



# Your main title

*Smaller subtitle that expands on the main title*

**Names(s) of author(s) goes here**

**Supervisor: Name**

Master thesis, Economics and Business Administration

Major: Business Analytics

NORWEGIAN SCHOOL OF ECONOMICS

This thesis was written as a part of the Master of Science in Economics and Business Administration at NHH. Please note that neither the institution nor the examiners are responsible – through the approval of this thesis – for the theories and methods used, or results and conclusions drawn in this work.



# Acknowledgements

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetur.

Norwegian School of Economics

Bergen, December 2018

---

Your name here

---

Your name here

# Abstract

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	This is a heading . . . . .	1
1.1.1	This is a subheading . . . . .	2
1.1.1.1	This is a paragraph . . . . .	3
<b>2</b>	<b>Background</b>	<b>4</b>
<b>3</b>	<b>Data</b>	<b>5</b>
<b>4</b>	<b>Methodology</b>	<b>6</b>
<b>5</b>	<b>Analysis</b>	<b>7</b>
<b>6</b>	<b>Discussion</b>	<b>8</b>
<b>7</b>	<b>Conclusion</b>	<b>9</b>
	<b>References</b>	<b>10</b>
	<b>Appendices</b>	
<b>A</b>	<b>Test</b>	<b>11</b>
<b>B</b>	<b>Tips and tricks to get you started</b>	<b>12</b>
B.1	Adding chapters or sections . . . . .	12
B.2	Headings and subsections . . . . .	12
B.3	Figures, tables and equations . . . . .	13
B.3.1	Figures . . . . .	13
B.3.2	Tables . . . . .	14
B.3.3	Equations . . . . .	15
B.3.4	Appendix . . . . .	15
B.4	References . . . . .	16
B.5	Some useful notes . . . . .	16

## List of Figures

A.1	NHH logo	11
B.1	NHH logo	14

# List of Tables

B.1 Variables in datasett . . . . .	15
-------------------------------------	----

# 1 Introduction

## 1.1 This is a heading

Suspendisse vitae elit. Aliquam arcu neque, ornare in, ullamcorper quis, commodo eu, libero. Fusce sagittis erat at erat tristique mollis. Maecenas sapien libero, molestie et, lobortis in, sodales eget, dui. Morbi ultrices rutrum lorem. Nam elementum ullamcorper leo. Morbi dui. Aliquam sagittis. Nunc placerat. Pellentesque tristique sodales est. Maecenas imperdiet lacinia velit. Cras non urna. Morbi eros pede, suscipit ac, varius vel, egestas non, eros. Praesent malesuada, diam id pretium elementum, eros sem dictum tortor, vel consectetur odio sem sed wisi.

Sed feugiat. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Ut pellentesque augue sed urna. Vestibulum diam eros, fringilla et, consectetur eu, nonummy id, sapien. Nullam at lectus. In sagittis ultrices mauris. Curabitur malesuada erat sit amet massa. Fusce blandit. Aliquam erat volutpat. Aliquam euismod. Aenean vel lectus. Nunc imperdiet justo nec dolor.

Etiam euismod. Fusce facilisis lacinia dui. Suspendisse potenti. In mi erat, cursus id, nonummy sed, ullamcorper eget, sapien. Praesent pretium, magna in eleifend egestas, pede pede pretium lorem, quis consectetur tortor sapien facilisis magna. Mauris quis magna varius nulla scelerisque imperdiet. Aliquam non quam. Aliquam porttitor quam a lacus. Praesent vel arcu ut tortor cursus volutpat. In vitae pede quis diam bibendum placerat. Fusce elementum convallis neque. Sed dolor orci, scelerisque ac, dapibus nec, ultricies ut, mi. Duis nec dui quis leo sagittis commodo.

