

# The uccthesis $\text{\LaTeX}$ 2 $\epsilon$ document class\*

## Formatting for a thesis for University College Cork

Peter Flynn PhD MICS

Silmaril Consultants

Textual Therapy Division

([peter@silmaril.ie](mailto:peter@silmaril.ie))

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### Summary

This is a  $\text{\LaTeX}$  document class for typesetting theses at University College Cork, according to the layout rules specified by the Graduate Studies Office at <https://www.ucc.ie/en/study/postgrad/currentresearchstudents/thesis/formatofe-thesis/>.

These rules (especially the naming of degrees and the disciplines within which they are granted) are subject to change from time to time, so before using this software, please check to see if there is an updated version.

This version removes the use of document class options to identify the type of degree and the name of college, school, or department. These key metadata **MUST** now be specified only with the commands provided in earlier versions. Most importantly, the specification of bibliographic style for citation and reference is no longer automatic and **MUST** be given in commands.

You need a copy of the  $\text{\LaTeX}$  software and a suitable editor on your computer in order to use this document class. If you are new to  $\text{\LaTeX}$ , please ensure that you read the documentation at <http://latex.silmaril.ie/formattinginformation/> before starting work. If you have already started writing with some other software, it can probably be converted to  $\text{\LaTeX}$  (see the section on conversion in the documentation).

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\*This document corresponds to uccthesis v. 2.9 , dated 2020/04/29.

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## Note on required and optional features

In this document, the keywords MUST, MUST NOT, REQUIRED, SHALL, SHALL NOT, SHOULD, SHOULD NOT, RECOMMENDED, MAY, and OPTIONAL have a specific meaning when shown in THIS TYPESTYLE, and MUST be interpreted as described in RFC 2119 ([Bradner, 1997](#)).

When shown in normal type, these words keep their conventional contextual degree of meaning.

## Latest changes

### v.2.9 (2020-04-29)

#### Updated to replace options with commands

- removed wp and cjk options, made cite-key argument to quotation mandatory
- updated the student declaration
- made first argument of author compulsory
- implemented the new version of ClassPack
- ready for testing

### v.2.51 (2016-08-27)

#### Maintenance release

- New version of ClassPack

### v.2.5 (2015-06-24)

#### Pre-support for additional packages

- Cleaned up some maketitle code in preparation for adding support for additional packages that need to generate ToC lines (eg nomenclature)

### v.2.4 (2014-09-22)

#### Experiment with biblatex for DAH

- Adding MLA support

See p. [87](#) for earlier changes.

To struggling authors everywhere

## Acknowledgements

My thanks again go to all the people who have kept me supplied with solutions to formatting problems which I have been able to incorporate into this package.

Thank you also to the inhabitants of the [news:comp.text.tex](mailto:news:comp.text.tex) Usenet newsgroup and the <http://tex.stackexchange.com> forum for answering my questions, and for their work in writing and maintaining all the packages on which this class depends.

Most of all, thanks to the patient students of UCC who waited for me to finish this revision. It's been a long time coming, due to several factors including my retirement from active service in UCC and most recently the arrival of the COVID-19 virus.

## What's new?

As previously notified on the UCC [tex-users mailing list](#), the main changes are:

**X<sub>Ǝ</sub>ƎT<sub>Ǝ</sub>X**: This document class has been updated to use the X<sub>Ǝ</sub>ƎT<sub>Ǝ</sub>X processor instead of *pdflatex*. It still creates a PDF, but uses UTF-8 so you no longer need to escape accented letters like \ ' e but just type é, and you can now use any of your installed fonts, not just the ones that come with T<sub>Ǝ</sub>X.

The document class also uses biblatex and *biber* instead of the old *bibtex* and .bst files (see '**References and citations**', the last item in this list).

You need to set your ƎT<sub>Ǝ</sub>X editor to use the X<sub>Ǝ</sub>ƎT<sub>Ǝ</sub>X processor instead of *pdflatex*, and *biber* instead of *bibtex*.

**Affiliation**: You no longer have to specify your type of degree and your college/school/department/discipline affiliation in document class options. Instead, you use the commands which were introduced in version 1.07, like \degree{PhD}, \college{med}, and \school{Applied Psychology} (see [section 2.7 on page 22](#)). This means that as UCC continues to change its structure, the document class doesn't need reprogramming every time.

**References and citations**: The way bibliography styles were tied to departments and schools has been abolished.<sup>1</sup> Instead, you specify the style and the name of your BIBT<sub>Ǝ</sub>X file with a single new command, \mybibstyle (see [section 3.4.2 on page 34](#)), which lets you specify the (optional) type of sorting, the style (numeric, alpha, or authoryear), and the name of your .bib file. *You do not need to make any changes to your BIBT<sub>Ǝ</sub>X files.*

As mentioned above, bibliographic citation and reference will use the biblatex package and the *biber* program instead of the obsolescent *bibtex* program and old .bst style files. This is much more up-to-date and flexible, and you can specify changes to styling much more easily than with the old system.

There is also a minor change to the way the citation for a quotation or epigraph is done: see details on [page 33](#).

The Change History is on [page 87](#), which lists the stages of development, and the Index lists every T<sub>Ǝ</sub>X and ƎT<sub>Ǝ</sub>X command that I have used or added in the class. Technically-minded authors can examine the commented listing in [section 6 on page 41](#): to see how it works.

This class is distributed on CTAN as a normal ƎT<sub>Ǝ</sub>X package but is also available from

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<sup>1</sup> This was done because the removal of the option-based selection of affiliation above also meant the removal of the automatic assignment of bibliographic style. There was no consensus within disciplines, let alone between departments or even supervisors within a department as to what style to use, which made such automation pointless.



the [Silmaril web site](#) in the standard TDS format zip file with the documentation and class file ready to use, so you can unzip it straight into your Personal T<sub>E</sub>X Directory and start work immediately (see [section 1.1 on page 15](#)). If you use the CTAN zip file in order to put things in place manually, please read the installation instructions in [section 1 on page 15](#).

## Main differences from L<sup>A</sup>T<sub>E</sub>X's default classes

If you have used E<sub>T</sub><sub>X</sub> before, you should be aware of these changes:

- You MUST start your document by declaring the document class `uccthesis` instead of `article`, `book`, or `report` (details on [page 19](#))
- You MUST identify the college within UCC which is granting your degree, and your school or department within it, using the commands provided for the purpose
- You MUST identify the degree for which you are submitting the thesis (eg PHD, MA, etc) using the `\degree` command
- You MUST identify your Supervisor[s] and Professor (Head of School or Department) using the commands provided
- You MUST give your title and date in the normal way for any E<sub>T</sub><sub>X</sub> document; the `\author` command is slightly different: there are *two* arguments, one for your student number and one for your name.
- The Table of Contents, List of Figures (if used), List of Tables (if used), and Declaration are all automated: you MUST NOT include commands for these yourself (see [section 3 on page 29](#))
- There are new environments `acknowledgements` and `dedication`, and a `\prelim` (titling) command for explanatory sections, if you need them, before your first Part or Chapter (see [section 3.2 on page 29](#))
- There is an `epigraph` (cited quotation) environment which you can use immediately after a chapter title (see '**The epigraph environment**', the first item in the list in [section 3.3.5 on page 33](#))
- The `quotation` environment now has an optional argument for a BIB<sub>T</sub><sub>E</sub>X citation key (see '**The quotation environment**', the second item in the list in [section 3.3.5 on page 33](#))
- The default format is draft-mode, 1<sup>1</sup>/<sub>2</sub>-line-spaced, unjustified text, no indentation, and a line-space between paragraphs. These defaults (except draft mode) are set to maximise readability, but can be changed via class options: see the list in [section 2.12 on page 26](#)

- Some 30 or so packages are preloaded according to the options you choose: see [Table 2 on page 37](#). You SHOULD NOT re-specify any of these if they have already been loaded

# Introduction to L<sup>A</sup>T<sub>E</sub>X

L<sup>A</sup>T<sub>E</sub>X is a document preparation system for the T<sub>E</sub>X typesetting program. It is designed to automate all the tedious and repetitive tasks of preparing a document, freeing authors to concentrate on their writing.

While it can also be used for almost any typesetting task, it is ideal for long or complex documents (the two are not necessarily synonymous), especially for documents with a well-defined structure such as books, articles, journals, theses, reports, white papers, and manuals.

Although it originally came from the disciplines of mathematics and computing science, it is nowadays equally at home in the Humanities, thanks to the enormous range of add-ons or plug-ins ('document classes' and 'packages'), and the extensive range of typefaces, which extend the basic typesetting capabilities into hundreds of specialist areas and formatting requirements.

## What You Got Is What You Gave Me

L<sup>A</sup>T<sub>E</sub>X is a typesetter, not a wordprocessor. It has no graphical interface of its own — instead, you can choose one of many L<sup>A</sup>T<sub>E</sub>X editors available, or use your own favourite plaintext editor.

