

MY PROJECT REPORT

A PROJECT REPORT
submitted in partial fulfillment of the requirements
for the award of the degree of

DOCTOR OF PHILOSOPHY



SUBMITTED BY
Amit K Awasthi
00/GBU/001

SUPERVISED BY
Amit K Awasthi
Assiatnat Professor, GBU

DEPARTEMTN OF APPLIED MATHEMATICS
SCHOOL OF VOCATIONAL STUDIES AND APPLIED SCIENCES
GAUTAM BUDDHA UNIVERSITY, GREATER NOIDA

DEC, 2017

Declaration

I hereby declare that the work contained in the project is original. I have followed research ethics to the best of my ability. No portion of the work contained in this document has been submitted in support of an application for a degree or qualification of this or any other university or other institution of learning. I have acknowledged all the sources of information which I used in this project. I have completed all pre-submission requirements as per University Guidelines.

Amit K Awasthi
00/GBU/001:

Date: DEC, 2017

Certificate

This to certify that the project entitled, “**My Project Report**” has been carried out by **Amit K Awasthi (00/GBU/001)** under my supervision. She has fulfilled the mandatory requirements for the submission of this project work. In my opinion this work is fully adequate, in scope and quality, as a dissertation for the degree of **Doctor of Philosophy**. To best of my knowledge, the results contained in this project has not been submitted in part or full to nay other University/Institute/Organization for the award of any degree/diploma.

(Amit K Awasthi)

Signature Supervisor

Date: DEC, 2017

Abstract

Much stuff borrowed from elsewhere

Acknowledgements

Much stuff borrowed from elsewhere

Contents

Certificate	iii
1 Introduction	2
1.1 Defaults	2
1.2 Options	2
2 Frequently asked questions	4
2.1 References	4
2.2 Figures	4
2.3 Frequently used symbols	5
A MATLAB CODE	7

List of Tables

List of Figures

Chapter 1

Introduction

Each chapter heading is typeset in this way — this is an integral part of the style, so if you don't like it `abdnthesis.cls` may not be for you. However, do feel free to modify the `.cls` file to your needs.

1.1 Defaults

- `oneside` — assuming single sided printing.
- `onecolumn` — \LaTeX will give you an error if you try to use the `twocolumn` option, not that anyone would contemplate this for a thesis.
- `11pt` — this works best with the text height and width on A4 paper.
- `1.5` line spacing — looks much better than double spacing.
- Times Roman font — for both text and maths with the exception of `mathcal`, but see below for options.

1.2 Options

- These are mutually exclusive options that are used to specify the type of degree that the thesis is to be submitted in partial fulfilment of the requirements of:
 - `phd` or `PhD` – the default.
 - `mphil` or `MPhil` – for Master of Philosophy Theses.
 - `msc` or `MSc` – for MSc project reports.
 - `bsc` or `BSc` – for BSc project reports.
- Two self-explanatory options for changing the line spacing from the default `1.5`.
 - `singlespace`
 - `doublespace`
- `titlebox` — this option ensures that the title of the document fits within the window on the standard departmental BSc or MSc project report front cover.
- `twoside` — this option is if you wish to print your thesis using a double sided printer. Note that the University regulations do not permit the submission of theses printed double sided.

- `cmmath` — this action changes the font used in math mode to be Computer Modern. The default is for all math mode fonts to be times with the exception of the `mathcal` font. If you want to also use times for `mathcal`, you need to comment out these two lines in the `abdnthesis.cls` file:

```
\SetMathAlphabet{\mathcal}{normal}{OMS}{cmsy}{m}{n}  
\SetMathAlphabet{\mathcal}{bold}{OMS}{cmsy}{b}{n}
```

- `cmall` — if you want to go with Computer Modern for both text and maths, use this option.

There is also an *optional* command for including prior qualifications within the title page; some like to do this. Prior to version 2.3 (2013/08/11) \LaTeX would give an error if this was not declared, even if you didn't want this information on the title page. This meant that you would have to have made the declaration `\qualifications{}`, which was an ugly solution. Now, “empty” declaration can simply be omitted.

Chapter 2

Frequently asked questions

In addition to the information provided in chapter 1, here are some brief notes on references (see section 2.1) and figures (see section 2.2).

2.1 References

You can, of course, use any referencing style you like such as `plain`. The `natbib` package, however, allows you to do this with named style citations:

<code>\citet{key}</code>	Jones et al. (1990)
<code>\citet*{key}</code>	Jones, Baker, and Smith (1990)
<code>\citep{key}</code>	(Jones et al., 1990)
<code>\citep*{key}</code>	(Jones, Baker, and Smith, 1990)
<code>\citep[chap. 2]{key}</code>	(Jones et al., 1990, chap. 2)
<code>\citep[e.g.][] {key}</code>	(e.g. Jones et al., 1990)
<code>\citep[e.g.][p. 32]{key}</code>	(e.g. Jones et al., p. 32)
<code>\citeauthor{key}</code>	Jones et al.
<code>\citeauthor*{key}</code>	Jones, Baker, and Smith
<code>\citeyear{key}</code>	1990

2.2 Figures

To include an encapsulated postscript or PDF file (depending on whether you're using \LaTeX or $\text{PDF}\LaTeX$) as a figure, do something like the following. Note, to ensure correct cross-referencing, it is best to include the figure label within the caption definition. *Note that the `graphicx` package is already loaded and used to include the University crest on the title page.*

```
\begin{figure}
  \begin{center}
    \includegraphics{myfigure.pdf}
    \caption{This is my figure.\label{fig:mylabel}}
  \end{center}
\end{figure}
```

2.3 Frequently used symbols

In \LaTeX documents where you want to use a modality or some text consistently in normal text and in equation environments it is often difficult to remember to typeset the text consistently or time-consuming to keep typing in the environment. It may be a good idea to define something like the following in the preamble (i.e. before `\begin{document}`):

```
\def\sftthing#1#2{\def#1{\mbox{{\small\normalfont\sffamily #2}}}}
```

```
\sftthing{\PP}{P}
```

```
\sftthing{\FF}{F}
```

Then use it in text or math mode. In all cases it looks the same; e.g.

`\PP\` refers to something, and other things are `\FF`; $\Phi = \PP \cup \FF$ is typeset as:

Note that you need to put “`\`” after the command if you want a normal space after it.

First ref [1] and [2]. I called only two.

Appendix A

MATLAB CODE

Bibliography

- [1] James R. Bunch, Christopher P. Nielsen, and Danny C. Sorensen. Rank-one modification of the symmetric eigenproblem. *Numerische Mathematik*, 31:31–48, 1978.
- [2] Timothy M. Toolan and Donald W. Tufts. Detection and estimation in non-stationary environments. In *Proceedings IEEE Asilomar Conference on Signals, Systems & Computers*, pages 797–801, November 2003.