ETH

Swiss Federal Institute of Technology Zurich

Department of Mathematics

Master Thesis   Summer 2009

Student Muster

The title of my thesis which should be split on several lines if it is too long

To some special person

Preface

First words and acknowledgements.

Abstract

Short summary of my thesis.

Contents

List of Figures

List of Tables

Notation

Explain your symbols and abbreviations.

Chapter 1

Introduction

Description of the work. Prepare the reader for the following chapters.

You will cite litterature here, typically

Chapter 2

First Chapter

2.1 To include a picture

Figure 2.1: Old Faithful Geyser eruption lengths, $n = 272$; binned data and two (Gaussian) kernel density estimates ($\times 10$) with $h = h^* = .3348$ and $h = .1$ (dotted).

Or also with `includegraphics`:
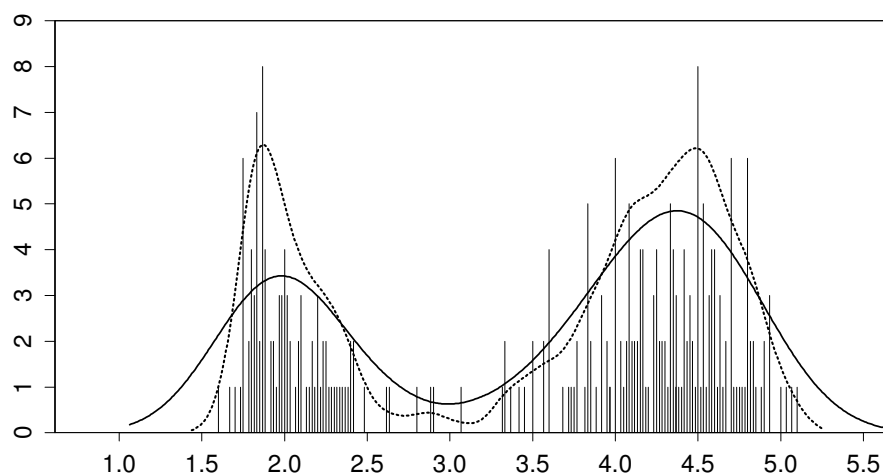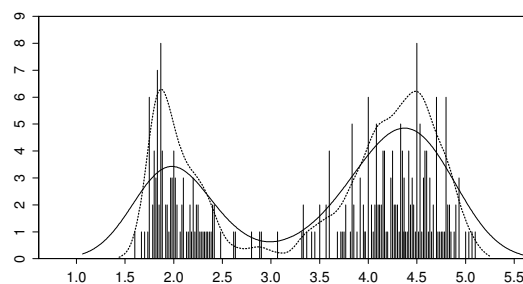

Figure 2.2: Old Faithful Geyser eruption lengths, $n = 272$; binned data and two (Gaussian) kernel density estimates ($\times 10$) with $h = h^* = .3348$ and $h = .1$ (dotted).

2.2   To make a proof

Proof. $1 + 1 = 2$ □

2.3   To include **R** code

See information in Appendix A.

2.4   Other information

Put a text between quotes: make sure to use nice quotes, such as "quote".

Cite a document in the bibliography (an example here): Author and Author (tion). Or mention that Hampel (a person) or Stahel and Weisberg (two persons) have already done quite a bit work.

Referencing a different part of your work: please refer to Appendix A.

Chapter 3

Summary

Summarize the presented work. Why is it useful to the research field or institute?

3.1   Future Work

Possible ways to extend the work.

Bibliography

Author, F. and S. Author (year of publication). Title of the article. *Journal where the article has been published volume of the journal*(issue number), firstpage–lastpage.

Hampel, F. R. (1985). The breakdown points of the mean combined with some rejection rules. *Technometrics 27*(2), 95–107.

Stahel, W. and S. Weisberg (1991). *Directions in Robust Statistics and Diagnostics, 2 vol.* N. Y.: Springer-Verlag.

Appendix A

Complementary information

Additional material. For example long mathematical derivations could be given in the appendix. Or you could include part of your code that is needed in printed form. You can add several Appendices to your thesis (as you can include several chapters in the main part of your work).

A.1   Including **R** code with verbatim

A simple (rather too simple, see A.2) way to include code or R output is to use `verbatim`. It just prints the text however it is (including all spaces, "strange" symbols,...) in a slightly different font.

```
## loading packages
library(RBGL)
library(Rgraphviz)
library(boot)

## global variables
X_MAX <- 150

    This allows me to put as many s  p a   c es   as I want.
I can also use \ and ' and & and all the rest that is usually only
accepted in the math mode.

I can also make as
                 many
             line
     breaks as
I want... and
             where I want.
```

A.2   Including **R** code with the *listings* package

However, it is much nicer to use the *listings* package to include R code in your report. It
allows you to number the lines, color the comments differently than the code, and so on.

```
1  ## example to generate an .eps file with the function ps.latex()
2  ## Author: Sarah Gerster and Martin Mächler
3  ## Last revision: 16 Aug 2011
4
5  require("sfsmisc") # pdf.latex(), pdf.end(), etc
6
7  pdf.latex(file='test_plot.pdf') #, main=TRUE)
8  ## no main=TRUE is needed to leave enough space for the plot title
9  ## but see below
10
11 ## make sure the legends are large enough
12 par(cex=1.5)
13
14 ## Make sure your lines are "visible" enough. Otherwise your plot
15 ## won't look very nicely in your text.
16 plot(-10:10, (-10:10)**2, type="l", lty=5,
17      xlab="my_x", ylab="my_y",
18      ## no main title: NOT recommended for figures in text which
19      ## have a \caption{..}
20      lwd=4, col='blue')
21 lines(-10:10, 0:20, type="p", lwd=4, pch=23,col='red')
22 legend(-3, 90, c("func1","func2"),lwd=4,col=c('blue', 'red'),
23        lty=c(1,1),cex=1)
24 pdf.end() # starts the previewer (which refreshes itself;
25           # at least on Linux at SfS
```

A.3   Using Sweave to include **R** code (and more) in your report

The easiest (and most elegant) way to include R code and its output (and have all your
figures up to date with your report) is to use Sweave. You can find an introduction Sweave
in **/u/sfs/StatSoftDoc/Sweave/Sweave-tutorial.pdf**.

Appendix B

Yet another appendix....

B.1 Description

Something details.

Something else other definition.

B.2 Tables

Refer to Table B.1 to see a left justified table with caption on top.

Table B.1: Results.	
Student	**Grade**
Marie	6
Alain	5.5
Josette	4.5
Pierre	5

Epilogue

A few final words.

Declaration of Originality

The signed declaration of originality is a component of every semester paper, Bachelor's thesis, Master's thesis and any other degree paper undertaken during the course of studies, including the respective electronic versions.

Lecturers may also require a declaration of originality for other written papers compiled for their courses.

I hereby confirm that I am the sole author of the written work here enclosed and that I have compiled it in my own words. Parts excepted are corrections of form and content by the supervisor .

Title of work (in block letters):

```
. . .
```

Authored by (in block letters):
For papers written by groups the names of all authors are required.

Name(s):	**First name(s):**
Muster	*Student*

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- I have mentioned all persons who were significant facilitators of the work .
- I am aware that the work may be screened electronically for plagiarism.
- I have understood and followed the guidelines in the document *Scientific Works in Mathematics*.

Place, date: **Signature(s):**

Zurich August 19th 2009   *bla*

For papers written by groups the names of all authors are required. Their signatures collectively guarantee the entire content of the written paper.