L<sup>A</sup>T<sub>E</sub>X works by formatting your text according to how you have labelled it. If you label some text as a section title, that is how it will be formatted. If you mislabel it, L<sup>A</sup>T<sub>E</sub>X cannot guess how you really wanted it: you have to tell it.

Full installations of T<sub>E</sub>X are available for download at <http://www.tug.org/interest.html#free> from the T<sub>E</sub>X Users Group or a local user group.

## Documentation and training

If you haven't used L<sup>A</sup>T<sub>E</sub>X before, you should read the online beginners' guide, "Formatting Information" (Flynn, 2011) from <http://latex.silmaril.ie/formattinginformation/>, and install the latest version of T<sub>E</sub>X from <http://www.tug.org/interest.html#free>. UCC may be a TUG member, in which case the DVD can be obtained from the Computer Centre. The software is free in both senses: free of restrictions (it can be copied and given away); and also free of charge.

- Unix and GNU/Linux users do not normally need the DVD: the software can be installed online as [texlive-full](#) from each distribution's own archive or

Software Centre (eg *yum*, *rpm*, *apt*, *Synaptic*, etc). A choice of editors and viewers is available the same way.

- Apple Mac users should use the DVD or download the latest [MacTeX.mpkg.zip](#) from <http://tug.org/mactex/> (about 1.5Gb);
- Windows users should use the DVD and select the *ProTeXt* distribution. Details of how to do this are in “Formatting Information” (Flynn, 2011).

The Training Centre may hold occasional 1–day beginners’ courses in  $\TeX$ : contact [tcentre@ucc.ie](mailto:tcentre@ucc.ie) for details.

## **$\LaTeX$ support (questions about $\LaTeX$ itself, not about the *uccthesi*s document class)**

$\TeX$  and  $\LaTeX$  are strongly supported by millions of users worldwide, and by the teams of developers organised around the  $\TeX$  Users Group and other users groups around the world.

There are therefore lots of places you can ask or search for help, depending on how common or rare your query is. Before you post a question on a web site or mailing list or newsgroup, make sure you are providing enough information for people to understand what you are trying to do. Best of all, have a minimal example that you can upload, that demonstrates what you want, or how what you are trying doesn’t work.

1. The  $\TeX$  FAQ maintained by the UK  $\TeX$  Users Group on behalf of the worldwide  $\TeX$  community at <http://www.tex.ac.uk/faq> — always try here first, to make sure you’re not asking something that a million people before you have asked
2. The UCC  $\LaTeX$  mailing list [tex-users@lists.ucc.ie](mailto:tex-users@lists.ucc.ie) — this is open to all: those who go on the 1–day course are automatically added; anyone can join at <http://lists.ucc.ie/tex-users.html>
3. The island-wide public mailing list [italic-1@listserv.heanet.ie](mailto:italic-1@listserv.heanet.ie) for the Irish  $\TeX$  And  $\LaTeX$  In-print Community at <http://listserv.heanet.ie/italic-1.html>
4. The Usenet newsgroup [comp.text.tex](mailto:comp.text.tex) (ask your ISP for access, or use the Google Groups interface). This is the principal technical forum, monitored by the designers and developers. High-volume (which is why it’s a newsgroup, not a web site or mailing list), but full of information
5. A native Google Group called [latexusersgroup@gmail.com](mailto:latexusersgroup@gmail.com)
6. Hundreds of web sites, led by the excellent [tex.stackexchange.com](http://tex.stackexchange.com), whose searchable archive and votable answers make it heavily used

7. Online and on paper: *TUGboat*, the quarterly journal of the T<sub>E</sub>X Users Group. Reference copies are available in UCC; email [latex@ucc.ie](mailto:latex@ucc.ie) or check the index at <http://tug.org/tugboat/>.
8. Dozens of languages and cultures have T<sub>E</sub>X users groups for communication, development of their own typefaces and resources: see the list at <http://tug.org/usergroups.html>

## Terminology

T<sub>E</sub>X and L<sup>A</sup>T<sub>E</sub>X terminology and appearances used in this document are highlighted in the following ways:

- The names of class options and package options are shown in **bold monospace type**;  
Example: **draft**  
*Class options* are the ones you use in the `\documentclass` (first) line of your document; *package options* are the ones you use in `\usepackage` commands in your Preamble. Class and package options always go in [square brackets] between the command and the curly brace of the argument.
- The names of document classes and packages are shown in sans-serif type;  
Example: `xcolor`;
- The names of L<sup>A</sup>T<sub>E</sub>X commands are in normal monospace type and start with a backslash;  
Example: `\appendix`;
- Where it is important to show the arguments that a command may take, they are shown mnemonically in angled brackets; this means you must replace them with meaningful values of your own:  
Examples: `\prelim{<title>}`, `\project[<option>]{<name>}`;
- The names of environments are in normal monospace type;  
Example: `dedication`.

Commands and environments are also shown in the margin, if specially relevant, and can be found in the Index.

The keywords `MUST`, `MUST NOT`, `REQUIRED`, `SHALL`, `SHALL NOT`, `SHOULD`, `SHOULD NOT`, `RECOMMENDED`, `MAY`, and `OPTIONAL` have a specific meaning when shown in THIS TYPESTYLE, following the specification in RFC 2119 ([Bradner, 1997](#)).

# 1 Installation

You **MUST** have a full  $\TeX$  system installed before you can use this document class.  $\LaTeX$  is a part of every full  $\TeX$  installation. Please see the introduction [on page 11](#) for details.

This class **SHOULD** be installed in the same way as any other add-on  $\LaTeX$  package or document class: *in your Personal  $\TeX$  Directory* as described in [section 1.1](#). Do *not*, repeat **NOT**, install this class into any of the main  $\TeX$  folders used by your  $\TeX$  system installation because that will be overwritten when it updates.

If this is the first time you have installed a package or class like this, or if you haven't yet set up your Personal  $\TeX$  Directory, see [section 1.1](#) first.

Installation on shared (multiuser) systems is different: see the instructions for systems administrators in [section 1.2 on the following page](#).

## Instructions for personal users

1. Download the uccthesi document class zip file from the link in <http://research.ucc.ie/latex/>. This is only accessible from UCC IP addresses;
2. Unzip the uccthesi-n.nn.tds.zip file directly into your Personal  $\TeX$  Directory.

If you don't yet have a Personal  $\TeX$  Directory, create one now (instructions below);

3. Users of  $\text{MiK}\TeX$  on Windows **MUST** update the FNDB after installation (see the list 'Updating the FileName DataBase' in [section 1.1.2 on the next page](#)), otherwise  $\LaTeX$  will not find the new files.

UCC users **MUST** also download and install the ucccrest from <http://research.ucc.ie/latex/#uccclasses> (in section 2.4.1). This is only accessible from UCC IP addresses, as the crest is restricted to UCC users. You unzip this file into your Personal  $\TeX$  Directory in the same way as for the document class above.

## 1.1 Your Personal $\TeX$ Directory

If you don't have a Personal  $\TeX$  Directory yet, you **SHOULD** create one now. The place for it is different on Apple Mac, UNIX and GNU/Linux, and Windows systems:

Operating System	Location of your Personal T <sub>E</sub> X Directory
Apple Macintosh OS X	~/Library/texmf
UNIX and GNU/Linux	~/texmf
Microsoft Windows	
• 95/98/XP/2003	C:\texmf
• 2007/2010 and up	Computer\System\Users\ <i>your name</i> \texmf
VAX/VMS	\$(USER)[TEXMF]

If this folder does not already exist on your computer, please create it now.

### 1.1.1 UNIX, GNU/Linux, and Apple Macintosh OS X

You do not need to run *texhash* or *mktexlsr* after creating or installing software into your personal T<sub>E</sub>X folder (indeed, you MUST NOT do so).

### 1.1.2 MiK<sub>T</sub>E<sub>X</sub> on Windows

If you are using MiK<sub>T</sub>E<sub>X</sub> on Windows (including *ProT<sub>E</sub>Xt*) you MUST do an additional task after you create your personal T<sub>E</sub>X folder:

1. Run the *MiK<sub>T</sub>E<sub>X</sub> Settings* program by clicking on the   or   button, and then click on   ;
2. Click on the  tab;
3. Click the  button;
4. Navigate to your new texmf folder;
5. Click .

On subsequent occasions (when you install software or updates manually) you must update the FileName DataBase (FNDB):

#### Updating the FileName DataBase

1. Run the *MiK<sub>T</sub>E<sub>X</sub> Settings* program as before;
2. In the  tab, click the  button.

You MUST do this after installing or updating software in your Personal T<sub>E</sub>X Directory, otherwise MiK<sub>T</sub>E<sub>X</sub> won't find anything.

