

L^AT_EX Seminar

14 October 2015, 7:30pm - 9:00pm

Hayes-Healey 229

What is it?

L^AT_EX (pronounced lah-tech) is a typesetting language used in professional, higher-level mathematics to create professional looking documents. L^AT_EX provides an environment in which it is easy to integrate mathematics into documents, providing an effective solution to taking digital notes during math classes, typing mathematical papers, and writing up problem sets and solutions. Impress your professors with your command over L^AT_EX. For students interested in writing a senior thesis using mathematics, L^AT_EX is a must. Additionally, if you are interested in attending graduate school in a subject relating to mathematics, chances are you will eventually be asked to use L^AT_EX to write documents.

A demonstration of some of the features that L^AT_EX provides is located on the reverse of this document.

When is it and where is it?

The seminar will be held in Hayes-Healey Center, Room 229, on Wednesday, 14 October between 7:30pm and 9:00pm. We may end earlier if we are expedient.

Does it cost anything?

No, the seminar is provided free of charge.

Do I have to be a member of the math club to come?

No, you don't! Anyone is welcome, regardless of their major or affiliation with the math club.

What should I bring?

A fully-charged laptop running Mac OSX, Windows 7, 8, or 10, or Linux. Availability of power outlets will be limited, so do insure to plug your computer in before coming.

Do I need to do anything before I come?

Please download the appropriate installer depending on your operating system. This will save us time. If you forget to download it beforehand, however, we will have flash drives on hand to copy the appropriate installers to your computer. In any case, if you have trouble installing, we will go over it in the beginning of the seminar.

Download for Mac OSX: <https://tug.org/mactex/>.

Download for Windows: <http://miktex.org/>

Download for Ubuntu, Debian: open a terminal and run the below command. Follow the prompts.

```
sudo apt-get update && sudo apt-get install texlive
```

Download for RedHat, CentOS: open a terminal and run the below command. Follow the prompts.

```
sudo yum install tetex
```

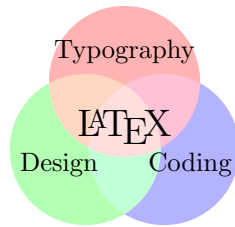
Questions, Comments, or Concerns: Please contact Kevin Latimer at klatimer@nd.edu.

Rapid typesetting of complex expressions

Code	Produces
<pre>\oint_C B \cdot dl = \mu_0 \iint_S J \cdot dS</pre>	$\oint_C B \cdot dl = \mu_0 \iint_S J \cdot dS$
<pre>f(x) = \left\{ \begin{array}{cl} 1 & \text{if } x > 0 \\ -1 & \text{if } x < 0 \end{array} \right.</pre>	$f(x) = \begin{cases} 1 & \text{if } x > 0 \\ -1 & \text{if } x < 0 \end{cases}$
<pre>\left[\begin{array}{cccc} a_{1,1} & a_{1,2} & \cdots & a_{1,n} \\ a_{2,1} & a_{2,2} & \cdots & a_{2,n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m,1} & a_{m,2} & \cdots & a_{m,n} \end{array} \right]</pre>	$\begin{bmatrix} a_{1,1} & a_{1,2} & \cdots & a_{1,n} \\ a_{2,1} & a_{2,2} & \cdots & a_{2,n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m,1} & a_{m,2} & \cdots & a_{m,n} \end{bmatrix}$

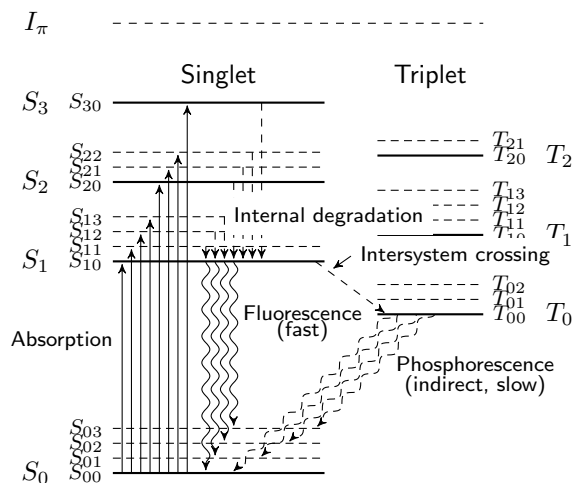
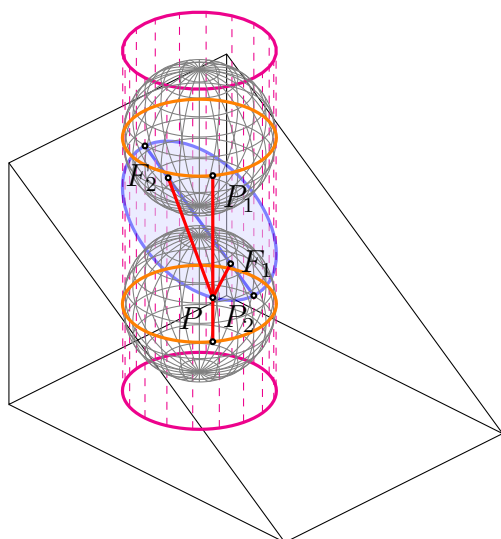
Imagine trying to type THAT with an equation editor!

Generate diagrams and figures



Code
<pre>\begin{tikzpicture}[scale=0.5] \begin{scope}[blend group = soft light] \fill[red!30!white] (90:1.2) circle (2); \fill[green!30!white] (210:1.2) circle (2); \fill[blue!30!white] (330:1.2) circle (2); \end{scope} \node at (90:2) {Typography}; \node at (210:2) {Design}; \node at (330:2) {Coding}; \node [font=\Large] {\LaTeX}; \end{tikzpicture}</pre>
<pre>\includegraphics[width=1.5in]{seal.png}</pre>

...Generate very complex figures



And more!

- Automatically generate table of contents, indexes, foot notes for your document
- Produce unusual characters not included in most character sets, such as accented characters, and many mathematical characters
- List code with automatic syntax highlighting, with support for many different languages
- Produce question and solution style documents with ease, like exams, problem set write ups, etc.
- Create Interactive PDFs. Connect sections of your document with clickable links, or link to external websites or e-mail addresses.
- Create reproducible templates for use with letters, memos, etc.
- Write an entire textbook like the professionals, with environments for definitions, theorems, lemmas, corollaries, examples, remarks, and many more. If you can't find an environment you want, you can make your own!