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Writing your PhD thesis

A guide to the LaTeX document class **uiophdthesis**

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Abstract

LᴬTᴇX is an excellent tool for writing your PhD thesis, especially in combination with the bibliography tool BibLᴬTᴇX.

The University of Oslo has defined guidelines[1] 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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[1]See https://www.uio.no/english/services/print/doctoral-thesis/index.html.

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Introduction

What is the **uiophdthesis** document class and how do I use it?

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 on page i). 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 cover page. This will always be supplied by the printers.

1.1 Fonts

The default document font for **uiophdthesis** is the standard LaTeX 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

The standard LaTeX document structuring commands

\chapter, \section, \subsection and \subsubsection

can be used in your thesis.

You should avoid using the \part command. If you want a separation page, you should rather use the **uioseparatorpage** environment:

    \begin{uioseparatorpage}{*title*}
    some text (if you need it)
    \end{uioseparatorpage}

For examples, see pages 1 and 5.

1.3 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**:

> \uiopaper{*title of paper*}

1.3.1 Typesetting a research paper

If you have the LaTeX source for the research paper, you can include it here, after the \uiopaper command.

Research papers in *article* style

Many research papers were originally written in the article style, and this style has no \chapter command. To make it easier to include these in the thesis, the \uiopaper command may be given as

> \uiopaper[nochapter]{*paper title*}

Then, the paper will be properly typeset with no \chapter commands but with \section as the highest structuring command.

1.3.2 Research paper published elsewhere

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

Page numbers can often be a problem when including full-page PDF files: they might overlap those of your thesis. To remedy this, you may supply \uioincludepdf with options to alter the page number of the thesis. (Those of the included paper are, of course, part of the PDF file.)

> \uioincludepdf{*file name*} — move thesis page numbers into the margin
> \uioincludepdf[numbers=low]{*file name*} — as above, but lower
> \uioincludepdf[numbers=none]{*file name*} — remove thesis page numbers

Practical information

Chapter 2

Installation

If you are processing your 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 LATEX source files.[1]

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.[2]

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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[1]If you know where 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.

[2]Overleaf allows import of ZIP files, but *only* if it is the very first thing you do after creating a new project.

Chapter 3

Using the document class

To use this document class, just start your LaTeX file with

\documentclass[*options*]{uiophdthesis}

The option **font=*xxx*** is used to select your font; see Section 1.1 on page 3. 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 Figures 1 and 2. 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 ("sf") typeface (rather than teletype). For an example, see Section 2.1 on page 7.

Lines 4–8: These packages should always be included:

babel handles language adaption.

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

graphicx provides support for including illustrations.

textcomp adds many useful symbols.

varioref gives improved features for crossrefererencing.

```
                          ─── uiophdthesis-base.tex ───
 1   \documentclass[UKenglish]{uiophdthesis}   %% ... or USenglish
 2   \usepackage[utf8]{inputenc}               %% ... or latin1
 3   \usepackage[T1]{url}\urlstyle{sf}
 4   \usepackage{babel, csquotes, graphicx, textcomp}
 5   \usepackage[nospace]{varioref}
 6   \usepackage[backend=biber,style=numeric-comp]{biblatex}
 7   \usepackage[hidelinks, hypertexnames=false]{hyperref}
 8   \usepackage{bookmark}
 9
10   \title{The title of my thesis}        %% ... or whatever
11   \subtitle{A subtitle}                 %% ... or whatever
12   \author{My Name}                      %% ... or whoever
13
14   \addbibresource{mybib.bib}            %% Your bibliography file
15
16   \begin{document}
17   \frontmatter{}
18   \maketitle[
19     supervisor={A Supervisor},
20     %% supervisors={A Supervisor\and Another Supervisor}, %% if more than one
21     %% dept={Department of Something},  %% if you want to include it
22     %% fac={Faculty of Theory},         %% if you want to include it
23     %% info={Additional info},          %% if you need it
24     %% year={2099}                      %% unless current year
25   ]
26
27   \begin{abstract}
28     Here come 3--6 sentences describing your thesis.
29   \end{abstract}
30   \begin{xabstract}[Sammendrag]                %% ... or Abstract or ...
31     Here comes the abstract in a different language.
32     Note that a Norwegian abstract is mandatory!
33   \end{xabstract}
34
35   \tableofcontents{}                       %%
36   \listoffigures{}                         %% (omit if none)
37   \listoftables{}                          %% (omit if none)
38
39   \begin{preface}
40     Here comes your preface, including acknowledgments and thanks.
41   \end{preface}
```

