass03,Ass04}
```

[RWB+12,Ass03,Ass04] or [1-3]

FIGURES

Handling Figures in LaTeX

Vector vs. Bitmap Graphics



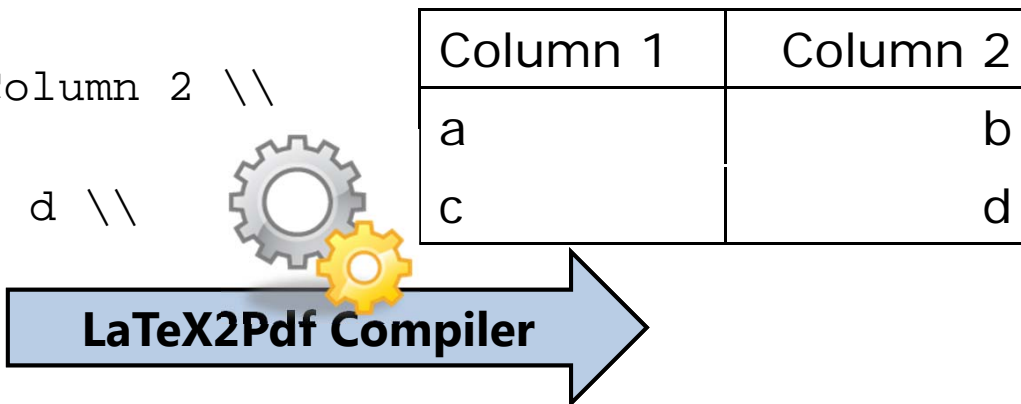
Vector vs. Bitmap

- LaTeX **output** is **often released digitally**
 - **Users can zoom in!**
 - Use **vector graphics wherever possible**
 - Or use **high resolution** bitmaps!
- You can **export PDF files** from
 - Excel
 - PowerPoint
 - Inkscape
- Use **bitmaps only when necessary** (e.g. Screenshots)

Tables

- **Tables can be annoying** in LaTeX:

```
\begin{table}[h]
  \begin{tabular} { | l | r }
    \hline
    Column 1 & Column 2 \\
    \hline
    a & b \\
    c & d \\
    \hline
  \end{tabular}
  \caption{Text}
  \label{table1}
\end{table}
```

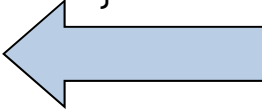


Column 1	Column 2
a	b
c	d

Tables

- You can **use figures instead**
 - Create your table with Excel (or some other tool)
 - **Export it as a PDF**

```
\begin{table}[h]  
  \includegraphics[width=\textwidth]  
    {figures/tab1.pdf}  
  \caption{Some text.}  
  \label{table1}  
\end{table}
```



Will be labelled as a table
as it is defined in a table
environment.

JABREF

Management of BibTex entries

JabRef

- **Reference manager** for BibTeX
- **Platform-independent** (Java)
- <http://jabref.sourceforge.net/>
- **Just download and start it!**

JabRef

File Edit View BibTeX Tools Web search Options Help

Search

Search All Fields

Clear

Incremental

Float

Filter

Settings

Groups

All Entries

- Cod
 - Ingestion
 - Energetics
 - Modelling
- Salmon
 - Modelling
- Rotifer
 - Modelling
 - Enrichment
 - Water quality
 - Resting eggs
- Kyb
- DHA
- Artemia
- Modelling
 - DEB
 - Assimilation
- Ciliates

Settings

#	Author	Title	Year	Journal	Timestamp
22	Anderson et al.	Metabolic stoichiometry and the fate of excess carbon and nutrients i...	2005	The American ...	2005.09...
