

LaTeX Basics

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1 Processing and printing

"Code" for your document should sit in a file *name.tex*

To process this document on Athena, type *add newtex; latex2e name.tex*

This will create a few files, in particular *name.dvi*

To view your processed file, type *xdvi name.dvi*

To print this file, type *dvips -Pprinter name.dvi*

To convert your file into a postscript document, type *dvips -o name.ps name.dvi*

2 Document outline

Your document will look something like this:

```
\documentclass[options]{document class}
```

```
\author{your name}
```

```
\title{whatever it is}
```

```
\date{put a date here or write '\today' to put today's date automatically}
```

Here go other special commands that affect the outline of your document.

```
\begin{document}
```

```
\maketitle
```

Here goes the text of your document.

```
\end{document}
```

Document class

There are four classes: *article*, *report*, *book* and *letter*. They differ slightly in the way they are preformatted; we will worry about *article* for now. Its *options* are

things such as font size and type (default *12pt*, *Times*), or *twoside* if you want your article to be double-sided (affects things such as headings, page margins etc.). For example, you can have

```
\documentclass[12pt, helvetica, twoside]{article}
```

Title

This should be pretty self-explanatory; note that you have to put the `\maketitle` command after `\begin{document}` in order for your author, title and date to actually appear in the document. These commands are optional; you can omit any one of the three, or just skip the title entirely.

Outline commands in preamble

You can change pagemargins, spacing, and other such things here; see references for details. Of these the most immediately useful is spacing; to change it put

```
\renewcommand{\baselinestretch}{factor, like 2 for double-spaced}
```

Text

The *article* class comes with sections, subsections, and subsubsections. To begin say a section, type

```
\section{title of your section (can be left empty)}
```

These are numbered in the way you'd expect; to omit the numbering, put an asterisk after *section*, that is `\section*{}`.

To force a new line, put `\\` at the desired break place. To start a new paragraph, leave a blank line. LaTeX will ignore all extra space left in between words; you can use the command `\vspace{1cm}` to insert extra space (in cm, mm, pt, or pretty much anything you want). The command `\hspace{5mm}` accomplishes the same for vertical spacing.

Footnotes

These are generated by the command

```
\footnote{text}
```

They are numbered, incrementing throughout the article (i.e. do not reset with each section, or anything of the sort).

Special characters

You can print some command characters by putting a backslash in front of them, like `\&` which will produce `&`. Characters from foreign languages can also be printed; see references for how to do that.

3 Text formatting

- To temporarily change your font size, write

```
{\fontsize Text goes here}
```

Possible font sizes are

tiny scriptsize footnotesize small normal large Large LARGE huge
Huge.

- To change character of your font, write

```
{\command Text goes here}
```

The main possibilities for *command* are *em*, **bf**, *sl* *rm* (the last one produces the usual font).

- To center your text, write

```
\begin{center}  
Text goes here  
\end{center}
```

4 Lists

The main list formats are *enumerate*, *itemize* and *description*. The command is

```
\begin{enumerate, itemize or description}  
\item[name goes here in case of description]  
\item[again a name for description]  
\end{enumerate, itemize or description}
```

The first numbers the entries, second bullets them (as in the previous section), and third puts *name* in bold followed by the text.

5 Tables

Table is constructed with

```
\begin{tabular}{column descriptions go here}  
rows of table  
\end{tabular}
```

The column descriptions have one letter for each column, which can be *r*, *c* or *l*, indicating where you want the text to be inside the column (right, center or left). Optionally you can put one or multiple | in between the letters, which will separate the columns by a vertical line. For example, you can put `{| |c|r| |}` to make a table with two columns separated by a vertical line with double line on the outside, where first and second columns have respectively center and right indentations of the text.

Lines of the table have the format

```
first column entry & second column entry \\hline
```

The entries are separated by & (and can be left empty). The `\hline` command is optional, and will draw a horizontal line below the row (if you want a double or any multiple line, just repeat `\hline``\hline` etc.)

For example, to produce this table:

Day	Class	Time
Monday	18.01	10-11
Tuesday	14.01	12-1
Wednesday		
Thursday	14.01	12-1
Friday	18.01	10-11

I typed the following:

```
\begin{tabular}{| |l| |c|c| |}
\hline\hline
Day & Class & Time \\ \hline\hline
Monday & 18.01 & 10-11 \\ \hline
Tuesday & 14.01 & 12-1 \\ \hline
Wednesday & & \\ \hline
Thursday & 14.01 & 12-1 \\ \hline
Friday & 18.01 & 10-11 \\ \hline\hline
\end{tabular}
```

6 References

This document, as well as its .tex version, is on the class website, along links to various helpful LaTeX sites. You can also pick up an Athena minicourse package in the Copy Tech, or look at any of various LaTeX books; I like "A Guide to LATEX 2e" by Helmut Kopka and Patrick W. Daly.