Figure 1: The file uiophdthesis-base.tex (part I)

```
43  \mainmatter{}
44  \begin{uioseparatorpage}{Introduction}  %% ... Innledning or Innleiing
45    ... if you need a separator page
46  \end{uioseparatorpage}
47
48  \chapter{Background}                      %% ... or Bakgrunn
49  \section{Xxx's work}                      %% ... or whatever
50
51  \uiopaper{My first paper}            %% ... or ??
52  \chapter{Planning the project}       %% ... or ??
53  Some text ...
54
55  \uiopaper{My second paper}           %% ... or ??
56  %% \uioincludepdf{mypaper2.pdf}      %% (if you want to include a paper)
57
58  \begin{uioseparatorpage}{Conclusion}  %% ... or ?? (if any)
59  \end{uioseparatorpage}
60
61  \chapter{Results}                    %% ... or ??
62  Some text ...
63
64  \backmatter{}
65  \printbibliography{}
66  \end{document}
```

Figure 2: The file uiophdthesis-base.tex (part II)

biblatex loads BibLATEX which handles bibliographies.[1] The package options given here are recommended; they use the numeric citation style favoured in natural science.

hyperref provides hyperlinks both internally and externally.

bookmark fixes some minor bugs in hyperref.

Lines 10–11: You must always state a thesis title. You may also provide a subtitle, but that is not mandatory.

Line 12: Don't forget you own name! If there are several authors, separate the names with an \and.

Line 14: \addbibresouce specifies the name/s of your BibLATEX bibliography file/s.

Line 17: \frontmatter specifies the start of the thesis front matter, i.e., abstract, table of contents etc.

Line 18: prints a title page. (This will appear after the cover page so it is recommended.) Normally, just the title, subtitle and author's name is printed, but you may use these options to provide additional information:

---

[1] *Local guide to BibLATEX* at https://www.mn.uio.no/ifi/tjenester/it/hjelp/latex/biblatex-guide.pdf is a simple introduction to creating your bibliography.

dept={*department name*} gives the name of the department.

fac={*faculty name*} gives the faculty name.

info={*additional info*} provides additional information.

supervisor={*supervisor's name*} names the supervisor.

supervisors={*supervisor's name*\and *name*\and *name*} gives the names of the supervisors, if there are more than one.

year={*year*} indicates the year; it is only required when the year is other than the current one.

Lines 27–29: contains your abstract.

Lines 30–33: contains your abstract in a different language, for example in Norwegian. **A Norwegian abstract is mandatory at the University of Oslo.**

Lines 35–37: produces your tables of content, figures and tables, accordingly.

Lines 39–41: is your preface.

Line 43: shows the start of the main part of your thesis.

Line 44–46: gives you a separation page.

Line 48–49: are the standard structuring commands.

Line 51–53: contains a research paper typeset as part of the thesis.

Line 55–56: contains a different research paper avaible as a PDF file.

Line 58–62: gives another separator page followed by some text.

Line 64: starts the back part containing appendices, bibliography and such.

Line 65: prints the bibliography created by BibLATEX.

3.2   Two other examples

- The file uiophdthesis-guide.tex shows the LATEX source code for this documentation.

- The file uiophdthesis-demo.pdf presents a demonstration thesis showing both the LATEX code and the result.