## 1.2 Installation on a shared (multiuser) computer

If you need to install the files on a shared (multiuser) system, you need to be root (Administrator). If you are not, ask your local systems administrator to do it for you.



1. Identify where the local shared  $\TeX$  directory is. This is conventionally something like `/usr/local/share/texmf/` or `/usr/local/texlive/2020/./texmf-local` but you can find out by typing the command:  
  
`kpsewhich -expand-var '$TEXMFLOCAL';`
2. Unzip the `uccthesis-n.nn.tds.zip` and the `ucccrest.zip` files into this folder;
3. Run the  $\TeX$  index program `texhash` (some systems call this `mktexlsr`) to update the fast-find (`ls-R`) database. Until you do this, your  $\mathbb{E}\TeX$  users will not be able to find the files.

These instructions are for Unix-based systems, including GNU/Linux and Apple Macintosh OS X. If someone would like to provide me the equivalents for shared Windows systems I would be pleased to include them.

### 1.3 Manual installation

This is only for older or non-TDS-conformant systems. Do not use this method on modern systems.

1. Download and unzip the `uccthesis-n.nn.tds.zip` file into a temporary directory (eg `/tmp`), *without* preserving all the paths: use the `-j` option to `unzip` to do this
2. Run `pdflatex` on `uccthesis.ins`. This will re-extract the `uccthesis.cls` file (so the program will ask you if you want to overwrite it: answer yes by typing `y` and pressing the Return or Enter key)
3. Move or copy the files into a location where your installation of  $\TeX$  will find them. This varies from distribution to distribution: it is sometimes known as ‘the `TEXINPUTS` directory’, but it is *your responsibility* to know where this is.
4. Repeat the procedure for the `ucccrest.zip` file.
5. Run the  $\TeX$  index program `texhash` (some systems call this `mktexlsr`) to update the fast-find (`ls-R`) database. Until you do this, your  $\mathbb{E}\TeX$  users will not be able to find the files.

### 1.4 Testing the installation

The file `thesis-example.tex` (one-sided) is provided as an example to test the document class with.

Move this file into your Documents folder (or somewhere else you keep documents) and open it with your  $\text{\LaTeX}$  editor and click on your editor's button to typeset it (something like `Typeset` or `Make` or `Compile` or `Build` or `pdf $\text{\LaTeX}$`  depending on your editor). This should create a file `thesis-example.pdf` that you can open in your PDF reader or viewer.

MiK $\text{\TeX}$  users please note that MiK $\text{\TeX}$  will not allow you to do this in your Personal  $\text{\TeX}$  Directory or any of its subfolders as MiK $\text{\TeX}$  will not run  $\text{\LaTeX}$  at all in those folders. You must copy the `thesis-example.tex` file to somewhere else to process it (eg a temporary folder).

## 2 Author's Guide — How to set up your thesis

The first line of your thesis document MUST say

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

where options is a list of options separated by commas. You can also use any of the options explained in [section 2.12 on page 26](#) that you find relevant.

Apart from the title page and a few additional structures (see [section 3.3.5 on page 32](#)), the remainder of your document SHOULD use standard  $\text{\LaTeX}$  commands, environments, and packages which you can find explained in “Formatting Information” ([Flynn, 2011](#)) or any book or web site on how to use  $\text{\LaTeX}$ .

**Figure 1:** Example title block of a  $\text{\LaTeX}$  UCC thesis document (new commands highlighted)

```
\documentclass[final]{uccthesis}
\begin{document}
\title{The subtleties of mathematics}
\subtitle{with specific reference to computing}
\author{102229277}{Georgina Boole}
\qualifications{msc}
\degree{PhD}
\college{sefs}
\school{Mathematical Sciences}
\professor{Prof AN Other}
\supervisors{Dr One Supervisor\Dr Other Supervisor}
\sponsor{Some Company}
\date{August 2013}
\maketitle
...
\end{document}
```

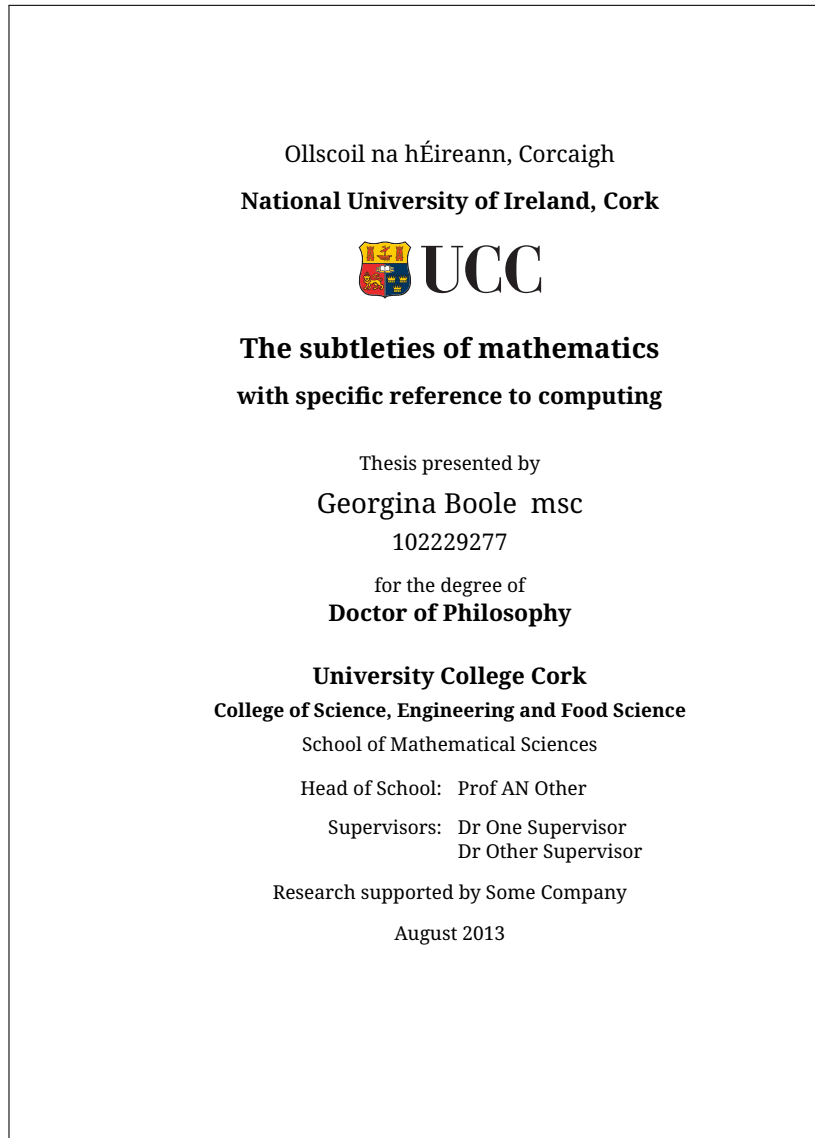
The title page of your thesis follows the rules set down by the Registrar's Office and the Graduate Studies Office. This package does the formatting automatically if you provide the right information.

You MUST provide the following items (see [Figure 1](#) for an example). They can be in any order: they only get used when you give the `\maketitle` command.

1. Your thesis Title;
2. Your full Name and ID (student number or ORCID);
3. The Date of submission;
4. The name of your Professor or Head of Department, School, or Discipline;
5. The name[s] of your Supervisor[s];
6. Your class of degree (eg PHD, MA, etc);

7. Your College within UCC;
8. Your School or Department or Discipline within that college;
9. A short Subject describing what your thesis is about (different from the Title);
10. One or more Keywords to help people find your thesis in the Cork Online Research Archive (CORA) (not repeating words already in the Subject).

**Figure 2:** Result of the title block in [Figure 1 on the previous page](#)



These title block commands MAY occur in any order, but they MUST be terminated in the normal way with the `\maketitle` command. See the example in [Figure 1 on the preceding page](#) and the output in [Figure 2](#).

The first three are done with the standard  $\text{\LaTeX}$  `\title` command, a slightly modified `\author` command, and the standard  $\text{\LaTeX}$  `\date` command.

The last two (subject and keywords) do not appear on the title page: they get included in the PDF metadata used for indexing.

## 2.1 Thesis title

The `\title` command has an optional argument where you can supply a short title for use in running headers and footers if your full title is too long, for example:<sup>2</sup>

```
\title[Nucleotide sequence of mitochondrial maxicircle DNA]
  {The nucleotide sequence of a 3.2 kb segment of mitochondrial
  maxicircle DNA from \textit{Crithidia fasciculata} containing
  the gene for cytochrome oxidase subunit III, the N-terminal
  part of the apocytochrome $b$ gene and a possible frameshift
  gene}
\subtitle{Further evidence for the use of unusual initiator triplets
  in trypanosome mitochondria}
```

If your thesis has a subtitle, use the `\subtitle` command: you MUST NOT put the subtitle in the `\title` using a colon.

