

# Writing your master's thesis

A guide to the  $\text{\LaTeX}$  document class **uiomasterthesis**

Dag Langmyhr  
([dag@ifi.uio.no](mailto:dag@ifi.uio.no))

Department of Informatics  
Faculty of Mathematics and Natural Sciences



# Chapter 1

## Writing your thesis

L<sup>A</sup>T<sub>E</sub>X is an excellent tool for writing your master's thesis, especially in combination with the bibliography tool BibL<sup>A</sup>T<sub>E</sub>X.

There are no official specifications for the contents of a master's thesis at the University of Oslo (only the front page) but the University of Oslo Library and the Department of Informatics have developed this document class which we believe is well suited.

There exists a companion L<sup>A</sup>T<sub>E</sub>X package called **uiomasterfp** to get an official front page for the thesis (also used in this document); **uiomasterthesis** only defines the typography of the contents.

### 1.1 Installation

If you are processing your L<sup>A</sup>T<sub>E</sub>X document on a stationary Linux computer at the University of Oslo, you need not worry about installing the **uiomasterthesis** document class; it is already there.

#### 1.1.1 On your personal computer

To use this document class on your own computer (which may run Linux, MacOS or Windows) you must do the following:

1. Download <https://www.mn.uio.no/ifi/tjenester/it/hjelp/latex/uiotheses.zip>. (Click on the URL to download the file.)

You should also fetch the companion file <https://www.mn.uio.no/ifi/tjenester/it/hjelp/latex/uiomasterfp.zip> to get an official front page.

2. Unzip the files. You may place all the files in the same folder as your L<sup>A</sup>T<sub>E</sub>X source files.<sup>1</sup>


And that should be all.

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<sup>1</sup>If you know where L<sup>A</sup>T<sub>E</sub>X packages are kept on your computer, you can save them there to make them generally available. Remember to refresh your file name database afterwards.

### 1.1.2 Using Overleaf

If you are using Overleaf (see <https://www.overleaf.com>) to write your thesis, you may do the following to use the `uiomasterthesis` document class:

1. Download <https://www.mn.uio.no/ifi/tjenester/it/hjelp/latex/uiotheses.zip>. (Click on the URL to download the file.)
2. Unpack the ZIP file.<sup>2</sup>
3. In your Overleaf project, select the upload icon (“”). Then, select all the unzipped files and upload them.

Once this has been done, you may use the document class.

## 1.2 Using the document class

To use this document class, just start your L<sup>A</sup>T<sub>E</sub>X file with

```
\documentclass[options]{uiomasterthesis}
```

Any options are passed to packages you use.

### 1.3 An example

The `uiomasterthesis` package comes with a base file named **uiomasterthesis-base.tex** containing the basic layout of your thesis; see Figure 1.1 on the facing page. The idea is that you make a copy of that file, modify the specified texts, and then write your thesis.

**Line 1:** The document class should be **uiomasterthesis**. You must also specify the language of your thesis.

**Line 2:** UTF-8 is the most common character encoding in use today, so, unless you specify otherwise in your text editor, you are likely to get this encoding.

**Line 3:** The `url` package provides the `\url` command which is very useful for typesetting long internet addresses. These should be set in a **sans serif** typeface (rather than **teletype**). For an example, see Section 1.1.1 on the previous page.

