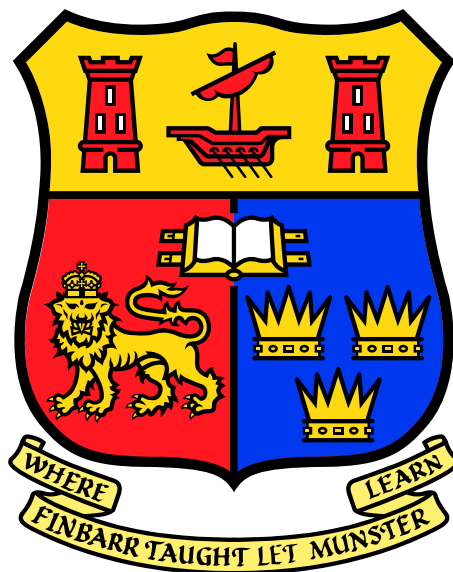# THE UCCTHESIS CLASS

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Abstract

This document describes the `uccthesis` class.

Declaration

I confirm that, except where indicated through the proper use of citations and references, this is my original work and that I have not submitted it for any other course or degree.

Signed: _____

<div align="right">

M. R. C. van Dongen
December 14, 2022

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Chapter 1

Introduction

This chapter explains the `uccthesis` class, the main purpose of which is to write a thesis with minimal configuration.

1.1 Thesis Structure

A typical thesis consists of *front matter*, *main matter*, and *back matter*. The front matter of of typical document consists of (1) a title page with title back page, (2) an abstract, (3) a declaration page, (4) an optional acknowledgement page, (5) an optional dedication page, and (6) a table of contents, (7) a list of tables, and (8) a list of figures. The frontmatter is inserted *automatically*. The back matter typically consists of the bibliography. Any other back matter should be typeset explicitly.

The commands '`\declaration`' and '`\dedication`' may be used to include a declaration or a dedication. However, there is no need to use these commands.

The main matter of the document starts by writing `\begin`{document}. Additional material may be added to the document's front matter by *redefining* the command '`\addToFrontMatter[0]`'. This may be useful if you wish to include additional lists of things to the document front matter. Any commands which are defined by this command are inserted before the first chapter. You should use the '`\renewcommand`' command to redefine the command '`\addToFrontMatter`'.

1.2 Class Options

The `uccthesis` class is built on top of the `book` [Lamport 1994] class. The options '`a4paper`', '`openright`', '`titlepage`', and '`fleqn`' are automatically passed to the `book` class by default. The '`draft`' option is only passed to the '`book`' class if you provide the option as an option of the `uccthesis` class. Using the option results in displaying the word 'Draft' on the titlepage. Table 1.1 lists the remaining document options and default values. The only allowed options to change the point size are `10pt`, `11pt`, and `12pt`. Other options related to the point size are not supported. The options `a5paper`,

Option	Default	Description
10pt		Set point size to 10 pt
11pt		Set point size to 11 pt
12pt	on	Set point size to 12 pt
oneside	on	Enforce onesided pages
twoside		Enforce twosided pages
singlespacing	on	Set line spacing to single spacing
onehalfpacing	off	Discouraged: set line spacing to 1.5 spacing
doublespacing	off	Discouraged: set line spacing to double spacing
draft		Set draft option
		Sets Degree to
BScCS		BSc Computer Science
BScDSA		BSc Data Science and Analytics
DHIT		BA Digital Humanities and Information Technology
MScCS		MSc Computing Science
MScDSA		MSc Data Science and Analytics
MScIM		MSc Interactive Media
MScResearch		MSc Computer Science (Research)
PhD		PhD Computer Science
ManyFigures		Increase width of figure numbers in `lof`
ManyTables		Increase width of table numbers in `lot`
ManySections		Increase width of section numbers in `toc`
ManySubsections		Increase width of subsection numbers in `toc`
final	on	Set draft option off
lot	on	Include a list of tables
nolot		Do not include a list of tables
lof	on	Include a list of figures
nolof		Do not include a list of figures
*	N/A	Option is passed to `book` class

Table 1.1: Class options of `uccthesis` class. Most options are off by default. The word 'on' in the column 'Default' is used if and only if the option is on by default. None of the options `BScCS`, `BScDSA`, `DHIT`, `MScCS`, `MScDSA`, `MScIM`, `MScResearch`, and `PhD` is a default option. At least one of these opions must be provided. Failing to provide them will result in an error.

`b5paper`, `letterpaper`, `legalpaper`, `executivepaper`, and `landscape` are also not supported.

Please note that a table of contents, a list of tables, and a list of figures are included *by default.* Including a list of tables and list of figures can be turned off with the options 'nolot' and 'nolof'.

1.3 Styles

The following style files are automatically loaded by the class: `amsthm`, `amsmath`, `babel`, `beramono`, `biblatex`, `booktabs`, `calc`, `chngpage`, `fancyhdr`, `fontenc`, `fourier`, `graphicx`. `inputenc`, `microtype`, `minitoc`, `pgfplots`, `setspace`, `textcase`, `tikz`, `url`, and `xcolor`,

1.4 Bibliography Style

The bibliography style is hardcoded with `biblatex` [Lehman 2010], which is automatically loaded so you can distinguish between *parenthetical citations*: [Lehman 2010], and *textual citations*:Lehman [2010]. The former kind of citations may be obtained with the command `\parencite`. The latter citations may be obtained with the command `\textcite`. You can force an uppercase letter in a "Von" part by capitalising the first letter of these commands: `\Parencite` and `\Textcite`. For example, with the parenthetical version this gives you 'van Dongen [2012]' as opposed to 'van Dongen [2012]'. More details may be found in van Dongen [2012]. Any attempt to redefine the bibliography style is ignored. *Note that the `biblatex` package only lets you put the `\bibliography` command in the document preamble.*

Since the bibliography depends on `biblatex`, users should refrain from using the `\cite` command.

