

LaTeX

Notes for Professionals

Chapter 3: Header and Footer

Section 3.1: Using fancyhdr and titles packages

```
\documentclass[12pt]{article}
\usepackage{titlpage}
\usepackage{fancyhdr}
\usepackage{graphics}
\usepackage{caption} % For dummy text
\pagestyle{myheadings}
\pagestyle{fancy}
\family{}
\setlength{\headheight}{10pt}
\newcommand{\headrulewidth}{1pt}
\newcommand{\footrulewidth}{1pt}
\familyhead{}{\includegraphics[width=10cm]{example-image-a}}
\familyhead{}{\rightmark}
\familyfoot{}{\leftmark}
\familyfoot{}{\textcopyright xyl}
\familyfoot{}{\toppage}

\begin{document}
\section{First section}
\subsection{One}
\listitem{-3}
\end{section}
\listitem{-9}
\end{document}
```

Chapter 5: Tables

Section 5.1: The tabular environment

The `tabular` environment is the most basic way to create a table in LaTeX and doesn't require any other packages.

```
\begin{tabular}{|l|c|r|}
\hline
left aligned column & center column & right column \\
\hline
text & text & text \\
\hline
text & text & text \\
\hline
\end{tabular}
```

left aligned column	center column	right column
text	text	text
text	text	text

The parameter `{|l|c|r|}` in the example is called the **table specification** and tells LaTeX how many columns there are and how they are supposed to be formatted. Each letter represents a single column. Possible values are:

Character	Meaning
l	left aligned column
c	centered column
r	right aligned column
p{width}	paragraph column with defined width
	pipe character: vertical line
	2 pipes: 2 vertical lines

Cells are separated by the `|` character. A row is ended by 2 backslashes `\`.

Horizontal lines can be inserted by using the `\hline` command.

Tables are always formatted to be wide enough to include all the content. If a table is too big, LaTeX will print overflow `! hbar` warnings. Possible solutions include using the `p{width}` specifier or other packages like `tabularx`.

A table with column headings spanning over several columns can be created using the command `\multicolumn{cols}{pos}{text}`.

```
\begin{center}
\begin{tabular}{|l|c|c|}
\hline
\multicolumn{3}{|c|}{(1+1)=(1+1)} \\
\hline
\end{tabular}
\end{center}
```

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Chapter 6: Typesetting Mathematics

Section 6.1: Basic Equations

One of the biggest advantages of LaTeX is its skill in typesetting equations. Here, the fundamentals of typesetting equations, some of the various packages that can be used, as well as common symbols, are described.

Simple inline Equations

You can do a simple inline equation by using `\in` *equation here*.

For example, you might do

```
\[1+1=2]
which, if we put a little latex text around it, gives

$$1 + 1 = 2$$

```

Numbered, Centered Equations

When writing papers or other documents, it is sometimes preferable to have your equations centered and numbered, as opposed to inline. Then, use the `\begin{equation}` and `\end{equation}` commands.

For example, if we use the code

```
\begin{equation}
\displaystyle 1 + 1 = 2
\end{equation}
```

And add a little text around it, we get

```

$$1 + 1 = 2$$

```

You can remove the numbering of the equation by using `\begin{equation*}` and `\end{equation*}`.

For example, if we use the code

```
\begin{equation*}
\displaystyle 1 + 1 = 2
\end{equation*}
```

and add a little text around it, we get

```

$$1 + 1 = 2$$

```

(though it should be noted you have to use the `\usepackage` for this).

LaTeX Notes for Professionals

50+ pages
of professional hints and tricks

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About

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Chapter 1: Getting started with LaTeX

Version Release Date

LaTeX 2.09 1985-09-01

LaTeX 2e 1994-06-01

Section 1.1: LaTeX Editors

While you can create LaTeX documents using any editor and compiling using the console, there exist several plugins for widely used editors to simplify creating LaTeX documents, and there are specialized LaTeX editors. An [exhaustive list of LaTeX editors](#) is available on [TeX.SE](#) (the StackExchange site, dedicated to TeX, LaTeX & Friends).

The most widely used editors, according to this list, are:

- The [Emacs](#) editor with the [AUCTeX](#) extension.
- The [Vim](#) editor with the [LaTeX-suite](#) plugin.
- [Texmaker](#) – a specialized LaTeX IDE.
- [TeXstudio](#) – another LaTeX IDE.
- [TeXworks](#) – one more LaTeX IDE.

While experienced users of Emacs or Vim may want to stick to their editor (whose plugins provide a host of functionality unavailable elsewhere), a specialized IDE might be easier to install/use for beginners. The last three on the list have a preview function where one can see the results of the compilation of the document.

Additionally, there are online LaTeX tools that can be of use to beginners or people that must collaborate, e.g. [ShareLaTeX](#) and [Overleaf](#).

Section 1.2: Installation and Setup

You can choose between major distributions of LaTeX:

- [TeX Live](#) (Windows, Linux, and OS X), the standard, cross-platform distribution.
- [MacTeX](#) (Mac) A packaged version of TeX Live made for OS X with some Mac-specific tools
- [MiKTeX](#) (Windows) A separate distribution entirely that

All distributions are more or less equivalent in an ideal world. TeX Live has the advantage of being available on all platforms and thus has much better community support. MiKTeX can take advantage of Windows-specific features. For licensing reasons, MiKTeX will also distribute a few packages that TeX Live will not.

In all cases, the full install is recommended. Specifically, using MiKTeX's download-on-command feature will hang/crash many editors.

Installation

Windows (TeXLive)

1. Download the most recent TeXLive `install-tl-windows.exe` from their [website](#).
2. Run `install-tl-windows.exe` and follow the instructions.

Windows (MiKTeX)

1. Download the most recent MiKTeX installer from their [website](#).
2. Run the installer and follow the instructions.

Mac OS X (TeXLive)

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