Aliquam lectus. Vivamus leo. Quisque ornare tellus ullamcorper nulla. Mauris porttitor pharetra tortor. Sed fringilla justo sed mauris. Mauris tellus. Sed non leo. Nullam elementum, magna in cursus sodales, augue est scelerisque sapien, venenatis congue nulla arcu et pede. Ut suscipit enim vel sapien. Donec congue. Maecenas urna mi, suscipit in, placerat ut, vestibulum ut, massa. Fusce ultrices nulla et nisl.

Etiam ac leo a risus tristique nonummy. Donec dignissim tincidunt nulla. Vestibulum rhoncus molestie odio. Sed lobortis, justo et pretium lobortis, mauris turpis condimentum augue, nec ultricies nibh arcu pretium enim. Nunc purus neque, placerat id, imperdiet



sed, pellentesque nec, nisl. Vestibulum imperdiet neque non sem accumsan laoreet. In hac habitasse platea dictumst. Etiam condimentum facilisis libero. Suspendisse in elit quis nisl aliquam dapibus. Pellentesque auctor sapien. Sed egestas sapien nec lectus. Pellentesque vel dui vel neque bibendum viverra. Aliquam porttitor nisl nec pede. Proin mattis libero vel turpis. Donec rutrum mauris et libero. Proin euismod porta felis. Nam lobortis, metus quis elementum commodo, nunc lectus elementum mauris, eget vulputate ligula tellus eu neque. Vivamus eu dolor.

### 1.1.1 This is a subheading

Nulla in ipsum. Praesent eros nulla, congue vitae, euismod ut, commodo a, wisi. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Aenean nonummy magna non leo. Sed felis erat, ullamcorper in, dictum non, ultricies ut, lectus. Proin vel arcu a odio lobortis euismod. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Proin ut est. Aliquam odio. Pellentesque massa turpis, cursus eu, euismod nec, tempor congue, nulla. Duis viverra gravida mauris. Cras tincidunt. Curabitur eros ligula, varius ut, pulvinar in, cursus faucibus, augue.

Nulla mattis luctus nulla. Duis commodo velit at leo. Aliquam vulputate magna et leo. Nam vestibulum ullamcorper leo. Vestibulum condimentum rutrum mauris. Donec id mauris. Morbi molestie justo et pede. Vivamus eget turpis sed nisl cursus tempor. Curabitur mollis sapien condimentum nunc. In wisi nisl, malesuada at, dignissim sit amet, lobortis in, odio. Aenean consequat arcu a ante. Pellentesque porta elit sit amet orci. Etiam at turpis nec elit ultricies imperdiet. Nulla facilisi. In hac habitasse platea dictumst. Suspendisse viverra aliquam risus. Nullam pede justo, molestie nonummy, scelerisque eu, facilisis vel, arcu.

Curabitur tellus magna, porttitor a, commodo a, commodo in, tortor. Donec interdum. Praesent scelerisque. Maecenas posuere sodales odio. Vivamus metus lacus, varius quis, imperdiet quis, rhoncus a, turpis. Etiam ligula arcu, elementum a, venenatis quis, sollicitudin sed, metus. Donec nunc pede, tincidunt in, venenatis vitae, faucibus vel, nibh. Pellentesque wisi. Nullam malesuada. Morbi ut tellus ut pede tincidunt porta. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam congue neque id dolor.

### 1.1.1.1 This is a paragraph

Donec et nisl at wisi luctus bibendum. Nam interdum tellus ac libero. Sed sem justo, laoreet vitae, fringilla at, adipiscing ut, nibh. Maecenas non sem quis tortor eleifend fermentum. Etiam id tortor ac mauris porta vulputate. Integer porta neque vitae massa. Maecenas tempus libero a libero posuere dictum. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Aenean quis mauris sed elit commodo placerat. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Vivamus rhoncus tincidunt libero. Etiam elementum pretium justo. Vivamus est. Morbi a tellus eget pede tristique commodo. Nulla nisl. Vestibulum sed nisl eu sapien cursus rutrum.

