

A Brief Introduction to L^AT_EX

Eric Eaton

February 2, 2005

L^AT_EX is a text processing system that uses an embedded command language in plain text to generate a formatted document. L^AT_EX has excellent support for mathematical formulas and references, and is usually easy to use for people who are comfortable with programming languages. L^AT_EX is *not* a WYSIWYG (“What You See Is What You Get”) word processor. However, it is (in my opinion) much more powerful and flexible than most WYSIWYG systems, including Microsoft Word.

1 Running L^AT_EX

L^AT_EX runs (at least) on the gl linux machines and should run on the cs machines. The easiest way to create a L^AT_EX file is to use emacs (you may use any other text editor, but emacs is very L^AT_EX friendly). There is a very simple sample file on the class website, in the file `sample.tex`. Here’s how you produce a typeset document from this file (after copying it into your own directory).

```
% latex sample
% xdvi sample
% dvips -P pdf -G0 -t letter -o sample.ps sample.dvi
% ghostview sample.ps
```

The command `latex` processes the input `.tex` file, producing an output `.dvi` file. You can view this file on your screen using `xdvi`. If it looks the way you want it to, you can convert it to a PostScript file using the `dvips` command, with the switches shown in the script above. Now take a look at the PostScript file using `ghostview`. You may also convert a `.ps` file to an Adobe Acrobat file (`.pdf`) by:

```
% ps2pdf sample.ps sample.pdf
```

If the document (either `.ps` or `.pdf`) looks the way you want it, you may print it out using the respective viewer or simply use `lpr` on the `.ps` file.

```
% lpr sample.eps
```

A more rapid way of obtaining a .pdf document is to use `pdflatex` as follows:

```
% pdflatex sample.tex
```

2 Example Files

Here's what the `sample.tex` file looks like:

```
\documentclass{article}

\title{Title of My Document}
\author{My Name Goes Here}

\begin{document}
\maketitle

Hello, world!

{\em Hello, world!}

{\bf Hello, world!!}

{\tiny \bf Hello, world!!!}

{\Large \bf Hello, world!!!!}
\end{document}
```

The `\documentclass{article}` command on the first line of the file tells \LaTeX that this is in fact a \LaTeX document, of class “article.” (There are other document classes, such as `report` and `book`, but typically you'll use the article class.)

The lines after the `\documentclass` command and before the beginning of the document are called the *preamble*. The preamble includes any initialization commands and general specifications for the document style. In this file, the preamble just contains the title and author commands, on the next two lines. You can also specify, in the preamble, the date you want to appear on the document, using the command `\date{Your Preferred Date}`, or leave the date blank using `\date{}`; if no date is specified, \LaTeX will use today's date. To not include a date, you can use the command `\nodate`.

Now the body of the document starts; this is signaled to \LaTeX by the `\begin{document}` command. The first command within the document body is `\maketitle`, which uses the title and author defined in the preamble to create a title section in the output file.

After the title is the rest of the document: in this case, five paragraphs (which are delineated by blank lines), each greeting the world in a different style:

normal, emphasized (i.e., italic), boldface, small boldface, and large boldface. Note that the font-changing commands and text to be changed are enclosed in curly braces `{}`; these delineate the scope of the font-changing commands.

The last line of the file, `\end{document}`, tells \LaTeX that the body of the document is complete.

That's it!

All exams for this course are formatted in \LaTeX . Along with the first assignment, the `ex1.tex` source, which contains solutions to the examples discussed in the first lecture, will be available for download. You may use this template for formatting your homework assignments or create any template you would like.

Strictly speaking, you are not required to format your homework solutions in \LaTeX (although you are required for the first several homeworks), but as far as I can tell, \LaTeX is the best available system for generating mathematical and technical documents. If you cannot tell by now, I highly recommend using \LaTeX for CMSC 203 and future mathematically oriented courses (e.g., CMSC 441, CMSC 471). **You are required to typeset your problem set solutions, so if you choose not to use \LaTeX you assume all responsibility for poorly formatted mathematical notation that may be subject to grade reductions.** Your solutions must be typeset, printed on 8.5×11 white paper, and turned in in hard copy format at the beginning of class on their due date.

