

# Writing your PhD thesis

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

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## Abstract

L<sup>A</sup>T<sub>E</sub>X is an excellent tool for writing your PhD thesis, especially in combination with the bibliography tool BibL<sup>A</sup>T<sub>E</sub>X.

The University of Oslo has defined guidelines<sup>1</sup> for the PhD theses, and the University of Oslo Library and the Department of Informatics have developed the document class **uiophdthesis** in accordance with these guidelines. This documentation has been typeset using that class.

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<sup>1</sup>See <https://www.uio.no/english/services/print/doctoral-thesis/index.html>.

## Abstract

# Contents

<b>Introduction</b>	<b>5</b>
1 About the document class . . . . .	7
1.1 Fonts. . . . .	7
1.2 Document structure. . . . .	7
1.2.1 Included research papers . . . . .	8
2 Installation . . . . .	9
2.1 On your personal computer . . . . .	9
2.2 Using Overleaf. . . . .	9
3 Using the document class . . . . .	11
3.1 An example . . . . .	11
3.2 Another example . . . . .	13

## Contents

# **Introduction**





# Chapter 1

## About the document class

The `uiophdthesis` class has the following features:

- The paper size is A4, which is what the printers require (see the guidelines in Footnote 1). The thesis will be photographically reduced to 81 % when printed.
- The font size is 12 pt which will look all right in the reduced print.
- You should not attempt to create any kind of front page. This will always be supplied by the printers.<sup>1</sup>

### 1.1 Fonts

The default document font for `uiophdthesis` is the standard L<sup>A</sup>T<sub>E</sub>X font *Computer Modern* in combination with *Helvetica*. You may select a different font by using one of these options to `\documentclass`:

**font=garamond** selects *Garamond* with *Helvetica*

**font=noto** selects *Noto serif* with *Noto sans*

**font=times** selects *Times Roman* with *Helvetica*

### 1.2 Document structure

We recommend that you use the `\part*{...}` command to structure your thesis. (If you want numbered parts, you may omit the `*`.)

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<sup>1</sup>This documentation does have a front page because it provides technical information; it is not a thesis.

### 1.2.1 Included research papers

Your thesis is likely to contain one or more research paper published in various publications. When you want to include such a research paper, you should use the command **\uiopaper** rather than a **\part\***. This will affect the numbering.

If you want to include the research paper exactly as it was typeset, you can import it from a PDF file using the command **\uioincludepdf** giving the PDF file as parameter.

# Chapter 2

## Installation

If you are processing your  $\text{\LaTeX}$  document on a stationary Linux computer at the University of Oslo, you need not worry about installing the `uiophdthesis` document class; it is already there.

### 2.1 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. Fetch <https://www.mn.uio.no/ifi/tjenester/it/hjelp/latex/uiotheses.zip>. (Click on the URL to download the file.)
2. Unzip the files. You may place all the files in the same folder as your  $\text{\LaTeX}$  source files.<sup>1</sup>

And that should be all.

### 2.2 Using Overleaf

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

1. Fetch <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.

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<sup>1</sup>If you know where  $\text{\LaTeX}$  packages are kept on your computer, you can save them there to make them generally available. Remember to refresh your file name database afterwards.

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



# Chapter 3

## Using the document class

To use this document class, just start your  $\text{\LaTeX}$  file with

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

The option **font=xxx** is used to select your font; see Section 1.1 on page 7. All other options are passed to packages you use.

### 3.1 An example

The `uiophdthesis` package comes with a base file named **uiophdthesis-base.tex** containing the basic layout of your thesis; see Figure 3.1 on the next 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 **uiophdthesis**. 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 2.1 on page 9.

**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.

**varioref** gives improved features for crossreferencing.

```

1  \documentclass[UKenglish]{uiophdthesis}    %% ... or norsk, nynorsk, USenglish
2  \usepackage[utf8]{inputenc}                %% ... or latin1
3  \usepackage[T1]{url}\urlstyle{sf}
4  \usepackage{babel, csquotes, graphicx, textcomp, 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  \author{My Name}                          %% ... or whoever
10
11 \addbibresource{mybib.bib}                 %% ... or whatever
12
13 \begin{document}
14 \frontmatter{}
15 \maketitle{}
16
17 \begin{abstract}
18   Here come 3--6 sentences describing your thesis.
19 \end{abstract}
20
21 \begin{xabstract}[Sammendrag]               %% ... or Abstract or ...
22   Here comes the abstract in a different language.
23   Note that a Norwegian abstract is mandatory!
24 \end{xabstract}
25
26 \tableofcontents{}                         %%
27 \listoffigures{}                          %% (omit if none)
28 \listoftables{}                           %% (omit if none)
29
30 \begin{preface}
31   Here comes your preface, including acknowledgments and thanks.
32 \end{preface}
33
34 \mainmatter{}
35 \part*{Introduction}                       %% ... Innledning or Innleiing
36 \chapter{Background}                       %% ... or Bakgrunn
37 \section{Xxx's work}                       %% ... or whatever
38
39 \uiopaper{My first paper}                   %% ... or ??
40 \chapter{Planning the project}              %% ... or ??
41 Some text ...
42
43 \uiopaper{My second paper}                  %% ... or ??
44 \uioincludepdf{mypaper2.pdf}               %% ... or ??
45
46 \part{Conclusion}                           %% ... or ?? (if any)
47 \chapter{Results}                           %% ... or ??
48 Some text ...
49
50 \backmatter{}
51 \printbibliography{}
52 \end{document}

```

Figure 3.1: The file uiophdthesis-base.tex

**biblatex** loads Bib $\LaTeX$  which handles bibliographies.<sup>1</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:** Don't forget you own name!

**Line 11:** `\addbibresouce` specifies the name/s of your Bib $\LaTeX$  bibliography file/s.

**Line 14:** specifies the start of the thesis front matter, i.e., abstract, table of contents etc.

**Line 15:** prints an inner title page. (This will appear after the front page so it is recommended.)

**Lines 17–19:** contains your abstract.

**Lines 21–24:** contains your abstract in a different language, for example in Norwegian. **A Norwegian abstract is mandatory at the University of Oslo.**

**Lines 26–28:** produces your tables of content, figures and tables, accordingly.

**Lines 30–32:** is your preface.

**Line 34:** shows the start of the main part of your thesis.

**Line 35–37:** shows your thesis structure: `\part`, `\chapter`, `\section`, `\subsection` etc. Use the \*-ed form for unnumbered headings.

**Line 39–41:** contains a research paper typeset as part of the thesis.

**Line 43–44:** contains a different research paper available as a PHD file.

**Line 46–48:** is an additional thesis text not part of a paper.

**Line 50:** starts the back part containing appendices, bibliography and such.

**Line 51:** prints the bibliography created by Bib $\LaTeX$ .

## 3.2 Another example

The file `uiophdthesis-guide.tex` shows the  $\LaTeX$  source code for this documentation.

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<sup>1</sup>Local guide to Bib $\LaTeX$  at <https://www.mn.uio.no/ifi/tjenester/it/hjelp/latex/biblatex-guide.pdf> is a simple introduction to creating your bibliography.