

ECON 6009
Graduate Seminar
Memorial University of Newfoundland

Lecture 3-Introduction to Latex (II)

INTRODUCTION

How to type math

How to make cross-references

How to use grouping (for example to change fonts)

How to enter tables

How to enter citations (Bibtex entries) and how to
generate a reference list

Note: most of these notes come from the suggested guides by Oetiker et al. (2003) and Doob (2000)

Math

Two main ways:

- In-line
- Displayed

Math

- So you can typeset mathematical notation
- Whether it is in-line as here:

$x_{2}+y^{3}=1$ or as a display: \backslash

$$x_{2}+y^{3}=1$$

Math

- You can also use:

```
\begin{equation}
```

```
W_{i}\prime =(1-\gamma )W_{i}+\gamma  
bid_{1i} \label{anchoring}
```

```
\end{equation}
```

Equation~\ref{anchoring} can now be cross-referenced in the text

Math

- This will allow you to number and then cross-reference your displayed equations

Math

I also like how `\TeX` handles fractions such as `$$\{a+b \over c+d\}$$`

LaTeX Warning: Label(s) may have changed. Rerun to get cross-references right.

Grouping

We have been using grouping for some time
now

`\ref{aaa}`

`\cite{aaa}`

`\nocite{aaa}`

`\section{aaa}`

Etc.

Grouping

You have to remember to close the } once the grouping no longer applies!

More uses:

- Changing font
- Footnotes
- Your own macros

Grouping

Compare:

This would be my `{\it first}` reference to the literature.

This would be my `\it first` reference to the literature.

This would be my `\textit{first}` reference to the literature.

Try

<https://www.writelatex.com/376182fwtpfg>

Environments

```
\begin{environment}
```

```
text
```

```
\end{environment}
```

Many examples. Consider the **Itemize**,
Enumerate, and **Description**
environments

```
\flushleft
```

```
\begin{enumerate}
```

```
\item You can mix the list environments as needed:
```

```
\begin{itemize}
```

```
\item But it might start to look silly, so keep it within reason.
```

```
\item[-] With a dash.
```

```
\end{itemize}
```

```
\item Also remember: avoid itemised lists in our final output if it is a  
formal article and do not forget that
```

```
\begin{description}
```

```
\item[Stupid] things will not become smart because they are in a list.
```

```
\item[Smart] things, though, can be in some types of documents  
presented beautifully in a list.
```

```
\end{description}
```

```
\end{enumerate}
```

Tables

Another useful environment is the tabular environment

The tabular environment can be used to typeset professionally looking tables with optional horizontal and vertical lines (VADE RETRO for us!!!)

Tables

LATEX determines the width of the columns automatically by default but you can change that (column by column even)

LATEX will also position (*float*) nicely the tables, so that there will be no awkward half empty pages and of course no broken tables (unless you use `supertabular` for multipage tables)

Tables

LATEX helps you:

- add captions
- Label and cross-reference the tables
- Number and renumber them automatically as needed
- Properly list them in a List of Tables (in a big report or book)

Tables

```
\begin{tabular}[pos]{table spec}
```

l for leftaligned text, r for right-aligned text, and c for centred text;

p{width} for a column containing justified text with linebreaks, and | for a vertical line.

pos specifies the vertical position of the whole tabular environment, t, b and c indicate to align at the top, bottom or center of the environment.

Within tabular

& jumps to the next column

\\ starts a new line and

\hline inserts a horizontal line

You can add partial lines by using the `\cline{j-i}` where j and i are the column numbers the line should extend over

Floating tables

```
\begin{table}
```

```
\centering
```

```
\begin{tabular}{l|r r r }
```

```
Item & Quantity & Another & Yet another\\\hline
```

```
Widgets & 42 & 4 & 4 \\
```

```
Gadgets & 13 & 4 & 4
```

```
\end{tabular}
```

```
\caption{\label{tab:widgets}An example table.}
```

```
\end{table}
```

Floating Tables and Figures

`\begin{figure}[placement specifier]`

`\begin{table}[placement specifier]`

Floating Tables and Figures

The placement specifier [`!hbp`] allows LATEX to place the table right here (h) or at the bottom (b) of some page or on a special floats page (p), and all this even if it does not look that good (!). If no placement specifier is given, the standard classes assume [`tbp`].

Floating Tables and Figures

If L^AT_EX is not placing the floats as you expected, it is often only one float jamming it all.

You can give LaTeX single-location placement specifiers but this causes problems.

You should never use [h], it is so bad that in more recent versions of LaTeX, it is automatically replaced by [ht].

Summary of placement options

Spec	Permission to place the float ...
h	<i>here</i> at the very place in the text where it occurred. This is useful mainly for small floats.
t	at the <i>top</i> of a page
b	at the <i>bottom</i> of a page
p	on a special <i>page</i> containing only floats.
!	without considering most of the internal parameters ^a which could stop this float from being placed.

^aSuch as the maximum number of floats allowed on one page.

Tables

You should have captions for all floats and cross-reference them in the text:

```
\caption{caption text}
```

Optionally, for longer types of documents, such as your MA thesis, you would need

```
\listoffigures and \listoftables
```

Hint: If the actual caption is too long, consider also a shorter one:

```
\caption[Short]{LLLLLoooooonnnnngggg}
```

Fragile commands

Note:

Some commands fail when used in the argument of `\section-like` commands. These are called fragile commands.

Fragile commands are for example `\footnote` or `\phantom`.

What these fragile commands need to work, is protection (don't we all?). You can protect them by putting the `\protect` command in front of them

```
\section{I am considerate \protect\footnote{and protect my  
footnotes} }
```

Entering references

```
\bibliographystyle{chicago}
```

```
\bibliography{ECON6009}
```

```
\bibliographystyle{chicago}
```

```
\bibliography{ECON6009,ECONOMETRIC  
S}
```

Entering references

```
\bibliographystyle{chicago}
```

```
\bibliography{ECON6009}
```

```
\bibliographystyle{chicago}
```

```
\bibliography{ECON6009,ECONOMETRIC  
S}
```

Questions?

Any questions?

Any suggestions?

Any complaints?