## 2.2 Author

The `\author` command is different from standard  $\text{\LaTeX}$ : there are *two* arguments, both compulsory. The first is your student number *or* your Open Researcher and Contributor ID (ORCID); the second is your full name:

```
\author{1234-5678-9012-3456}{Michael Collins}
```

## 2.3 Date

The `\date` command is done as for any  $\text{\LaTeX}$  document:

```
\date{1 August 2021}
```

---

<sup>2</sup> This is a genuine, see <http://nar.oxfordjournals.org/content/15/1/51.abstract>, but not from UCC.

## 2.4 Professor or Head

The name of your Professor *or* the name of your Head of College, School, Department, or Discipline with *one* of the commands `\professor` or `\hod` (not both).

```
\professor{Dr F Händel}  
\hod{Dr F Händel}
```

## 2.5 Supervisor[s]

Give the name of your Supervisor with the command `\supervisor`.

```
\supervisor{Dr PDQ Bach}
```

If you have more than one Supervisor, use the command `\supervisors` (plural) instead, and separate their names with a double backslash (`\\`).

```
\supervisors{Dr WA Mozart\\Mr L van Beethoven}
```

## 2.6 Degree

You give the name of the degree for which you are submitting this thesis with the `\degree` command:

```
\degree{PhD}
```

## 2.7 College

Colleges are coded for convenience: the `\college` command **MUST** use one of the standard abbreviations: `acsss`, `sefs`, `med`, or `buslaw`. No other values can be used. The code will be automatically expanded to the full name on the title page. This avoids misspellings, which is important for indexing.

```
\college{acsss}  
\college{sefs}  
\college{med}  
\college{buslaw}
```

## 2.8 School, Department, or Discipline

**School:** The `\school` command MUST give the name of your School, if you are in one (otherwise use `\department`).

You MUST NOT give the words ‘School of’ as they will be added automatically.

```
\school{Applied Psychology}
```

**Department:** The `\department` command MUST give the name of your Department, if you are in one (otherwise use `\school`).

You MUST NOT give the words ‘Department of’ as they will be added automatically.

```
\department{Music}
```

**Discipline:** If your research was not affiliated to a single School or Department, you can use the `\discipline` command to say where you did it.

```
\discipline{Digital Humanities}
```

If your Department is part of a School, you MAY use both `\school` *and* `\department`.

Where a School or Department name requires a different prefix from ‘School of’ or ‘Department of’, this can be given in an optional argument, for example:

```
\school[Summer School in]{Irish Studies}  
\department[Roinn an]{Ontolaioiachta}
```

This method will print the full name preceded by the new prefix, and is useful for the Irish forms of names pending the integration of an Irish-language option for titling. Note that this *only* works with the `\school` and `\department` commands.

## 2.9 Subject

For electronic submission, you MUST provide a subject for indexing by Cork Online Research Archive (CORA):

```
\subject{teaching coding to improve educational outcomes}
```

The value MUST be all lowercase. The subject should describe what you have written about: it is not necessarily worded the same way as your title. Words in the subject do not need repeating in the keywords.

## 2.10 Keywords

For electronic submission, you MUST provide one or more keywords for indexing by CORA:

```
\keywords{coderdojo,programming,java,c,xml,children,measuring}
```

The values MUST be all lowercase, separated by commas. They should be enough to let someone who does not know your title find your thesis. Keywords SHOULD NOT repeat any words already in the subject or title.

## 2.11 Optional metadata

### 2.11.1 Subtitle

You can have a subtitle to your thesis. DO NOT put this in the `\title` command: you MUST use the `\subtitle` command instead:

```
\subtitle{Sturm und Drang in Malcesine}
```

### 2.11.2 Qualifications

If you have prior *postgraduate* qualifications or membership of relevant professional bodies, you can specify them with the `\qualifications` command.

```
\qualifications{msc mieee}
```

You MUST use lowercase for qualifications, as they will be typeset in small capitals (the lowercase equivalent of all-capitals). Separate the qualifications with a space, not a comma, as in the example above.

### 2.11.3 Additional affiliations

In addition to the College, School, Department, or Discipline in which you conducted your research, you MAY also specify an affiliation with an Institute, Research Centre (Group), Unit, or Hospital with the commands `\institute`, `\centre`, `\unit`, and `\hospital`.

These four commands automatically add the suffix 'Institute', 'Centre', 'Unit', or 'Hospital' respectively, so you MUST NOT include it yourself. For example:

```
\institute{Tyndall National}  
\centre{Macrobiotic Research}  
\unit{Linguistic Synthesis}  
\hospital{Mercy University}
```



If you need to use variant forms of names of the affiliations `\institute`, `\hospital`, `\centre`, and `\unit`, these commands all have an optional argument which can be used for two purposes:

**Suppress the automatic suffix and give the full name:** Supplying the square brackets but *without* a value (ie the optional argument is present but null), will suppress the automatic prefix or suffix that is otherwise added to the name, letting you specify a name that does not fit the conventional pattern, for example:

```
\institute[]{\Institute for Advanced Studies}
\centre[]{\Centre of Excellence in Executive Education}
\unit[]{\Isolation Unit for Nervous Diseases}
\hospital[]{\South Infirmary}
```

**Specifying an acronym:** Where an Institute, Hospital, Centre, or Unit (*only*) is normally known by an acronym, this can be given in the optional argument, and the name given in full in the main argument (no prefix or suffix will be added); for example:

```
\institute[IMI]{Irish Management Institute}
\centre[APC]{Alimentary Pharmabiotic Centre}
\unit[HFRG]{Human Factors Research Group}
\hospital[CUH]{Cork University Hospital}
```

This method will print the full name followed by the acronym in parentheses. Note that this only works with the `\institute`, `\hospital`, `\centre`, and `\unit` commands.

#### 2.11.4 Multi-volume theses

If your thesis runs to two or more volumes, you **MUST** specify this with the `\volume` command. This has a special format:

```
\volume n of m
```

where n and m are the number of the volume and the total number of volumes respectively, for example `\volume 3 of 5`.

#### 2.11.5 Sponsor

Where your research has been sponsored by an external organisation, you **MAY** be required under the terms of your contract to add their name. Use the `\sponsor` command to do this, for example:

```
\sponsor{Silmaril Consultants}
```

## 2.11.6 Formatting the title page

The title page **MUST** be finished by the `\maketitle` comand. Until you give this command, the title page will not be formatted.

**Table 1:** Summary of title block commands

<b>Compulsory</b>	
<code>\title{...}</code>	Title of your thesis (see below for subtitle)
<code>\author{...}{...}</code>	Your student number (or ORCID) and full name
<code>\date{...}</code>	Date of submission
<code>\professor{...}</code>	} Name of your Professor <i>or</i> the name of your Head of Department or School
<code>\hod{...}</code>	
<code>\supervisor{...}</code>	} Supervisor's name(s). With the plural form, separate the names with a double backslash (\\)
<code>\supervisors{...}</code>	
<code>\degree{...}</code>	The degree for which you are submitting this thesis
<code>\college{...}</code>	One of <b>acsss</b> , <b>buslaw</b> , <b>med</b> , or <b>sci</b>
<code>\school[...]{...}</code>	} Your School or Department or Discipline or some combination (at least one of the three <b>MUST</b> be present)
<code>\department{...}</code>	
<code>\discipline{...}</code>	
<code>\subject{...}</code>	Lowercase descriptive subject
<code>\keywords{...}</code>	Comma-separated list of key words for indexing
<b>Optional</b>	
<code>\subtitle{...}</code>	Subtitle
<code>\qualifications{...}</code>	Your existing qualifications (all lowercase)
<code>\institute[...]{...}</code>	Your Institute
<code>\hospital[...]{...}</code>	Your Hospital
<code>\centre[...]{...}</code>	Your Research Centre
<code>\unit[...]{...}</code>	Your Unit
<code>volume <i>n</i> of <i>m</i></code>	For multi-volume theses
<code>\sponsor{...}</code>	Sponsor or funding agency name, if relevant

## 2.12 Class options

There are some options that can be specified in the `\documentclass` command at the start of the document. These are all optional: use them if you need them.

**classic:** Use the classic monochrome crest instead of the default modern colour one.

- **draft:** Draft mode is the default. This highlights hyphenation and justification problems like overlong lines and unbreakable words with a black rectangle in the margin. It also replaces any images with an empty rectangle showing the filename: this makes your draft PDF *much* smaller and easier to save or email,

and it also saves printer ink if you need a printed copy for proofing or for your supervisor.

In draft mode, the running head shows the current section on the left and the current subsection on the right. The running foot shows the name of the file on the left and the date and time on the right (see [section 2.13](#)). The page number is always bottom centre.

