<u>LaTeX Made Easy!</u>

Notes for Astr 680 Dr. Welsh

This is a quick guide to getting you up and running with LaTeX. LaTeX is a *very powerful* typesetting and document producing program, written by L. Lamport based on the orginal TeX by D. Knuth. It is *much* better than MS-Word or any other software. However, it is *not* a word processing program — its function is to make superb printed documents, not make your life easy! But in fact, it is pretty straightforward to get started. So let's get to it!

First, do not start from scratch! Get someone else's LaTeX file and modify it. It will be much easier that way. For example, get a copy of this very LaTeX file you are reading and edit it. When it comes time to write a paper, get the journal's LaTeX template and style files. Likewise when it is time to write your dissertation.

The mechanics of LaTeX are simple. Just follow these easy steps:

(i) Edit the template file, put your own work in the file, and save with the extension ".tex" (e.g. filename.tex).

(ii) Run the unix "latex" command: unix> latex filename.tex
The latex command will produce several output files, one of which is called *filename.dvi*. The very first time you run latex, you may get lots of pages of output to your screen about making and loading the various fonts. Ignore them. In general, run latex twice, since some applications need this (for proper referencing of equations, etc.).

(iii) unix> xdvi filename.dvi &
This brings up the xwindows dvi previewer so you can see and proofread the output. (hint: typing "s" in the previwer shrinks the page)

(iv) unix> dvips -o filename.ps filename.dvi
This converts the .dvi file into PostScript format which you can then view ala ghostview (gv) or send to the printer.

Some LaTeX math–mode basics:
LaTeX does all the formatting for you, e.g. spaces are generally ignored. All math–mode stuff (equations) are placed between $ signs. Greek symbols and math functions are spelled out and start with the backslash character. For example, superscripts, math functions, etc., look like this:

```
$x(\theta) = A_{1} \cos (2 \pi \theta - \phi) \ \Msun $
```

produces the following: $x(\theta) = A_1 \cos(2\pi\theta - \phi)\ \mathrm{M}_{\odot}$.

As another example, you use:

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$ y = \frac{1}{\sqrt{2 \pi \sigma^{2}}}   e^{- (x - \bar{x})^{2} / 2
\sigma^{2}} \kms $
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to generate: $y = \frac{1}{\sqrt{2\pi\sigma^2}} e^{-(x-\bar{x})^2/2\sigma^2} km\ s^{-1}$.

Have fun!