This file (that is, the one you're reading now) is also on the website, in `latex.tex`.

3 Resources

The standard \LaTeX reference book is *\LaTeX : A Document Preparation System, 2/e*, Leslie Lamport, Addison-Wesley, 1994, ISBN 0-201-52983-1.

Here are several useful websites. I will post these on the course resource page.

- \LaTeX Project home page:
<http://www.latex-project.org/>
 - \LaTeX Project FAQ:
<http://www.tex.ac.uk/cgi-bin/texfaq2html?introduction=yes>
- CTAN: the Comprehensive TeX Archive Network:
<http://www.ctan.org/>
- Peter Flynn's "Beginner's \LaTeX " guide to basic \LaTeX :
<http://www.silmaril.ie/downloads/documents/beginlatex.pdf>
- The AMS maintains several widely used extensions of LaTeX. The `amsmath` part provides just about every math symbol you can imagine, and more:
<http://www.ams.org/tex/amslatex.html>

- “Simplified L^AT_EX,” a beginner’s guide with a nice tutorial section at the beginning:
<http://www.ctan.org/tex-archive/info/simplified-latex/>
- In order to run L^AT_EX on your own computer, you will need to install TeX and L^AT_EX. I haven’t tried to download it, but a number of freeware and shareware implementations are available. You can look through the CTAN or L^AT_EX Project websites above for pointers. If you’re running Windows, you might want to try this TeX/L^AT_EX implementation, which looks promising: <http://www.miktex.org/> .

4 Acknowledgements

Thanks to Marie desJardins and Matt Gaston for sharing course material and L^AT_EX templates. This document is due in large part to Dr. desJardins.

LATEX is a completely different way of writing assignments, papers, articles and even presentation slides and books This course is a brief introduction to using LATEX for creating scientific documents It is specifically aimed at psychological researchers and methodologists. Relatively little focus on mathematical formulae APA style documents Incorporating statistical analyses with R and Sweave/knitr. Course Outline. April 2: Introduction April 10: Basics of writing in LATEX April 16: Writing APA style articles April 23: Advanced topics. Course Outline. April 2: Introduction What is LATEX? Why use L... An introduction to LaTeX, a document preparation system for high-quality typesetting. About the LaTeX project. LaTeX is not a word processor! Instead, LaTeX encourages authors not to worry too much about the appearance of their documents but to concentrate on getting the right content. For example, consider this document: Cartesian closed categories and the price of eggs Jane Doe September 1994. Hello world! To produce this in most typesetting or word-processing systems, the author would have to decide what layout to use, so would select (say) 18pt Times Roman for the title, 12pt Times Italic for the name, and so on. This has two results: authors wasting their time with designs; and a lot of badly desi Writing a Document from a Template. Entire Book: [] Individual chapters status' listed in contents. The purpose of this book is to give a person who has never used the LaTeX environment before a crash-course in how to create a simple document quickly. We will not go into the details of more complicated things LaTeX can do, but instead will focus on the use of templates and the basic principles of what is going on behind the scenes. Ideally a beginner will be able to read the first few chapters and LaTeX is typeset like LaTeX is a document typesetting tool. Handles manuscript arrangement Provides interchangeable paper properties. Templates, fonts, single/double spaced, columns, etc. Not a WYSIWYG editor like Microsoft Word. Interpreted language like HTML. Introduction to LaTeX. Isaac Tetzloff - isaact@purdue.edu. 2. Introduction to LATEX Introduction. Table of Contents. 1 Introduction 2 A Basic Document. Writing LaTeX Code Basic Formatting 3 LATEX and You The Files Math Mode Figures and Tables 4 Beamer 5 LATEX Extended Common Errors More Math Macros 6 Conclusion. Introduction to LATEX Introduction. L. A. With LATEX, you just tell it to start a new section. With a word processor, changing the formatting means you have to change each instance individually. With LATEX, you just redene the relevant commands. With a word processor, you have to carefully match any provided templates. With LATEX, you can be sure you've t the template, and switch templates easily. Introduction to LATEX A Basic Document. Table of Contents. 1 Introduction 2 A Basic Document.