A Latex Coursework Example

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Contents

Acknowledgements

This template is a slightly modified version of the one developed by Prof. Charles Duncan for MSc students in the Dept. of Meteorology. His acknowledgement follows:

This template has been produced with help from many former students who have shown different ways of doing things. Please make suggestions for further improvements.

Note

This template was originally created for a full MSc dissertation. Although I have modified the format slightly (eg there are no separate chapters), I have not substantially changed the text or the advice appearing in the LaTeXcomments (source lines beginning with %). You should therefore be aware that for a short piece of coursework you may not need to go into as much detail as indicated here. For example, you might not need to include any acknowledgements and any reference list is likely to be very short.

1 Introduction

This should contain a description of your project and the problem you are trying to solve. Where appropriate you should also include references to work which has already been done on your topic and anything else which lets you set your work in context.

One of the things you will need to do is to ensure that you have a suitable list of references. To do this you should see [**?**] or some other suitable reference. Note the format of the citation used here is the style favoured in this department. Here is another reference [**?**] for good measure.

You will also want to make sure you have no spelling or grammatical mistakes. To help idwentify spelling mistukes you caan use the commands *ispell* or *spell*. See the appropriate manual pages. Remember that spelling mistakes are not the only errors which can occur. Spelling checkers will not find errors which are, in fact, valid words such as *there* for *their*, nor will they find repeated words which sometimes occur if your concentration is broken when typing. **There is no substitute for thorough proof reading!**

1.1 The easy bits

This is just to show how to break things into sections.

Some paragraphs in this demonstration document are here to provide some padding so that sections last for more than one page to illustrate what happens on subsequent pages. Note that the page numbering style is usually different on the first page of a new chapter than on subsequent pages.

Here is a padding paragraph. Rhubarb. More rhubarb. Yet more rhubarb.

1.2 The more difficult bits

Some bits are hard.

Here is a padding paragraph. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb.

1.2.1 Hard bits

You might want to include an equation here:

$$\delta N_\nu = (\delta N_\nu)_{ex} + (\delta N_\nu)_{au} \tag{1}$$

Here is a padding paragraph. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb. Rhubarb. More rhubarb. Yet more rhubarb.

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Figure 1: The University Crest

1.2.2 Even harder bits

This might be one of the places where you might want to refer to equation **??**. You will usually need to use the Latex command twice to make cross-references like this work properly. The cross-reference information is stored in the *.aux* file so don't delete it.

More on numbering: This text is in a paragraph which is also not numbered by default and the "title" of the paragraph is not on a separate line. If you want to increase the depth to which subsections are numbered you should see the subsection on setting the secnumdepth counter in the manual.

2 Experimental design

You might sometimes want to include equations without numbering them.

$$E = mc^2$$

You might also want to include diagrams. The example shows the use of the special command which allows existing postscript files to be included. You would normally keep your figures separate from the text. These pictures might be satellite images or postscript output from some program such as IDL, PV-WAVE, Uniras or xpaint.

Below I create a figure which is centred and stretched to 30% of the width of the page `{0.30\hsize}` and with the height stretched by the same amount `{!}` to preserve the aspect ratio. If you omit the extension (ie .eps, .ps or .pdf) on the file name then latex will pick up the postscript copy whereas pdflatex will automatically pick up the PDF version.

You can use a label on a figure to refer to it later. The university crest is in **??**. Note that you should not use phrases like "the figure above" or "the following figure" since Latex may move the figure relative to the text if it cannot be fitted onto the current page.

3 Results and Analysis

3.1 Some results

Here are some results.

3.1.1 More results

When showing results you are likely to use tables and graphs. You can create tables easily in Latex.

File names	Satellite	Resolution
worldr	Meteosat	5km
worldg	Meteosat	5km
worldb	Meteosat	5km

Table 1: This is a simple table. More complicated tables can have headings which pass over more than one column

If you want to produce fancier tables than shown in Table **??** refer to the manual.

One way to produce simple graphs is to use gnuplot which can produce native Latex output. Graph **??** was produced using gnuplot with output designated as Latex; this creates a Latex output file which you can include directly or keep separate and refer to using the *include* command.

Another approach is to draw simple figures using *xfig* which allows you to export diagrams in Latex picture format so that the diagram can be included directly.

Perhaps the most robust way to include graphs is to create then using whatever package you like (eg Excel) and then convert them to PostScript or PDF and include them in the same was as was done in Figure **??** for the University Crest. You can usually do this with most packages, including Microsoft ones. One trick for producing PostScript is to print to a dummy PostScript printer; for PDF you can use the free CutePDF utilities at `www.cutepdf.com`.

4 Conclusions

This is the place to put your conclusions about your work. You can split it into different subsections if appropriate. You may want to include a subsection of future work which could be carried out to continue your research.

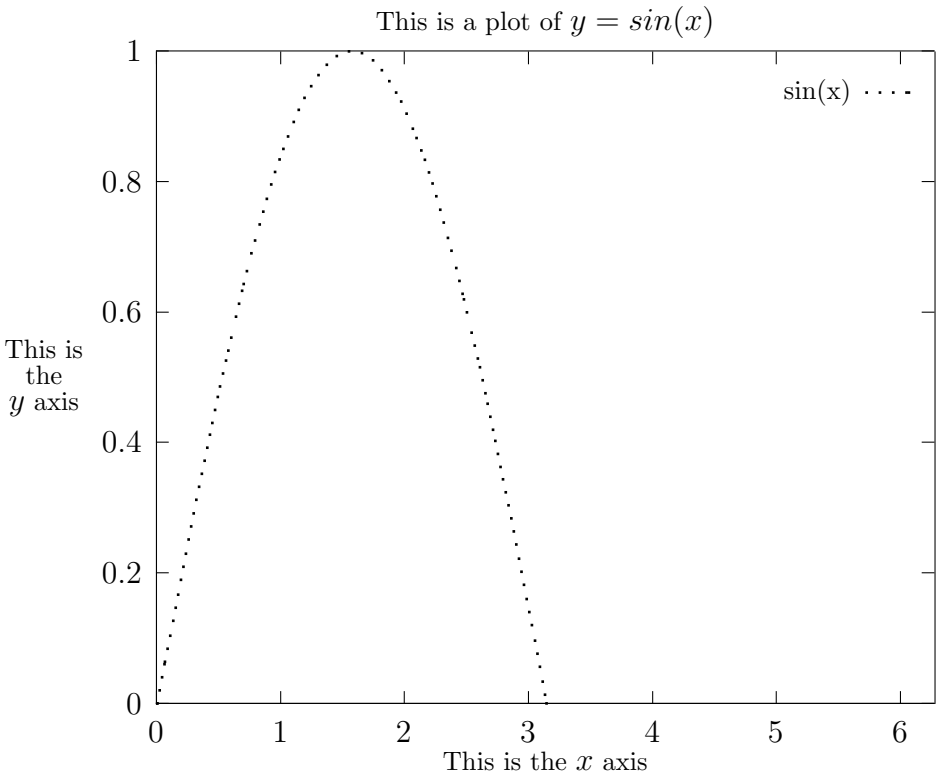

Figure 2: Simple Gnuplot example

References

[1] L.Lamport. *1986 Latex User's Guide and Reference Manual.* Addison Wesley. pp242.

[2] F.Bloggs. *1993 Latex Users do it in Environments* Int. Journal of Silly Findings. pp 23-29.