The `biblatex` package uses `biber` as the back-end. When citations have changed or the bibliography has changed, they should run the `biber` command (not `bibtex`) on the base name of they main thesis source file.

1.5 Including Listings

Program listings should be presented using a font/type which is consistent with the font/type of the rest of the output. You may *not* include program listings as screenshots. For example, screenshots are bitmaps and you can't search them for text. To insert a program listing, you can use the `lstlisting` environment, which is provided by the `listings` package.

```
\begin{lstlisting}[language=Java
                  ,gobble=3
                  ,numbers=left
```

```
                ,firstline=2
                ,lastline=4
                ,firstnumber=2
                ,caption=Hello World.
                ,label=example]
public class Greetings {
    public static void main( String[] args ) {
        System.out.println( "Hello world!" );
    }
}
\end{lstlisting}
```

You can also use the `\lstinputlisting` command, which is also provided by the `listings` packages. The advantage of this command is that it includes text from an existing source file.

```
\lstinputlisting[caption=My Fancy Listing,
                label={lst:listing-java}, language=java,
                firstline=10, lastline=20, % include lines 10--20
                ]{code_sample.cpp}
```

You can define a style for your listings with the `\lstset` command.

```
% SOMEWHERE IN THE PREAMBLE
\lstset{language=Java%
       ,keywordstyle=\bfseries\ttfamily%
       ,stringstyle=\ttfamily%
       ,identifierstyle=\ttfamily\itshape%
       ,showspaces=false%
       ,showstringspaces=true%
       ,numbers=left%
       ,float%
       ,floatplacement=tbp%
       ,captionpos=b}
```

See the package documentation for more details.

1.6   Implementation Details

The implementation is relatively simple. The code for the titlepage is borrowed from `arsclassica` [Pantieri 2010] A few macros are from `arsclassica` [Pantieri 2010] and `classicthesis` [Miede 2007] The code to typeset the abstract is from the `book` [Lamport 1994] class. The code for the pagestyle for twosided documents is based on the `fancyhdr` manual [Van Oostrum 2004].

The author of the thesis is defined with the `\author` command. The name of the supervisor is defined with the `\supervisor` command. The name of the second reader is defined with the `\secondreader` command.

Chapter 2

Example

Figure 2.1 depicts a minimal example of how to use the `uccthesis` class. The following demonstrates how to include an external picture.

```
The following
 demonstrates how to include an external picture.
\begin{figure}[hbtp]
\hrule
\vspace{0.5em}
\centering
\includegraphics[width=0.95\textwidth]{Figures/jpgpic.jpg}
\vspace{0.5em}
\hrule
\caption{\label{fig:including@a@picture}Including an external picture.}
\vspace{0.5em}
\hrule
The result is depicted in Figure~\ref{fig:including@a@picture}
```

The result is depicted in Figure 2.2

```
% Thesis for MSc Computing Science with default style.
\documentclass[MScCS]{uccthesis}
% The following uses all default options.
% \documentclass[MScCS,lof,lot,12pt,oneside,singlespacing,final]{uccthesis}
% Other examples:
% \documentclass[MScCS,nolof,nolot,11pt,twoside,singlespacing,draft]{uccthesis}
% \documentclass[MScIM,12pt]{uccthesis}
% \documentclass[BSc,12pt]{uccthesis}

\addbibresource{mybib.bib} % bibliography must be defined in preamble

\title{How I got my MSc}
\author{Student's Name}
\supervisor{Supervisor's Name}
\secondreader{Second Reader's Name}
\date{\today} % Student should define the actual date

\abstract{Abstracts should be short.}
\dedication{This thesis is dedicated to mum.}
%\acknowledgement{Your acknowledgement here.}

\renewcommand\addToFrontMatter[0]{%
}

\begin{document}
   \chapter{Introduction}
      \ldots
   \chapter{Notation}
      \ldots
   \chapter{Conclusions}
      \ldots
   % start backmatter
   \backmatter
   % Print the bibliography
   \printbibliography
\end{document}
```

Figure 2.1: Using the uccthesis class.

Figure 2.2: Including an external picture.

Chapter 3

Bugs and Requests for Features

Bugs and requests for features may be reported by email to `dongen@cs.ucc.ie`. When reporting bugs, please describe the bug as well as providing a *minimal* example.

Bibliography

Lamport, L. [1994]. *LaTeX: A Document Preparation System.* Addison-Wesley.

Lehman, Philipp [2010]. *The biblatex Package.* Version 1.0.

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van Dongen, M. R. C. [2012]. *LaTeX and Friends.* Springer. URL: http://www.springer.com/computer/media+design/book/978-3-642-23815-4.

Van Oostrum, Piet [2004]. *Page Layout in LaTeX.*