

A L^AT_EX Example

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Abstract

This is the abstract of the paper. In this example we'll show how to format research papers, equations, tables, insert graphics, and do all kinds of neat references.

1 This is a section

First we'll start with some plain text. Pretty plain, right? You'll notice that this paragraph is not indented and sometimes you don't always want that. In fact, there are quite a few times L^AT_EX will put things everywhere but where you want them. Learn it and love it, because the equation formatting makes it *so* much better than a WYSIWYG word processor.

This new paragraph is indented. I'll try to fill up the rest of this line so it looks more like a paragraph. You can also do subsections as well as sections, like so.

1.1 This is a subsection

Astounding isn't it? Let me start a new section and we'll do some equations.

2 Equations

Simply put, L^AT_EX can format equations in tons of ways using the `amsmath` and `amsfonts` package. You can do inline equations like $y = x^2$ and even more complicated ones like $u(x, 0) = \sin(x)$ and $f(x) = \frac{\sqrt{12-x}}{x^3-3}$. If you want an equation centered on a line by itself you can do this:

$$c(x)\rho(x)\frac{du}{dt}(x, t) = \frac{d}{dx}[K_0(x)\frac{du}{dx}(x, t)]$$

and if you want it to have a number, use the equation environment

$$\int_0^1 e^x dx = e - 1. \tag{1}$$

Now I can reference the above equation like so: Equation (1) was made up on the spot.

3 Figures

L^AT_EX can process a number of different graphics formats to include in files. I have found that for creating PDF files, using .png images is quite nice. It is important to state the the images probably won't come up in the file where you expect them. The idea here is to just put the image directly after the text where it is supposed to show, hope for the best, and then consult L^AT_EX gurus if you need them somewhere else. Figure placement should probably be the *last* thing you worry about.

And like equations, you can reference figures. Figure 1 is the graph of $y = x^2$.

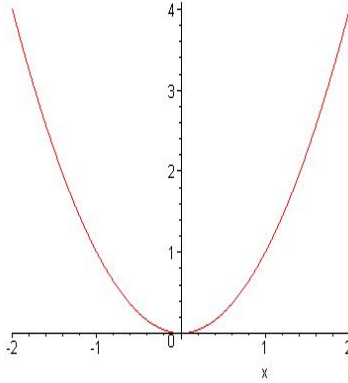


Figure 1: You can put equations in captions. $y = x^2$

4 Tables

I had a hard time finding an example of constructing tables in \LaTeX so here's one of mine:

		Block Length / 32		
		4	6	8
Key	4	10	12	14
Length	6	12	12	14
/ 32	8	14	14	14

This is from a paper I wrote on AES. There are comments in the source file on it.

5 A short References howto

One of the more tricky things to do in \LaTeX is get your references working. There is a full-blown program for this called BibTeX, but you really only want to use that if you are a full time researcher or writing a HUGE thesis or something. Anyways, I have a two item Bibliography section below and here I will cite one of them [2].

6 That's all for now, folks

This should be enough to get you started. I don't claim this is very informative, I just want to introduce people that don't know anything at all about \LaTeX to this wonderful piece of software.

References

- [1] Daniel Zwillinger, *CRC Standard Mathematical Tables and Formulae, 30th Edition*, CRC Press, 1996.
- [2] Joan Daemen and Vincent Rijmen, *The Design of Rijndael*, Springer, 2002.