

Just Enough L^AT_EX, Week 3

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Page Numbering

Pages can be numbered in any one of five ways.

- ▶ arabic (default)
- ▶ roman
- ▶ Roman
- ▶ alpha
- ▶ Alpha

The style can be set for the entire document with the command `\pagenumbering{num_style}` in the preamble or using the same command anywhere in the document it can be changed from one style to another.

The actual page number is determined by the value of the *counter* called *page*. It's value can be changed with either of the commands `\setcounter{cntr_name}{value}` or `\addtocounter{cntr_name}{adjustment}`.

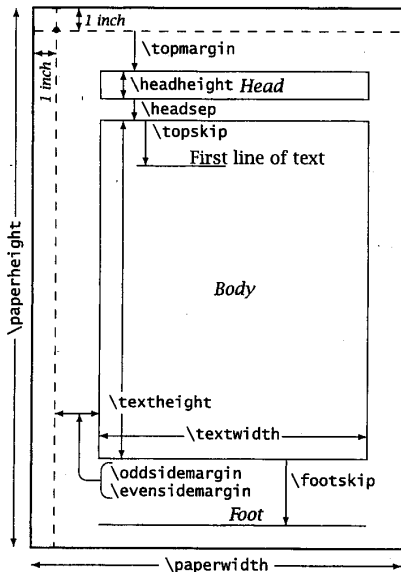
Example of Adjusting Page Style and Adjustment

For an article that begins with a preface and/or a table of contents or other such items, start with numbering set to `roman`. Before starting the actual document start a new page, change the numbering to `arabic` and set the page counter to 1. For example as follows.

```
\begin{document}
\pagenumbering{roman}
\tableofcontents
\newpage
\pagenumbering{arabic}
\setcounter{page}{1}
\maketitle
```

Page Layout

- `\oddsidemargin`
left margin for odd pages,
- `\evensidemargin`
left margin for even pages
- `\topmargin`
upper margin to top of head
- `\headheight`
height of head
- `\headsep`
distance from the bottom of headline
to top of body
- `\topskip`
distance from top of body to baseline
of first line of text
- `\textheight`, `\textwidth`
height and width of main text
- `\footskip`
distance from the bottom of body to
bottom of foot
- `\paperwidth`, `\paperheight`
total width and height of paper as
given by paper size option, including
all margins



Changing Page Layout Parameters

If the document is in `oneside`, then `\oddsidemargin` and `\evensidemargin` are equal.

Any of these page layout parameters can be changed by either of the commands `\setlength{parameter}{new value}` or `\addtolength{parameter}{amount}`. The amount added may be negative. If `\textheight` is to be lengthened, another vertical parameter, such as `\topmargin` must be equally diminished because all vertical parameters must sum to `\paperheight`. Similarly for `\textwidth`. Remember the values of these parameters can be used in the argument of `\hspace` or `\vspace`. For example to move to the middle of the next page, type

```
\newpage
\vspace*{.5\textheight}
```

Font Families, Shapes and Series I

All L^AT_EX implementations provide the three *font families*, four *font shapes* and two *font series*.

families Roman, typewriter, and sans serif.

shapes upright (default for all classes), italics (used in math mode), slant, small caps

series medium (default for all classes), boldface

Most article use just the Roman family. For emphasis text can be in *italics* or **bold** or *both*. `\textit{italics text}`,
`\textbf{bold text}`, `\textit{\textbf{bold italics}}`.

Character Sizes

Each of the available combinations of families shapes and series is available in each of the following sizes.

<code>\tiny</code>	smallest	<code>\Large</code>	larger
<code>\scriptsize</code>	very small	<code>\LARGE</code>	larger yet
<code>\footnotesize</code>	smaller	<code>\huge</code>	still larger
<code>\small</code>	small	<code>\Huge</code>	largest
<code>\normalsize</code>	normal		
<code>\large</code>	large		

The default size is `\normalsize`. Sizes are computed in proportion to the font size selected by the document class or an option. To produce some text in a different size a *declaration* is used. For example, `{\footnotesize text in the footnote size}` produces text in the footnote size.

