

# Latex as a professional platform for paper writing

latex (pronounced “*lay-tek*” or “*lah-tek*”) is a tool for typesetting professional-looking documents. however, latex’s mode of operation is quite different to many other document-production applications you may have used, such as microsoft word or libreoffice writer: those tools provide users with an interactive page into which they type and edit their text and apply various forms of styling. latex works very differently: instead, your document is a plain text file interspersed with latex *commands* used to express the desired (typeset) results. to produce a visible, typeset document, your latex file is processed by a piece of software called a *tex engine* which uses the commands embedded in your text file to guide and control the typesetting process, converting the latex commands and document text into a professionally typeset pdf file. this means you only need to focus on the *content* of your document and the computer, via latex commands and the tex engine, will take care of the *visual appearance* (formatting).

## Writing your first piece of L<sup>A</sup>T<sub>E</sub>X

The first step is to create a new L<sup>A</sup>T<sub>E</sub>X project. You can do this on your own computer by creating a new `.tex` file; alternatively, you can start a new project in Overleaf.

Let’s start with the simplest working example, which can be opened directly in Overleaf:

```
\documentclass{article}
\begin{document}
First document. This is a simple example, with no
extra parameters or packages included.
\end{document}
```

## Adding comments

LaTeX is a form of “program code”, but one which specializes in document typesetting; consequently, as with code written in any other programming language, it can be very useful to include comments within your document. A L<sup>A</sup>T<sub>E</sub>X comment is a section of text that will not be typeset or affect the document in any way—often used to add “to do” notes; include explanatory notes; provide in-line explanations of tricky macros or comment-out lines/sections of LaTeX code when debugging.

To make a comment in L<sup>A</sup>T<sub>E</sub>X, simply write a `%` symbol at the beginning of the line, as shown in the following code which uses the example above:

```
\documentclass[12pt, letterpaper]{article}
\title{My first LaTeX document}
\author{Hubert Farnsworth\thanks{Funded by the Overleaf team.}}
\date{August 2022}
\begin{document}
\maketitle
```

```
We have now added a title, author and date to our first \LaTeX{} document!
```

```
% This line here is a comment. It will not be typeset in the document.
\end{document}
```

## Bold, italics and underlining

Next, we will now look at some text formatting commands:

- **Bold:** bold text in LaTeX is typeset using the `\textbf{...}` command.
- *Italics:* italicised text is produced using the `\textit{...}` command.
- Underline: to underline text use the `\underline{...}` command.

The next example demonstrates these commands:

```
Some of the \textbf{greatest}
discoveries in \underline{science}
were made by \textbf{\textit{accident}}
```

## Adding images

In this section we will now look at how to add images to a L<sup>A</sup>T<sub>E</sub>X document—note that you need to upload images to your Overleaf project.

The following example demonstrates how to include a picture:

```
\documentclass{article}
\usepackage{graphicx} %LaTeX package to import graphics
\graphicspath{{images/}} %configuring the graphicx package

\begin{document}
The universe is immense and it seems to be homogeneous,
on a large scale, everywhere we look.

% The \includegraphics command is
% provided (implemented) by the
% graphicx package
\includegraphics{universe}

There's a picture of a galaxy above.
\end{document}
```