**final**: Final mode removes the black rectangles of draft mode (it doesn't solve those hyphenation and justification problems: you still have to fix those yourself) and shows all the images.

In final mode, the running head is the same as in draft mode, but the running foot shows the title of the thesis on the left and the author's name on the right. The page number is always bottom centre.

**gaeilge**: This option loads the Irish-language values for a thesis written in Irish, and adds the `eiad` package for typesetting with a `reann-cló` typeface (you will still need to install the `eiad` font package yourself, if it is not already on your computer). This option also preloads the `polyglossia` package, with Irish as the main language and English as the other.

**justified**: Text in this document class is set *unjustified* (ragged right margin) by default. This option turns justification back on. See [section 3.3.1 on page 31](#). This option does *not* restore indentation or remove paragraph-spacing: use the **indented** option for that.

**indented**: Text in this document class is set *unindented* by default. This option turns indentation back on. See [section 3.3.1 on page 31](#). This option does *not* restore justification: use the **justified** option for that.

**noлот**: Disables the automatic List of Tables.

**noлоf**: Disables the automatic List of Figures.

**termpaper**: This is an experimental option for typesetting term papers. Feedback on useful features would be welcomed.

**essay**: This is an experimental option for typesetting undergraduate essays. Feedback on useful features would be welcomed.

**plainheaders**: This disables the automated running headers described in [section 3.3.2 on page 31](#) and reverts to  $\text{\LaTeX}$ 's defaults.

## 2.13 Additional settings

There is an extra command `\revdate` which you can use to set the date that you want to appear in the footer in draft mode, eg `\revdate{5 Sept 2021}`. The

default is today's date.

## 3 Document structure

After the title page, which is created by the `\maketitle` command at the end of the title block, the UCC rules specify that there must be a Table of Contents, followed by the Declaration of Responsibility that this research is your own work. Both of these are inserted automatically: you do not need to add anything (see the sidebar in [section 3.2 on the next page](#)).

If you have used tables or figures, a List of Tables and List of Figures will also be printed automatically after the Table of Contents. If you have only a very small number of tables or figures, you can disable the List of Tables or List of Figures independently with the `no $\mathit{lot}$`  and `no $\mathit{lof}$`  class options (see ‘`no $\mathit{lot}$` ’, the seventh item in the list in [section 2.12 on page 27](#)).

### 3.1 Additional lists of special usage

If you need glossaries, lists of symbols or acronyms, and similar terminological lists, you **MUST** use the relevant packages, and include the `\ListOf...` command (provided by the package) *after* the `\maketitle` and *before* any preliminaries (below).

If you create these lists by hand, you **MUST** include them in the same place using the starred form of the preliminaries command `\prelim*`. This is necessary to avoid the Declaration of Responsibility being triggered prematurely.

### 3.2 Preliminaries (front matter)

Before your actual text begins, you may want some preliminary sections referred to as ‘front matter’ or ‘prelims’. This class provides the following environments and commands for these:

**dedication:** The `dedication` environment is for you to add a dedication.

```
\begin{dedication}  
...  
\end{dedication}
```

**acknowledgements:** The `acknowledgements` environment is for you to add your acknowledgements.

```
\begin{acknowledgements}  
...  
\end{acknowledgements}
```

**abstract**: This is the normal  $\LaTeX$  abstract environment except that the heading starts a new page and is in the same format as all the other preliminary sections.

```
\begin{abstract}  
...  
\end{abstract}
```

The UCC thesis rules state that an Abstract must be limited to 600 words and will be submitted to CORA.

**\prelim**: The `\prelim{<title>}` command is available for starting any other preliminary sections you may need, such as an Introduction which is not part of your research text. It works exactly like an unnumbered section heading, but it starts a new page, and *is* included in the Table of Contents (see the example [on page 14](#)).

There is a special starred form of this command, `\prelim*` which can be used *before* any of the other commands or environments above to create preliminary sections that do not trigger the Declaration of Responsibility prematurely. Use with caution!

**\refsec**: The `\refsec` command works like `\prelim*` but typesets the section single-spaced. This is for reference material such as medical protocols which are copied from elsewhere and do not form a part of your own text.

### Declaration of Responsibility

The UCC Declaration (that this is your own work) is automatically inserted by the *first use* of any of the following:

- a `dedication` environment;
- an `acknowledgements` environment;
- a `\prelim` *without* the star;
- a `\part`;
- a `\chapter`.

The `\prelim*` command can be used to add material *before* these without triggering the Declaration.

### 3.3 Text body (main matter)

The main body of a thesis is usually divided into chapters, containing sections and subsections (and perhaps subsections). For a very long thesis you may use the standard  $\text{\LaTeX}$  `\part` command to group the chapters into parts.

The following changes have been made to  $\text{\LaTeX}$ 's default appearance to improve readability and consistency.

#### 3.3.1 Size, spacing, justification, indentation, and paragraph spacing

The default for typesetting in this class is:

- 12pt type;
- 1½ line spacing;
- unjustified (ragged-right margin);
- no indentation on the first line of paragraphs;
- one line white-space between paragraphs.

This makes it easier for your supervisor and External Examiner to read your work, and it avoids most problems with hyphenation and justification, which are much more frequent in technical and academic work because of the high incidence of specialist terms.

Unless you are very skilled at typographic production, it is probably better not to typeset a thesis like a book for publication. It's not: it's a thesis.

However, there are two class options available if you want to emulate the book style with indented paragraphs and no space between them:

**justified**: this option sets the text justified. It does not affect the indentation or the space between paragraphs. See '**justified**', the fifth item in the list in [section 2.12 on page 27](#).

**indented**: this option indents paragraphs *and* removes the space between paragraphs. It does not affect justification. See '**indented**', the sixth item in the list in [section 2.12 on page 27](#).

#### Legibility

Justified text in the line-length used on A4 and Letter paper sizes will make your thesis harder to read.

#### 3.3.2 Running headers and footers

Running headers and footers are printed on all pages except chapter openings so that readers can see whereabouts in your thesis they are. This is also so that

photocopies or page-extracts of your thesis will show what it is and who wrote it; this helps avoid plagiarism because otherwise the reader of such fragment would not know whose work it was.

If you want the original (L<sup>A</sup>T<sub>E</sub>X) default of just a page number at the bottom and nothing else, you can use the **plainheaders** class option, which will then use L<sup>A</sup>T<sub>E</sub>X's own built-in running headings.

### 3.3.3 Page numbering

The title page is not numbered.

All the preliminary pages from the Table of Contents up to (but not including) the first page of the first Part or Chapter are numbered in lowercase Roman numerals.

All remaining pages are numbered in Arabic numerals, starting at 1 for the first page of the first Part or Chapter.

You SHOULD use the standard L<sup>A</sup>T<sub>E</sub>X `\label` and `\ref` or `\pageref` commands for making cross-references to sections and pages. For more sophisticated cross-referencing, use the `varioref` package.

### 3.3.4 Typefaces and fonts

L<sup>A</sup>T<sub>E</sub>X's default typeface is Computer Modern, based on Monotype Series 8, a Victorian book typeface, in the updated Latin Modern version from the `lmodern` package. The default boldface font has been changed in this class to normal bold from bold extended, but you can still use the `\textbf` and `\bfseries` commands normally.

The default type size is 12pt as required by the UCC rules.

The `fontspec` package is used with X<sub>Y</sub>L<sup>A</sup>T<sub>E</sub>X, so you MAY use additional font or typeface packages, but you MUST NOT use display (decorative) fonts for the text of a thesis. See the documentation of the `fontspec` package for details of how to set different fonts.

### 3.3.5 Structure

The basic structure is handled by the standard L<sup>A</sup>T<sub>E</sub>X commands `\part`, `\chapter`, `\section`, `\subsection`, and `\subsubsection`.

L<sup>A</sup>T<sub>E</sub>X also provides the commands `\paragraph` and `\subparagraph` for numbered, headed paragraphs and subparagraphs, but you should avoid them if possible because they make it harder for your readers to remain aware of their location in your argument (especially your supervisor[s], Professor and External Examiner).

Within the sectional divisions, separate your paragraphs by a blank line in the normal way. All the standard L<sup>A</sup>T<sub>E</sub>X environments can be used for tables and figures, lists, quotations, equations, theorems, etc.



A few small changes have been made to the formatting and features of the following environments:

**The epigraph environment:** The `epigraph{<citekey>}` environment is a specialised format of short quotation that comes immediately after a chapter or section title. It typesets the contents centred, with the source citation tucked into the end of the last line, or right-aligned below if there isn't space.

The one (mandatory) argument *MUST* contain a `BIBTEX` citation key for the source of the quotation. This is the same principle as for the `quotation` environment described in ‘**The quotation environment**’, the second item in this list

However, if you want an indirect citation to your epigraph, you *MAY* put it in an optional argument in square brackets, and leave the mandatory argument empty: `\begin{epigraph}[GBS, writing in 1940]{}...\end{epigraph}`.