**Lines 4–6:** These packages should always be included:

**babel** handles language adaption.

**csquotes** supports quote marks in various language. This package is required by `biblatex`; see below.

**graphicx** provides support for including illustrations.

**textcomp** adds many useful symbols.

**uiomasterfp** is used to create the official University of Oslo front page.

**varioref** gives improved features for crossreferencing.

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<sup>2</sup>Overleaf allows import of ZIP files, but *only* if it is the first thing you do after creating a new project.

```

1  \documentclass[UKenglish]{uiomasterthesis} %% ... or norsk or nynorsk or USenglish
2  \usepackage[utf8]{inputenc}                %% ... or latin1
3  \usepackage[T1]{url}\urlstyle{sf}
4  \usepackage{babel, csquotes, graphicx, textcomp, uiomasterfp, varioref}
5  \usepackage[backend=biber,style=numeric-comp]{biblatex}
6  \usepackage[hidelinks, hypertexnames=false]{hyperref}
7
8  \title{The title of my thesis}              %% ... or whatever
9  \subtitle{Any short subtitle}              %% ... if any
10 \author{My Name}                          %% ... or whoever
11
12 \addbibresource{mybib.bib}                 %% ... or whatever
13
14 \begin{document}
15 \uiomasterfp[dept={Department of Physics}, %% ... or your department
16   program={Physics},                      %% ... or your study program
17   supervisor={The Name},                  %% ... or blank
18   % or supervisors={A Name\and B Name},    %% if more than one
19   long]                                   %% ... or short
20
21 \frontmatter{}
22 \begin{abstract}
23   Here come 3--6 sentences describing your thesis.
24 \end{abstract}
25
26 \begin{xabstract}[Sammendrag]              %% ... or Abstract or ...
27   Here comes the abstract in a different language.
28 \end{xabstract}
29
30 \tableofcontents{}                        %%
31 \listoffigures{}                         %% (omit if none)
32 \listoftables{}                          %% (omit if none)
33
34 \begin{preface}
35   Here comes your preface, including acknowledgments and thanks.
36 \end{preface}
37
38 \mainmatter{}
39 \part{Introduction}                       %% ... Innledning or Innleing
40 \chapter{Background}                     %% ... or Bakgrunn
41 \section{Xxx's work}                     %% ... or whatever
42
43 \part{The project}                       %% ... or ??
44 \chapter{Planning the project}           %% ... or ??
45
46 \part{Conclusion}                       %% ... or ??
47 \chapter{Results}                       %% ... or ??
48
49 \backmatter{}
50 \printbibliography{}
51 \end{document}

```

Figure 1.1: The file uiomasterthesis-base.tex

**biblatex** loads Bib $\text{\LaTeX}$  which handles bibliographies.<sup>3</sup> The package options given here are recommended; they use the numeric citation style favoured in natural science.

**hyperref** provides hyperlinks both internally and externally.

**Line 8:** You must always state a thesis title.

**Line 9:** Often, a subtitle is useful.<sup>4</sup>

**Line 10:** Don't forget your own name!

**Line 12:** `\addbibresource` specifies the name/s of your Bib $\text{\LaTeX}$  bibliography file/s.

**Line 15–19:** You should place your call on `\uiomasterfp` just after `\begin{document}`. The most common options are:

**dept={...}** states your department.

**program={...}** tells your study programme.

**supervisor={...}** names your supervisor. If you have more than one supervisor, use **supervisors=** instead, and separate the names with `\and`.

**long** or **short** displays the number of ECTS study points your thesis represents (60 or 30).

**Line 22:** specifies the start of the thesis front matter, i.e., abstract, table of contents etc.

**Lines 23–25:** contains your abstract.

**Lines 26–28:** contains your abstract in a different language.

**Lines 30–32:** produces your tables of content, figures and tables, accordingly.

**Lines 34–36:** is your preface.

**Line 38:** shows the start of the main part of your thesis.

**Line 39–41:** shows your thesis structure: `\part`, `\chapter`, `\section`, `\subsection` etc. Use the \*-ed form for unnumbered headings.

**Line 49:** starts the back part containing appendices, bibliography and such.

**Line 50:** prints the bibliography created by Bib $\text{\LaTeX}$ .

## 1.4 Another example

The file `uiomasterthesis-guide.tex` shows the  $\text{\LaTeX}$  source code for this documentation.

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<sup>3</sup>*Local guide to Bib $\text{\LaTeX}$*  at <https://www.mn.uio.no/ifi/tjenester/it/hjelp/latex/biblatex-guide.pdf> is a simple introduction to creating your bibliography.

<sup>4</sup>The `\subtitle` command is not standard  $\text{\LaTeX}$  but supplied by the `uiomasterfp` package.