Nulla non mauris vitae wisi posuere convallis. Sed eu nulla nec eros scelerisque pharetra. Nullam varius. Etiam dignissim elementum metus. Vestibulum faucibus, metus sit amet mattis rhoncus, sapien dui laoreet odio, nec ultricies nibh augue a enim. Fusce in ligula. Quisque at magna et nulla commodo consequat. Proin accumsan imperdiet sem. Nunc porta. Donec feugiat mi at justo. Phasellus facilisis ipsum quis ante. In ac elit eget ipsum pharetra faucibus. Maecenas viverra nulla in massa.

## 2 Background

I am here citing James et al. (2013), one of my sources. Sometimes you may want to enclose the entire citation in parentheses (James et al., 2013).

## 3 Data

## 4 Methodology

## 5 Analysis

## 6 Discussion

## 7 Conclusion



## References

- James, G., Witten, D., Hastie, T., & Tibshirani, R. (2013). *An introduction to statistical learning* (Vol. 112). Springer.
- Norsk Elbilforening. (2018). *Informasjon om NOBIL*.
- Pearson, E. S. (1931). The test of significance for the correlation coefficient. *Journal of the American Statistical Association*, 26(174), 128–134.
- R Core Team. (2017). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. Vienna, Austria. <https://www.R-project.org/>

---

# Appendices

## A Test

Figure A.1: NHH logo

NHH



## B Tips and tricks to get you started

This is just a few notes to help you get started with your  $\text{\LaTeX}$  project. The idea behind this template is to give you a good starting point from where you can build your thesis or report.  $\text{\LaTeX}$  has many possibilities and you can do almost anything you like. First I recommend reading all three parts of this introduction if your are new to the program: [https://www.overleaf.com/learn/latex/Free\\_online\\_introduction\\_to\\_LaTeX\\_\(part\\_1\)](https://www.overleaf.com/learn/latex/Free_online_introduction_to_LaTeX_(part_1))

### B.1 Adding chapters or sections

To get a good overview of the document this template is divided into different sections/subfile where each section/subfile represents a chapter. This gives the possibility to compile a single section at a time and is a nice way to structure the document. If you want to add new sections just rightclick on the chapters folder and choose *New File*. In this file add to following code:

```
\documentclass[../Main.tex]{subfiles}
\begin{document}

% Write stuff here

\biblio
\end{document}
```

Also add the filepath of that new section to *Main.tex*. The sections will be ordered in the final pdf the way you order them in *Main.tex*. Here is one example where the section/subfile is named *NewSection.tex* and is in the *Chapters* folder:

```
\section{Name of section}
\subfile{Chapters/NewSection}
```

### B.2 Headings and subsections

Within each section one creates heading by using the command `\subsection{Heading here}`. The subsections you create will automatically be added to the table of contents. One can have different levels of headings using

`\subsubsection{}` or `\paragraph{}`. The different headings will be marked X.1 for subsections, X.1.1 for subsubsections and X1.1.1 for paragraphs, where X represents the chapters.

## B.3 Figures, tables and equations

One of my favourite things in  $\text{\LaTeX}$  is how it handles figures, tables and equations. Here are some examples of how to implement it in your document with code examples.

### B.3.1 Figures

Figures and images are added using the the following environment:

```
\begin{figure}[H]
  \centering
  \caption{NHH-logo}
  \includegraphics[width=0.2\columnwidth]{Images/nhhlogo2.png}
  \label{fig:logo}
\end{figure}
```

The code above will produce Figure [B.1](#). One can use many fileformats here including pdf, png, jpeg, jpg etc. The caption can be placed above or below the image and appear in the compiled pdf according to where you place it. The `\label{}` command has to come after the caption and is used for referencing the figure later in the document with the `\ref{}` command. The numbering of figures, tables and equations will change according to chapter. E.g. Figure 3.1, Table 2.4, Equation 6.2. All of them have separate counters so one can have Table 4.2 and Figure 4.2 in the same document.

**Figure B.1:** NHH logo

 The logo consists of the letters 'NHH' in a bold, blue, sans-serif font.