**The quotation environment:** There is a mandatory argument to the `quotation[<citekey>]` environment which is for the `BIBTEX` citation key of the source, eg `\begin{quotation}{shaw}`.

This is used to create a short-form citation tucked into the end of the last line, or right-aligned below if there isn't room.

The quotation is set one size smaller than the main text and the first line is *not* indented (both changes from the `LATEX` default).

If you need to give a page number or other qualifier to such a reference, which would usually go in square brackets before a normal `\cite` command, you *MUST* embed the whole thing in curly braces inside the mandatory argument, otherwise `LATEX` will not be able to distinguish the square brackets of the citation modifier from those of an optional argument to the `quotation` command (see below). For example:

```
\begin{quotation}{{[pp. 80--81]{shaw}}}
```

The argument is mandatory (this is a change from previous versions of this document class) because quotations *MUST* always acknowledge their source. However, if the quotation is being cited indirectly in the preceding or following text, or is part of a group of citations implicitly coming from the same source, so that it does not always need a direct citation of its own, you can give an abbreviated value in an optional argument in square brackets, and leave the mandatory argument empty:

```
\begin{quotation}[p.33]{}...\end{quotation}
```

**The table and figure environments:** The standard parameters in `LATEX` for the proportions of a page which can be occupied by tables and figures are too small for theses, which typically have many floats. In this class, they have been increased to the values suggested in the `TEX` FAQ at

<https://texfaq.org/FAQ-floats>; and additionally, the overall proportion of the page that can be occupied by floats has been increased from 66% to 75%. See the detailed code description at [section 6.8.1 on page 68](#) for the exact values used.

### 3.4 Back matter

The final sections are any Appendices, possibly an Index or Glossary, and your References (Bibliography)

#### 3.4.1 Appendices

Appendices are done in the standard way, using the `\appendix` command *once only* to signal the change from chapters to appendices, and then use the `\chapter` command for each appendix, which will now create appendix-type headings.

#### 3.4.2 References (Bibliography)

As part of this version of the thesis document class, the automated identification of school, department, or college preferences for bibliographic style has been dropped, as it was impossible to get agreement.

##### Change to the biblatex package

This document class now uses the biblatex package and the *biber* program to handle citation and reference instead of the old `.bst` style files and the *bibtex* program.

There is *no change* to the data format: your existing `.bib` file(s) will work unchanged, although there are now many more fields available for you to use, and new reference types to handle electronic documents.

You now specify the sorting option, citation/reference style and your filename with the `\mybibstyle` command in your document Preamble (before `\begin{document}`). There are only a few common values shown here: the documentation for the biblatex package lists all the others.

The `\mybibstyle` command has one optional and two mandatory arguments:

```
\mybibstyle[sort]{style}{file.bib}
```

where sort is the type of sorting, style is the citation/reference style, and file is the name of your BIB<sub>T</sub><sub>E</sub><sub>X</sub> file. This command handles the most common styles and

options. If you need more complex settings, read the biblatex documentation and use the relevant commands.

1. The default sort is name, title, year, so if you omit the optional argument to `\mybibstyle`, that's how your references will be sorted. If you want the references to appear in order of citation, use the value `none`. There are many other sort options listed in the biblatex documentation.
2. There are many add-on styles, including formats for journals and learned societies like APA, MLA, IEEE, and others. The most common built-in styles are:
  - numeric**: Citations and references are numbered in square brackets [1].
  - alphabetic**: Citations and references are labelled with alphabetic abbreviations made from the authors' names or initials plus a 2-digit year.
  - authoryear**: Citations use author and year in parentheses: either (Heaney, 2001) or Heaney (2001) depending on context. References are unlabelled.
3. The third argument is the name of your BIBTEX file, *including* the `.bib` (this is different from the old BIBTEX way where you had to omit the `.bib`).

### Citation commands

`\cite`: Use this for numeric and alphabetic styles.

`\parencite`: The entire citation is enclosed in parenthesis, like (Heaney, 2001).

`\textcite`: Only the year is enclosed in parentheses, like Heaney (2001).

`\footcite`: The citation is a superscript number, and the short reference is in a footnote<sup>3</sup>.

There are several other citation commands explained in the package documentation, along with details of how to make changes to the punctuation and formatting, and how to use named styles (eg APA, IEEE, MLA, etc).

To make your References section appear, you **MUST** use the command

```
\printbibliography
```

at the place where you want the references to come (usually at the end of your thesis).

### 3.4.3 Typesetting your document

In most  $\text{\LaTeX}$  editors, the references (and index, and glossaries, etc) get automatically remade when you make a change and rebuild the document. If not, look for a `biblatex` button or menu option to do this.

---

<sup>3</sup>Heaney, 2001.

In manual systems, use the *latexmk* (1) command with the **-bibtex** option, eg:

```
$ latexmk -xelatex -bibtex mythesis.tex
```

This is equivalent to typing the commands manually:

```
$ xelatex mythesis
$ biber mythesis
$ xelatex mythesis
$ makeindex mythesis
$ xelatex mythesis
```

### 3.4.4 Indexes and Glossaries

If you need to produce an Index, use the standard  $\TeX$  facilities and the *makeindex* program. There is a detailed explanation in Flynn (2011, Ch 5.4.1) at <http://latex.silmaril.ie/formattinginformation/indexgloss.html#indexes>.

For Glossaries, you **MUST** use the *glossaries* package (the old *glossary* package has been superseded).

## 4 Packages preloaded

To make this document class work, several packages are preloaded. If your own work needs one of these, you **MUST NOT** use the `\usepackage` command for it, as it is already defined. These preloaded packages are listed in [Table 2](#).

Be aware that some packages may influence others. In particular, if you use the `hyperref` package that implements hyperlinks in PDF output, it **MUST** be loaded last, after all other packages.

**Table 2:** Standard packages preloaded

Package	Options used	Usage
<b>Packages active in all cases</b>		
array		allows paragraph formatting within table cells
calc		dimension arguments accepted in infix notation
ccaption		restyle captions (used to get <code>\raggedright</code> )
enumitem	<code>inline</code>	fixes bug in description lists, add list formatting options and inline lists
fancyhdr		adds running headers and footers
float		allows <b>H</b> ('here') position for non-floating floats
fontspec		enables Unicode characters and use of system fonts
footmisc		ensure footnotes stay at the bottom of short pages
geometry		set the margins (see <a href="#">section 6.4 on page 48</a> )
graphicx		enable graphics
ifthen		used for if...then...else internally
lmodern		extended Computer Modern (default) typeface
parskip		no indentation, paragraph gap is one line-space
setspace		set 1½ line-spacing
† textcomp		support for special characters including <code>\texteuro</code> (€ instead of €)
‡ ucccrest		Monochrome classic UCC crest
ulem		Support for underlining
url		Improved line-breaking of long web addresses
xcolor		Colour
<b>Packages active only with the <code>gaelige</code> class option</b>		
babel	<code>english, irish</code>	Irish-language typesetting options
eiad		The sean-chló typeface

† support for the official € symbol requires the `marvosym` package (`\EUR`)

‡ you must ensure that the `ucccrest` package is installed.

## **5 Format of E-thesis**

These rules were taken from the Graduate Studies web site at <https://www.ucc.ie/en/study/postgrad/currentresearchstudents/thesis/formatofe-thesis/> on 1 May 2020.

### **5.1 File Types**

Theses for examination must be submitted as a PDF file.

Non-traditional submission formats such as video files or audio files will continue to be accepted according to disciplinary norms.

### **5.2 Title Page**

There must be a title page which shall give the following information:

1. The full title of the thesis.
2. The full name of the author, followed, if desired, by any qualifications and distinctions.
3. The qualification for which the thesis is submitted.
4. The name of the institution: University College Cork.
5. The School or Department in which the research was conducted.
6. Name of the Head of the School or Department concerned.
7. Names of the Supervisors of the research.
8. The Year of submission.

Sample Title Page is available to view here: [UCC Research E-thesis Sample Title Page](#).

### **5.3 Table of Contents**

The table of contents shall immediately follow the title page.

## **5.4 Declaration**

Following the table of contents, a declaration should be included stating that the thesis submitted is the candidate's own work and has not been submitted for another degree. The following wording should be used:

"This is to certify that the work I am submitting is my own and has not been submitted for another degree, either at University College Cork or elsewhere. All external references and sources are clearly acknowledged and identified within the contents. I have read and understood the regulations of University College Cork concerning plagiarism."

## **5.5 Abstract**

An abstract is required for all final thesis submissions to CORA. We advise that an abstract should be a maximum of 600 words.