23	Ando and Kobayashi	Positional distribution of docosahexaenoic acid in triacyl-sn-glycero...	2004	Aquaculture Re...	
24	Ando et al.	Positional distribution of n-3 highly unsaturated fatty acids in triacyl...	2004	Aquaculture	
25	Ang and Petrell	Pellet wastage, and subsurface and surface feeding behaviours associ...	1998	Aquacultural E...	
26	Anon.	Tall og fakta 2005. {S}tatistikkbilag til {FHL}s årsrapport	2005		2006.09...
27	Anras and Lagardère	Measuring cultured fish swimming behaviour: first results on rainbow...	2004	Aquaculture	
28	Aparici et al.	Sex allocation in haplodiploid cyclical parthenogens with density-de...	1998	American Natu...	2006.04...
29	Aragao et al.	Amino acid pools of rotifers and Artemia under different conditions: ...	2004	Aquaculture	
30	de Araujo and Hagiwara	Application of enzyme activity test for the diagnosis of rotifer mass c...	2001	Bulletin of the ...	2005.11...
31	de Araujo et al.	Effect of unionized ammonia, viscosity and protozoan contamination ...	2001	Hydrobiologia	2005.11...
32	de Araujo et al.	Effect of unionized ammonia, viscosity and protozoan contamination ...	2000	Aquaculture Re...	2005.11...
33	Attramadal	Water quality and microbial environment in a flow through and a recir...	2004		2006.08...
34	Baird et al.	Modelling the interacting effects of nutrient uptake, light capture and...	2001	Journal of Plan...	2005.09...
35	Balchen	Thirty years of research on the application of cybernetic methods in f...	1999	Modeling, Iden...	2006.06...
36	Balchen	Modeling, prediction, and control of fish behavior	1979		2006.06...
37	Balompapueng et al.	Resting egg formation of the rotifer \textit{Brachionus plicatilis} usin...	1997	Fisheries Science	2005.12...
38	Balon	The theory of saltatory ontogeny and life history models revisited	1985		
39	Beckenville, Bridges and K	Development and evaluation of microparticulate diets for early weani...	2000	Aquaculture N...	

Required fields Optional fields General Abstract Review BibTeX source

Article

Author: Claudia Arago and Luis E. C. Conceicao and Maria Teresa Dinis and Hans-Jorgen Fyhn

Title: Amino acid pools of rotifers and Artemia under different conditions: nutritional implications for fish larvae

Journal: Aquaculture

Year: 2004

Volume: 234

Pages: 429--445

Bibtexkey: arago04

Manage

Toggle abbreviation

Status: BibTeX key is unique.

[<http://upload.wikimedia.org/wikipedia/commons/8/84/Jabref-2.2-screenshot.png>]

Features

- **Easy**
 - **Creation** of
 - **Maintenance** of
 - **Search** for**BibTex entries**
- **Link** from BibTex entries **to PDF files**
- **Source code** editing
- **Easy Export/Import** by copy and paste
- Management of **reviews**
- Saves data as **bib files**

LYX

**A WYSIWYM Editor for
LaTeX**

LyX

- LaTeX is not a WYSIWYG-Editor (What you see is what you get)
 - Quasi-WYSIWYG
- Alternatively: WYSIWYM (What you see is what you mean)-Frontend
- LyX is a **WYSIWYM-Frontend for LaTeX**
 - Uses its own document format (*.lyx)
 - LyX-Code is compiled into LaTeX
 - LyX is a LaTeX precompiler
- <http://www.lyx.org/>

LyX: ~\Documents\Neues_Dokument1.lyx (geändert)

Datei Bearbeiten Ansicht Einfügen Navigieren Dokument Werkzeuge Hilfe

Abschnitt

Gliederung

Inhaltsverzeichnis

Filter:

- 1 Introduction
 - 1.1 First Section
 - 1.2 Second Section

Sortieren

Behalten

Schrift: Serifenlos, Fett, Größer

1 Introduction

Some Text

1.1 First Section

Some Text

1.2 Second Section

LyX

- Configuration of used document class
(Document → Settings / Dokumente Einstellung)
- **Easy moval** of whole **sections** and **paragraphs**
- **Easy work** with **multiple lyx files** (e.g. for each section/chapter)
- Integrated **spell checker**
- Integrated **change management**
- Integrated **formula editor**

EXERCISE

**No exercise sheet
this week**