Chapter 1

Introduction

Welcome to your thesis template! To begin with, a brief explanation on how to use the template. The main TEX file is `thesis_msc.tex` and it is the one that you should be able to compile always. The rest of the files are gathered in subdirectories, and you can compile them independently (with exception of the references). This independent compilation is a good tool, since you'll be adding a ton of text it is a pain to always wait for the `thesis_msc.tex` file to finish compiling. By adding small files to compile you have a better and cleaner view of your thesis chapters.

1.1 Citations

The citations are same as the ones used in the Astronomy & Astrophysics Journal (https://www.aanda.org/component/content?view=article&id=160). Just make sure that your citations are in the same format as the `bibfile_thesis.bib`. Finally, after you add a reference you have to compile the pdflatex once, then compile bibtex and compile pdflatex twice, if not you won't see any changes in your pdf file.

Some in-line citations:

- (**?**)

- **?**

- (see **?**)

Once you have added the citation in the `bibfile_thesis.bib` this will not appear in the reference section, unless it is called with the `citep{...}` command. References won't show up when you compile chapters individually, they will only appear once you compile the `thesis_msc.tex` file.

1.2 Notes

You can also make nice notes inside your document! Just use the `note` environment.

1.3 Tables

To make nice tables I preferably use the package `booktabs` (as shown in Table 1.1), already included. This lets you add bar lines and make the tables more compact. Since it is a matter of taste be free into look some other options.

A	B	C
1	2	3
1	2	3
1	2	3
1	2	3
1	2	3

Table 1.1: Adding a caption

1.4   Tikz figures

Tikz (PGF plots) is a powerful tool to create in-line-figures in LaTeX. Unfortunately requires a lot of time to learn and to be fast adding coordinate systems. There are several examples on-line that you can browse and edit. Making your own figures will always have an extra value in your thesis. There are several sources to learn ho to use Tikz, there are some of them,

- The Tikz package manual, it is long and sometimes misleading but if you want to master Tikz is the right place to start! https://www.ctan.org/pkg/pgf

- Several cool examples: http://www.texample.net/.

- Brief introduction: https://www.sharelatex.com/learn/TikZ_package

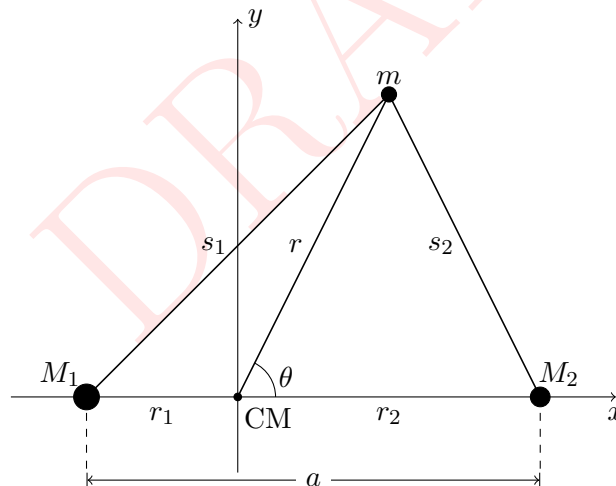With some command lines you can make something like in Figure 1.1.

Figure 1.1: Nice diagram using Tikz.

1.5   Figures

At the time to make the figures, I strongly advice you that use the page width of your LaTeXfile as the default width in your image. This can be easily done by using the `printlen` package. Then go to your plot routine (e.g. Python, `figsize=(width, height)`) and add the corresponding width. If you have done this correctly you will not have problems in scaling figures in your TeX file.
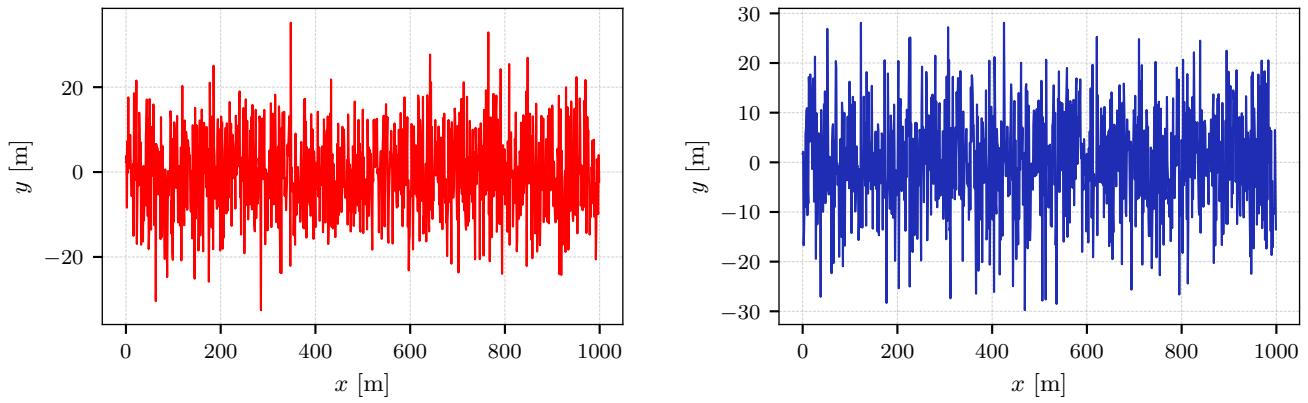
Figure 1.2: This figure has been created in Python and imported without any scaling (`includegraphics[scale=0]`). Notice that the text size also matches with the one in this caption, e.g. x [m].

1.5.1 Figure example

Let's create a figure in Python using the correct width of the document. Simply type width $= 6.85829$ in. This width now has to be used in the Python script (see `figure_example.py`). Then just import the figure, but without scaling it!