## **5.6 Formatting**

The text must be formatted with a left-hand margin 4 cm. Font size 12 and double or one-and-a-half spacing is recommended.

## References

- Bradner, S. (1997). *Key words for use in RFCs to Indicate Requirement Levels* (tech. rep.). Internet Engineering Task Force. Reston, VA, Internet Standard.  
<https://tools.ietf.org/rfc/rfc2119.txt>
- Flynn, P. (2011). *Formatting Information* (5th). Cork, Silmaril Consultants.  
<http://latex.silmaril.ie/formattinginformation>
- Heaney, S. (2001). *Beowulf: A New Verse Translation*. New York, WW Norton.



## 6 Implementation

`uccthesis` The `uccthesis` document class is based on the standard  $\text{\LaTeX}$  report class, with additional commands to create the title page and provide some extra formatting options.

### 6.1 Auto-initialisation

This section is added automatically by *ClassPack* as a preamble to all classes and style packages. The `fixltx2e` package, which used to be included automatically, is no longer preloaded, as its features are now a part of the latest  $\text{\LaTeX} 2_{\epsilon}$  kernel.

The code starts with identity and requirements which are generated automatically as needed by the Doc $\text{\TeX}$  system. For details see the `ltxdoc` package documentation.

```
1 \NeedsTeXFormat{LaTeX2e}[2017/04/15]
2 \ProvidesClass{uccthesis}[2020/04/29 v2.9
3   Formatting for a thesis for University College Cork]
```

`fix-cm` Preloaded functions to override the default  $\text{\LaTeX}$  step-size font sizes (which can still be used, but are no longer restrictions).

```
4 \RequirePackage{fix-cm}
```

`svgnames` Pass the `svgnames` option to the `xcolor` package if that gets loaded later. This avoids a conflict with any other packages (eg `hyperref`) which use their own default is when they load `xcolor`.

```
5 \PassOptionsToPackage{svgnames}{xcolor}
```

### 6.2 Preliminary declarations

The `ifthen` package is required to make the options work.

```
6 \RequirePackage{ifthen}
```

## 6.3 Class options

The options provided mainly affect formatting.

### 6.3.1 Draft and final modes

`\class@mode` Draft mode is the default, but we define a macro to allow it to be passed through to the report class as a default.

```
7 \def\class@mode{draft}
```

**draft** We set the overfull rule as normal for draft mode, and set the running footer to indicate draft mode for activation at the end of processing, once the fancyhdr package has been loaded. It also sets `\sloppy` and `\raggedbottom`, as these are likely to prove useful in complex texts with substantial amounts of mixed formatting (mathematics, figures, tables, long words, etc).

```
8 \newif\ifthesis
9 \thesistrue
10 \def\@revdate{\relax}
11 \DeclareOption{draft}{\setlength\overfullrule{1ex}%
12   \def\class@mode{draft}%
13   \sloppy\raggedbottom
14   \AtEndOfClass{%
15     \lfoot{\scriptsize\ttfamily Draft: \jobname}%
16     \rfoot{\scriptsize\ttfamily
17       \if\relax\@revdate
18         \TODAY T\now:00\else\@revdate\fi}}%
19   \typeout{DRAFT MODE}}
20 \newcommand{\revdate}[1]{\gdef\@revdate{#1}}
```

**final** The final-mode setting sets the overfull rule to nothing, records the status in `\class@mode`, and sets the same tolerances as for draft mode.

```
21 \DeclareOption{final}{\setlength\overfullrule{0pt}%
22   \def\class@mode{final}%
23   \sloppy\raggedbottom
24   \typeout{FINAL MODE}}
```

### 6.3.2 Type size and paper size

`\class@size` Provide a similar recording feature to pass the size option through to the report class. The required size is 12pt.

```
25 \def\class@size{12pt}
26 \DeclareOption{12pt}{\def\class@size{12pt}}
```

`\class@paper` The same applies to passing the paper size. Only A4 and Letter are relevant here.

```
27 \def\class@paper{a4paper}
28 \DeclareOption{a4paper}{\def\class@paper{a4paper}}
29 \DeclareOption{letterpaper}{\def\class@paper{letterpaper}}
```

### 6.3.3 Turning off the Lists of Tables and Figures

Production of a List of Tables and a List of Figures is automated: if no figure or table is used, then no list is produced.

`nolot` Allow thesis not to have any List of Tables with the **no~~l~~ot** option and the `\iflot` switch.

```
30 \newif\iflot\lottrue
31 \DeclareOption{nolot}{\lotfalse}
```

`nolof` Allow thesis not to have any List of Figures with the **no~~l~~of** option and the `\iflof` switch.

```
32 \newif\iflof\loftrue
33 \DeclareOption{nolof}{\loffalse}
```

`\hypersetup` Because hyperref should be loaded last, it is deferred to the beginning of the document. Change the colours for links.

```
34 \AtBeginDocument{%
35 %% \usepackage{hyperref}%
36 \hypersetup{linkcolor=blue,
37             urlcolor=purple,
38             citecolor=magenta}%
39 }
```

At the end of the document, new global counter for figures and tables are tested, and if there were none, the false value is written to the auxiliary file, where it will be detected on the next pass.

```

40 \newcounter{UCC@totfig}
41 \newcounter{UCC@tottab}
42 \AtBeginDocument{%
43   \let\UCC@end@figure\endfigure
44   \newcommand{\UCC@endfigure}{%
45     \UCC@end@figure\global\advance\c@UCC@totfig by1}
46   \let\endfigure\UCC@endfigure
47   \let\UCC@end@table\endtable
48   \newcommand{\UCC@endtable}{%
49     \UCC@end@table\global\advance\c@UCC@tottab by1}
50   \let\endtable\UCC@endtable
51   \renewcommand{\UrlFont}{\ttfamily}%
52 }
53 \AtEndDocument{%
54   \ifnum\c@UCC@totfig=0 \write\@mainaux{%
55     \string\global\string\loffalse}\fi
56   \ifnum\c@UCC@tottab=0 \write\@mainaux{%
57     \string\global\string\lotfalse}\fi
58 }

```

### 6.3.4 Irish-language theses

**gaelige** Provide for theses in Irish. This option loads the polyglossia package with **irish** as the main language and **english** as the ‘other’ language. It also loads the eiad font package for sean-chló type.

```

59 \def\UCC@language{en}
60 \DeclareOption{gaelige}{%

```

At the end of the package processing, it makes some changes to tokens which are not handled by polyglossia (Institution [defined in this package and not changeable], Acknowledgements [defined in the package], and \today [defined by  $\text{\LaTeX}$ ). Hyphenation is disabled for Irish text (the jury is still out on whether Irish should be hyphenated or not).

```

61 \gdef\UCC@language{ga}
62 \AtEndOfClass{%
63   \RequirePackage{polyglossia}

```

```

64 \setdefaultlanguage{irish}
65 \setotherlanguage[variant=british]{english}
66 \selectbackgroundlanguage
67 \disablehyphenation
68 \RequirePackage{eiad}%
69 \def\UCC@ackname{Bu\''\i ochas}
70 \def\today{\number\day\space\ifcase\month\or
71 Ean\ 'a\i r\or Feabhra\or M\ 'arta\or A\i bre\ 'an\or
72 Bealta\i ne\or Me\i theamh\or U\ 'u\i l\or L\ 'unasa\or
73 Me\ 'an F\ 'omha\i r\or De\i readh F\ 'omha\i r\or
74 Samha\i n\or M\ 'i\ na Nollag\fi\space
75 \number\year}%

```

Finally, we change the tokens for the handles previously defined for the division and degree options above; and we preset `\raggedright` because the hyphenation of Irish is widely regarded as problematic, and is turned off above.

```

76 \raggedright
77 }

```

### 6.3.5 Justification, indentation, and paragraph-spacing

Documents formatted on office-size paper do not read easily when justified with long line-lengths such as those in effect when the Registrar’s Rules are applied to A4 or Letter paper. The default is therefore for *a*) justification turned off; *b*) white-space between paragraphs and *c*) no indentation on the first lines of paragraphs

**justified** The **justified** option is provided to allow justification to be turned back on by setting the `\ifjustified` switch.

```

78 \newif\ifjustified
79 \DeclareOption{justified}{\justifiedtrue}

```

It is also easier to read the longer lines in long structured documents when the paragraphs are separated by white-space and *not* indented, rather than set tight and with indentation, like a book. (Indentation is never used with space between paragraphs in English-language typesetting.)