### B.3.2 Tables

Tables can be designed any way you like. Tables are numbered the same way as figures and can also be referenced directly if you give them a label. There are several  $\text{\LaTeX}$  table generators online, for example <https://www.tablesgenerator.com/>, which work very well. There is also a package in R called `xtable` which transforms R-tables to  $\text{\LaTeX}$  tables/code. This can be very helpful and save a lot of time if you are working with R. The following code produces Table B.1.

```

\begin{table}[H]
\centering
\caption{Variables in dataset}
\begin{tabular}{rr}
\hline
\hline
Variable name & Type of variable\\
\hline
Postal code & Categorical \\
Date of birth & Date \\
Municipality & Categorical \\
Type of car & Categorical\\
Registration date & Date \\
Sex & Categorical\\
Age & Numerical \\
\hline
\hline
\label{tab:Variables}
\end{tabular}
\end{table}

```

**Table B.1:** Variables in datasett

Variable name	Type of variable
Postal code	Categorical
Date of birth	Date
Municipality	Categorical
Type of car	Categorical
Registration date	Date
Sex	Categorical
Age	Numerical

### B.3.3 Equations

Equations are something that could be a problem in many other programs which creates documents, e.g. Word.  $\text{\LaTeX}$  is used by many researchers which writes a lot of equations because it's clean and easy for this purpose. There are code strings for Greek letters, special symbols, mathematical symbols etc. Equations are normally numbered. To create numbered equations one uses an equation environment, see below. The environment/code chunk displayed creates equation B.1. The numbering of equations also follow the chapters. One can also write inline equations in a paragraph using two dollar signs, \$\$, and writing inside the dollar signs. E.g. `$x+x=y$` will produce  $x + x = y$ .

```
\begin{equation} \label{equ:test}
\hat{f}(x) = \sum_{b=1}^B \lambda \hat{f}^b(x)
\end{equation}
```

$$\hat{f}(x) = \sum_{b=1}^B \lambda \hat{f}^b(x) \quad (\text{B.1})$$

### B.3.4 Appendix

In the appendix the numbering is changed. Every subsection is number A1, A2, A3 etc. Figures, tables and equations are numbered according to their subsection, Figure A1.3, Table A3.5 etc.

## B.4 References

Referencing in  $\LaTeX$  can be done many different ways, with many different packages. In this template the package *biblatex* and the *apa* style is used for referencing. Most referencing packages have a similar setup. In the `Kildeliste.bib` file you can find several examples of how to add a source to the document. After a source has been added to the `.bib` file one can cite it in the text using several commands. I recommend the links [https://www.overleaf.com/learn/latex/Biblatex\\_bibliography\\_styles](https://www.overleaf.com/learn/latex/Biblatex_bibliography_styles) and <http://tug.ctan.org/info/biblatex-cheatsheet/biblatex-cheatsheet.pdf> for more information on how to use *biblatex*. Another common package for referencing and citation is *natbib*.

Only sources that are cited within the text will appear in the reference list. One can use a command called *nocite* to list references that are not cited in text.

If you find your source on Google scholar you can get the code chunk needed to add the source to your  $\LaTeX$  `.bib` file directly. This is done by clicking the citation button and choosing *BibTex* in Google scholar.

## B.5 Some useful notes

Commenting in latex is done by adding a percentage sign in front of what you want to comment. Only that specific line will become a comment. If you want to write an actual percentage sign in your text you have to add a backslash before the percentage sign like this, `\%`. One also has to add a backslash in front of a dollar sign, like so `\$`, to produce a dollar sign. This because the symbol is used for inline equations.

One can quickly convert text to italic or bold by marking the wanted text and pressing `ctrl+i` (`cmd+i` for Mac) or `ctrl+b` (`cmd+b`).

All labels have to be unique for crossreferencing purposes. As mentioned earlier `\ref{labelName}` will produce the number of the figure/table/equation and the command `\pageref{labelName}` will produce the page where the figure/table/equation is located.

There are lots of sources online where you will find answers to most, if not all, of your question regarding  $\LaTeX$ . Google is your friend!

Last, but not least, good luck with your thesis!