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# DissLatexTips

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## Tips

- Movable objects (like the most pictures) are hardly controllable on Latex in kind of positioning.
- With the command `\FloatBarrier` (from package `\usepackage{placeins}`) all moveable objects will be displayed before this command.
- The package `\usepackage{float}` introduces a new positioning flag H additionaly to the current one (h, t, p ...). This flag will display the object at the exactly same place as it is in the tex-script.
- If instead of a long title a shorter version should appear in the indices (like table of content but also in a page header) you should use the following syntax (showed for section)  
`\section[short Version]{The beautiful but incredible long title of the following chapter}`
- A basic formatting can be provided with `\frontmatter` (for the preamble), `\mainmatter` (main part of your document), `\backmatter` (for the acknowledgment and curriculum vitae).
- Formatting
  - ◆ Basics
    - ◇ Fonts are primary divided in serif and sans-serif, where serif are the small lines at the end of a character. Serif fonts looks better, sans-serif fonts are better readable if they are small.
    - ◇ Another difference is the width of the characters. Normal text is written in proportional fonts (where the M needs much more space than the I). Fonts with constant width (mono-space) uses the same space for all letters (and symbols general). They are mostly used in programming, some kind of tables and equations. The advantage is the implicit formatting of the font.
    - ◇ Text in *Italic* is a good method to mark a text. **Bold** should be used rarely, because is very eye-catching (but it is widely used in titles). Underlining shouldn't be used. This formatting comes from the typewriters and other handwritten documents (where other styles are more difficult to create).
  - ◆ Captions and legends of figures and tables should be different from the normal text, so that it is easy to recognize which is which. Normally they are using smaller font sizes and are align centered. The legends is set in italic, title and numbering is not.
  - ◆ The default font of latex is Computer Modern. To use a different font you have first to load the font and specify the family default if necessary. Here the code for the three most common fonts:
    - ◇ Times: `\usepackage{times}`
    - ◇ Helvetica: `\usepackage{helvet}` and `\renewcommand{\familydefault}{\sfdefault}`
    - ◇ Courier: `\usepackage{courier}` `\raggedright` and `=\renewcommand{\familydefault}{\ttdefault}` In the second step you have to set the new default font using the comand `\fontfamily{abr}\selectfont` if the new font should be used for the whole text following or `{\fontfamily{abr}\selectfont Some Text}` just for the text in the breaces. abr is the abbreviation of the font family. The most often used are ptm (Times), phv (Helvetica), pcr (Courier), pbk (Bookman), pag (Avant Garde), ppl (Palatino), bch (Charter), pnc (New Century Schoolbook), pzc (Zapf Chancery) and put (Utopia ).
  - ◆ variable names: italic and serif fonts. Use `$Name :` `$`, to do this. Inside caption and so, which are already italic you have to reverse it (`$\rm Name$`).

- ◆ Equations: Serif fonts. Use `\rm` inside the math-environment to get it. At `eqnarray` you have to repeat `\rm` at each line.
- If the content and preamble shouldn't be counted for the chapter numbering you can use the command `\setcounter{chapter}{0}` before the first chapter to count. With `\setcounter{enumi}{5}` you can change any kind of number items by using the right items inside the brackets.
- If there some chapter numberings look like *3.0.1* you forgot to start the chapter of the upper level As example you used subsection before using a section.
- For a series of equations the environment `eqnarray` is useful. In this case you need some fine tuning for numbering. The following example should explain the most of it.

#### Latex code

```
\begin{eqnarray}
&\&\mathbf{HO\_X-Cycle} \quad \backslash nonumber \backslash \*
\rm OH + O_3 \&\rightarrow\& \rm HO_2 + O_2 \backslash nonumber \backslash \*
\rm HO_2 + O \&\rightarrow\& \rm OH + O_2 \backslash nonumber \backslash \*
\rm O_3 + h\nu \&\rightarrow\& \rm O + O_2 \backslash nonumber \backslash \*
\cline{1-3} \mathbf{2O_3 + h\nu } \&\rightarrow\& \mathbf{3O_2}
\end{eqnarray}
```

#### Result

HOx - Cycle

$OH + O_3 \rightarrow HO_2 + O_2$

$HO_2 + O \rightarrow OH + O_2$

$O_3 + h\nu \rightarrow O + 2O_2$

-----  
 $2O_3 + h\nu \rightarrow 3O_2$

- The package `mhchem` is useful for chemical reactions, since it may handle things like `\ce{C + H2O <=> CO + H2}` directly.
- Postscript-files are the only (god) way to include pictures. There are two ways: `.ps` are the classic one, where information about the page (eg: it's a A4-page) is included (in this case they are ready to print); `.eps` is the other one, where no page information is included but a as called bounding-box, which defines a border around the objects. It isn't difficult to change this bounding-box with a text-editor.
  - ◆ To see only a part of the postscript figure you can cut it directly inside Latex.  
`\includegraphics[clip,viewport=35 130 590 490]{epsfile.eps}`
  - ◆ To change the orientation of a Postscript file use.  
`\includegraphics[angle=-90]{psfile.ps}`
  - ◆ Zooming is also provided, where you can use all kind of lengths which are available in Latex.  
`\includegraphics[keepaspectratio,width=\columnwidth]{psfile.ps}`

The example dissertation includes to all used packages a small explanation.

-- JoergMaeder - 20 Dec 2010

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