Writing your Thesis or Dissertation with LaTeX

The Graduate School
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This guide is to help you prepare your thesis or dissertation by familiarizing you with the LaTeX typesetting system. Those familiar with LaTeX will already know most of the information presented in this document, but should consider reading the final section which describes the contents of this distribution.

1 Brief Introduction to LaTeX

LaTeX is a powerful typesetting system that is capable of generating high quality documents and is freely available over the web. It is essentially a programming language, and therefore lacks many of the features that you may be accustomed to with word processors. Although learning the system can be a daunting task, what LaTeX lacks in accessibility it makes up for in flexibility. LaTeX utilizes packages which allow the user to create complex formatting with simple commands. This allows users to focus on the content of their document rather than the appearance. For a good article on the benefits of using LaTeX visit http://www.osnews.com/story/10766.

LaTeX is especially useful, if not essential, to those in fields such as mathematics and engineering, and helpful to any field that requires unusual fonts, languages, or formatting that your typical word processor cannot create. Would it be worthwhile for you to use LaTeX in preparing your thesis or dissertation? Ask yourself the following questions:

- Will your paper include long, complex formulas?
- Will your paper utilize many unusual symbols such as Greek letters?
- Will your paper incorporate multiple languages with different writing systems such as Hebrew?

If you answered yes to any of these questions, then you should seriously consider writing your thesis or dissertation using LaTeX.

2 What you will need

Before you begin preparing your document, you will need two things:

1. A LaTeX distribution

   The distribution contains files that are needed to process your file into a presentable document. They are freely available over the internet.

   MiKTeX
   http://www.miktex.org/
   Works on most Windows operating systems.

   TeXLive
   http://www.tug.org/texlive/
   Versions available for most Unix-based operating systems, Windows, and Mac OS X.

2. A text editor

   A text editor is needed to edit all LaTeX associated files. There are many different text editors available that differ in the amount of features they may include. These range from the lowly Microsoft notepad to fully featured programs containing features such as spell check and command highlighting. While any text editor for programming will work, one designed with LaTeX-specific features may be helpful. Click the links below for listings of various LaTeX free editors available on the web:

   http://miktex.org/links
   http://www.tug.org/interest.html#packages

Also, you may want to consider getting a DVI viewer. LaTeX is capable of generating documents in .dvi, .pdf, and .ps formats. However, working with DVI files can be faster and easier than the PDF or PS formats. MiKTek comes bundled with YAP, a fast and easy to use DVI viewer.

3 Resources to Help You Get Started

http://www.latex-project.org/
Firstly, you may wish to visit the official homepage for the LaTeX project. This website contains some basic introductory information, as well as up to date news on the current version.

There are several high quality guidebooks available which details the numerous aspects of LaTeXThe following are written by individuals directly involved in the upkeep of the core system, and are highly recommended:

Guide to LaTeX, 4th Edition
by Helmut Kopka and Patrick W. Daly.
Published by Addison-Wesley
ISBN: 0321173856
An excellent introduction to the core fundamentals of LaTeX.

The LaTeX Companion, 2nd Edition
by Frank Mittelbach, Michel Goossens, Johannes Braams, David Carlisle, Chris Rowley.
Published by Addison-Wesley
ISBN: 0201362996
An essential resource for all serious LaTeX users with expanded coverage on important packages.

The LaTeX Graphics Companion, 2nd Edition
by Michel Goossens, Frank Mittelbach, Sebastian Rahtz, Denis Roegel, Herbert Voss.
Published by Addison-Wesley ISBN: 0321508920
Contains information related to the creation and utilization of complex graphics functions.

The web also has a myriad of helpful resources available for free:

TeX Users Group Homepage
http://www.tug.org/
TUG is an organization dedicated to typesetting with TeX-based systems. Their webpage has a wealth of information for all users. Definitely check out the "TeX web resources" link for an extensive listing of web-based instructional material.

Indian TeX Users Group Online Tutorials
http://www.tug.org.in/tutorials.html/
A comprehensive collection of microlessons that introduce the basic conventions and functionalities of LaTeX.

LaTeX Wikibook
http://en.wikibooks.org/wiki/LaTeX
A somewhat rudimentary but easily accessible reference guide.

LaTeX Forum
http://www.cqf.info/forum/viewforum.php?f=4
While there are not many forums dedicated to the discussion of LaTeX, this is perhaps the most active.

4 Description of Files within this Distribution

The files within this distribution were created to help aide you in the creation of your thesis or dissertation in accordance with the Graduate School's submission criteria:

uscthesis.cls

The essential file for preparing your thesis or dissertation using LaTeX. All submissions should use this documentclass to ensure that it conforms to the criteria established by the University of South Carolina Graduate School in the Thesis and Dissertation Guidelines.

uscthesisdoc.pdf

This document details the functionality of uscthesis.cls and associated files, as well as general advice related to the proper composition of your work files. Study this document fully for proper usage of the uscthesis class.

main.tex

An example template for the main file of a thesis created using the uscthesis class.

uscnatbib.sty

This package is needed for use with the standard LaTeX package. natbib.sty has one way to achieve the layout of bibliographies, using BibTeX, in accordance with the constraints of the Graduate School.

uscamsrefs.sty

This package is needed for the layout of bibliographies using the American Mathematics Societies citation style in accordance with the constraints of the Graduate School.