Line Breaking

The two commands `\newline` and `\linebreak` both start new lines, but in different ways. `\newline` fills the remainder of the current line with space and starts a new line. The short hand version `\` does the same, but has an additional feature; namely, `\\[length]` fills in the current line with space, puts in a vertical space of *length* and begins a new line. The command `*` does what `\` does and prevents a page break from occurring. The command `\linebreak` distributes the remaining space on the current line between the words in the current line and then starts a new line.

Page Breaking

The command `\newpage` fills the current page with space and begins a new page. The command `\pagebreak` does for page breaking what the command `\linebreak` does for line breaking.

Introduction to Environments

\LaTeX uses *Environments* to present text in a different manner or to produce special structures such as lists, tables, and a variety of displayed mathematical expressions. All environments begin with the command `\begin{environment name}` and end with the companion command `\end{environment name}`. The first example is the document environment. The body of a \LaTeX document begins with `\begin{document}` and ends with `\end{document}`. A simple example is the center environment. For example

```
\begin{center}
Any text that the author wishes to be centered
\end{center}
```

If the text is more than one line in length, \LaTeX will insert line breaks where needed, but will not right justify the line. The author may insert line breaks where desired.

List Environments

The three list environments provided by \LaTeX are `itemize`, `description` and `enumerate`. All three have the same basic structure.

```
\begin{list name}  
\item The first item in the list.  
\item The second item in the list.  
\item The third item in the list.  
\end{list name}
```

They differ in how each item is indented and marked.

List Name	Indent?	Marker
<code>itemize</code>	yes	• (except in beamer)
<code>description</code>	no	none
<code>enumerate</code>	yes	consecutively

The tabular Environment

The `tabular` environment begins with the command `\begin{tabular}[pos]{cols}`. The optional command `[pos]` takes one of the two values, `t` or `b`. It is used only if the table to be created is to occur in-line. If `t` is selected, the top of the table will be aligned with the baseline of the current. If `b`, then the bottom will be aligned with the baseline of the current. Otherwise the center of the table will be aligned with the baseline of the current line.

The mandatory argument determines the number of columns in the table and how the text in each is aligned. For example `{1cr}`. To put a vertical line between two columns, separate the correspond letters with the keystroke, `|`. For example, `{|l|c|r|}`. To separate rows with horizontal lines use the command `\hline`. Items for each column are separated by `&` and a row ends with `\\`.

A Tabular Example

The table displayed earlier

List Name	Indent?	Marker
itemize	yes	• (except in beamer)
description	no	none
enumerate	yes	consecutively

was produced with

```
\begin{tabular}{|c|c|c|}  
\hline List Name&Indent?& Marker\\ \hline  
itemize& yes& $\bullet$ (except in \texttt{beamer})\\ \hline  
description& no&none\\ \hline  
enumerate&yes&consecutively\\ \hline  
\end{tabular}
```

Labeling and Referring

One of \LaTeX 's most useful features is the ease with which a user can refer to numbered formulas, page numbers, other numbered items and biographical citations. The first three items are all accomplished with the same command $\text{\label}\{name\}$. To refer to the page on which some specific text appears, type $\text{\label}\{text_name\}$ where the text occurs and then type $\text{\pageref}\{text_name\}$. At that point in the document, the page number on which the labeled text appears is produced. For a numbered items such as section etc. type $\text{\label}\{division_name\}$. When wishing to refer to that item type $\text{\ref}\{division_name\}$. When numbered formulas and the bibliography are discussed, the referencing will be explained.

Text Mode vs Math Mode

In math mode, either in line or display, all spaces are ignored as is one carriage return. But two or more consecutive carriage returns will result in an error message. \LaTeX knows how much horizontal space to put between consecutive alphabetic characters and how much space to put before and after such symbols such as $<$, $>$, $=$, etc. One exception is the small amount of space that the user should insert before a differential such as in $\int f(x) dx$.