

## The Fine Art of Writing in L<sup>A</sup>T<sub>E</sub>X, Part I

By this point you've all made a lot of progress in your respective research projects, and most likely you've compiled a good many pages of handwritten notes, as well as, perhaps, a few *Mathematica* notebooks, scribbles on paper napkins from the Atlanta Bread Company, whiteboard scrawl you've not had the courage to erase yet, *etc.* If the above description is at all accurate, you've probably begun to think, "how in the heck am I gonna make this all look purty by the time we're through?!"

Though you may not yet have used it much, many of you probably know about a little thing called L<sup>A</sup>T<sub>E</sub>X (or perhaps its older sister, T<sub>E</sub>X), a typesetting language developed a couple of decades back by computer scientist/mathematician Donald Knuth, among others. Even if you're not familiar with the language itself, you're certainly familiar with its output: thousands of mathematicians and other scientists use L<sup>A</sup>T<sub>E</sub>X daily to prepare journal articles, grant proposals, technical reports, text manuscripts, and course materials. You've seen the look of a L<sup>A</sup>T<sub>E</sub>X document before, I'm sure. (This document is written using L<sup>A</sup>T<sub>E</sub>X; does the font look familiar?)

Some of you may have experience in using L<sup>A</sup>T<sub>E</sub>X, too. Perhaps you've dabbled with it to make your homework look nicer, or you've been required to use it to put together a math report of some sort. Maybe you've just played with it for the sheer joy of exploration. Even if you've never used it before, the time has come to dive right in: since we expect you to use L<sup>A</sup>T<sub>E</sub>X in writing up articles on your research as this program draws to a close, it might not be a bad idea to start looking into L<sup>A</sup>T<sub>E</sub>X right now.

### To get started, you will need...

1. **A text-editor.** This component is a simple one to find, and you can use just about any word processor out there to prepare your documents, though there are more "specialized" tools available, often cheaply or for free, online. For instance, I use the shareware program WinEdt to put together L<sup>A</sup>T<sub>E</sub>X documents in my office, it's got great formatting conventions that make it particularly nice to use for T<sub>E</sub>X and L<sup>A</sup>T<sub>E</sub>X. If you're working on a UNIX or Linux platform, you can use a standard text editor like emacs, pico, or [insert shudder here] vi. On other platforms, just about any available program will do. Heck, I'm just using MS Word to type this out right now; you could even use something as simple as MS Notepad, if you're hard up.
2. **A compiler.** Once you've typed your "code" up, you need a program to convert it into the final document. Lucky for you, such programs are

available at no cost and high quality on the internet. The freeware program MikTeX is one of the best compilers available and is free to download for any platform. It's flexible, powerful, and recognizes just about any flavor of T<sub>E</sub>X you can throw into it. Of course, if you're working in UNIX or Linux, you should have a native L<sup>A</sup>T<sub>E</sub>X compiler built into the operating system. I used the GNU compiler on UNIX for seven years, writing a dozen papers and a textbook on it, and I've never had a problem. The best compilers are simple to figure out and easy to use; you'll be writing like a professor emeritus in no time!

I hope you'll take a few minutes in the next week or so to acquire and configure these two components, if you've not indeed already got them on your computer. Once you've got these set up, I encourage you to begin experimenting with writing in L<sup>A</sup>T<sub>E</sub>X; good tutorials are available online from hundreds of websites (just google "latex document instructions" or something like that and you'll find more sites than you'll know what to do with; the best way to learn is to dive right in and try things out), and manuals aren't hard to find in print. A good self-test is to see if you can somewhat faithfully reproduce a page or so from a math paper or textbook using L<sup>A</sup>T<sub>E</sub>X. If so, then you're well on your way.

Have fun! Let me or one of the other faculty folks know if you have any specific questions concerning typesetting in L<sup>A</sup>T<sub>E</sub>X; in the next couple of weeks I'll be putting together a couple of worksheets and exercises to help you develop your skills before you'll need to ply them towards producing your final article.