**indented** Nevertheless we provide an option to reverse this and allow indentation: it sets the `\ifindented` switch, so that it can be set or unset later, along with paragraph-spacing using the `parskip` package.

```
80 \newif\ifindented\indentedfalse
81 \DeclareOption{indented}{\indentedtrue}
```

### 6.3.6 Running headers and footers

**plainheaders** Because theses are long documents, and because parts or all of them are likely to be extracted for printing off or photocopying at some stage, it is very important that every page should be identifiable in isolation. The `fancyhdr` package is used to do this by default (see [section 6.5 on page 52](#)).

```
82 \newif\iffancy
83 \fancytrue
84 \DeclareOption{plainheaders}{\fancyfalse}
```

Some users were not permitted to use running headers and footers, so the **plainheaders** allows it to be turned off via the `\iffancy` switch.

### 6.3.7 Crest

The default crest is the current colour version. The alternative (classic) crest uses the special heraldic arms drawn in METAFONT specifically for UCC and included in this class as `uccnew.mf` (with the motto ‘Where Finbarr taught, let Munster learn’ omitted as per a decision of UCC many years ago).

```
85 \def\UCC@crest{%
86   \includegraphics[width=.333\columnwidth]{ucc_logo_clip.pdf}}
87 \DeclareOption{classic}{%
88   \gdef\UCC@crest{\Large
89     \fontencoding{U}\fontfamily{zcc}\selectfont\char'001}}%
90 }
```

### 6.3.8 Dissertations, term papers, and essays

WARNING: EXPERIMENTAL

**mdiss** This is for minor dissertations.

```

91 \newif\ifdiss
92 \DeclareOption{mdiss}{%
93   \disstrue
94   \thesisfalse
95   \fancyfalse
96 }

```

**termpaper** This is for term papers.

```

97 \newif\iftermpaper
98 \DeclareOption{termpaper}{%
99   \AtEndOfClass{%
100     \degree{}%
101     \def\UCC@degree{\relax}%
102     \thesisfalse}%
103   \typeout{Term paper}}

```

**essay** This is for undergraduate essays.

```

104 \newif\ifessay
105 \DeclareOption{essay}{%
106   \AtEndOfClass{%
107     \degree{}%
108     \def\UCC@degree{\relax}%
109     \thesisfalse}%
110   \typeout{Essay}}

```

### 6.3.9 One- and two-sided output

**oneside** Theses are submitted electronically, so the default format is for single-sided usage. This is also useful for people printing the document, such as External Examiners.

```

111 \newif\ifUCC@oneside
112 \UCC@onesidetrue
113 \def\UCC@sided{oneside}
114 \DeclareOption{oneside}{
115   \UCC@onesidetrue
116   \gdef\UCC@sided{oneside}
117 }

```

**twoside** However, the **twoside** is available for when a very long thesis needs to economise on paper, or when a presentation copy is being bound as a book.

```
118 \DeclareOption{twoside}{
119   \UCC@onesidefalse
120   \gdef\UCC@sided{twoside,openright}
121 }
```

### 6.3.10 Applying the options

Issue an error message for any bogus or unsupported options:

```
122 \DeclareOption*{%
123   \PackageWarning{uccthesis}{Unknown option ‘\CurrentOption’;
124     please Read The Fine Manual}%
125 }
```

Process those we support, and then load the report document class with the values we have gathered above.

```
126 \ProcessOptions\relax
127 \LoadClass[\class@mode,titlepage,\UCC@sided,\class@size,
128   \class@paper]{report}
```

## 6.4 Packages required for the class

fontspec Font specification setup for use with Xe<sub>La</sub>TeX.

```
129 \RequirePackage{fontspec}%
```

geometry Package for establishing margins and text area. Sets the page size to values within the Registrar’s specification. This has the effect of making the textwidth 5.7” (145mm) and the textheight 9.3” (237mm) on an A4 page. The headheight is set to accommodate the default running headers.

```
130 \RequirePackage[margin=2.5cm,left=4cm,
131   bottom=3cm,headheight=22pt]{geometry}%
```

lmodern The updated Computer Modern typeface as the default.

```
132 \RequirePackage{lmodern}%
```



enumitem List variants: inline and compact. Note that this replaces the earlier defaults of paralist and mdwlist. This is used to fix the permanent bug in  $\TeX$  where a long description list term would be boxed and force an overflow; also to allow inline lists.

```
133 \RequirePackage[inline]{enumitem}%
134 \setlist[description]{style=unboxed}
135 \setlist[itemize]{leftmargin=2em}
136 \setlist[enumerate]{leftmargin=2em}
137 \newlist{inlineenum}{enumerate*}{1}
138 \setlist[inlineenum,1]{label=\emph{\alph*}},
139 itemjoin={; },itemjoin*={; and }}
```

url Handling of URI formatting.

```
140 \RequirePackage{url}%
```

graphicx Provide for graphics (PNG, JPG, or PDF format (only) for pdf $\LaTeX$ ; EPS format (only) for standard  $\TeX$ ).

```
141 \RequirePackage{graphicx}%
```

array Additional column formatting types for tables.

```
142 \RequirePackage{array}%
```

calc Required for calculations involving lengths or counters, such as changes to widths for margin adjustment.

```
143 \RequirePackage{calc}%
```

textcomp Additional commands for common symbols and punctuation.

```
144 \RequirePackage{textcomp}%
```

ucccrest University College Cork crest (restricted). Required for the classic title page.

```
145 \RequirePackage{ucccrest}%
```

setspace Provide 1½ or double line spacing.

```
146 \RequirePackage{setspace}%
```

float Allows redesigning of floats and creation of new float types.

```
147 \RequirePackage{float}%
```

relsize Provides size-relative font size changes (smaller, larger, etc).

```
148 \RequirePackage{relsize}%
```

textcase Provides a more sophisticated casing function than the default.

```
149 \RequirePackage{textcase}%
```

xcolor Provide color.

```
150 \RequirePackage{xcolor}%
151 \@ifundefined{T}{%
152     \newcommand{\T}[2]{{\fontencoding{T1}%
153     \selectfont#2}}}{}
```

There seems to be a bug in the T1 encoding of some package (unidentified, but possibly `xcolor`) which uses the command `\T1`, which is an impossibility (no digits allowed in command names). So we fake it here to stop  $\text{\TeX}$  complaining, by dropping the first argument on the floor.

hyperref Provides complex settings for making hypertext (clickable) links in PDF and PS output for URIs, cross-references, and bibliographic citations.

```
154 \RequirePackage{hyperref}%
155 \hypersetup{linkcolor=Blue,urlcolor=DarkBlue,
156 citecolor=DarkRed,colorlinks=true}
157 \AtBeginDocument{\renewcommand{\UrlFont}{\ttfamily}}
```

## 6.5 Modifications to the report class and packages

Now that the report class and the packages are loaded, we can start making the necessary changes.

`\geometry` Fix the geometry for two-sided work.

```
158 \ifUCC@oneside
159     \newgeometry{left=4cm,right=2.5cm,top=3cm,bottom=3cm,
```

```

160         headheight=22pt}
161 \else
162   \newgeometry{inner=4cm,outer=2.5cm,top=3cm,bottom=3cm,
163             headheight=22pt,twoside}
164 \fi

```

`\bibname` Call the references References, not Bibliography.

```

165 \renewcommand{\bibname}{References}
166 \def\UCC@bibsorthat{\relax}
167 \newcommand{\mybibstyle}[3][\relax]{%
168   \if\relax#1
169     \RequirePackage[backend=biber,style=#2]{biblatex}%
170   \else
171     \RequirePackage[backend=biber,sort=#1,style=#2]{biblatex}%
172   \fi
173   \addbibresource{#3}%
174 }

```

`\ifjustified` The flags implementing [re-]justification and [re-]indentation explained above are used here to control loading of the `parskip`, `ccaption`, and `footmisc` packages.

Justified text, signalled with `\ifjustified` requires only `footmisc`, and only with the **bottom**, **stable** options, because  $\TeX$ 's default is to justify everything.

```

175 \ifjustified
176   \RequirePackage[bottom,stable]{footmisc}

```

On the other hand, unjustified text (the default) requires the `ccaption` package and its re-setting of the captioning to be unjustified; and the **ragged** option to the `footmisc` package.

```

177 \else
178   \RequirePackage{ccaption}
179   \captionstyle{\raggedright}%
180   \RequirePackage[bottom,ragged,stable]{footmisc}
181   \raggedright
182 \fi

```

`\ifindented` Unindented text is the default, so it gets established here, along with paragraph-spacing, unless the **indented** option has been specified,

which sets the `\ifindented`.

```
183 \ifindented
184   \parindent1.5em
185 \else
186   \RequirePackage{parskip}
187 \fi
```

`\UCC@textbodywidth` To set the width of the boxes needed to handle multiline running headers and footers, we need to copy the text width.

```
188 \newlength{\UCC@textbodywidth}
189 \setlength{\UCC@textbodywidth}{\textwidth}
```

`\pagestyle` The loading of the `fancyhdr` package is controlled by the `\iffancy` switch. (Bear in mind that these running headers and footers can be ignored by using the **plainheaders** option.)

```
190 \iffancy
191   \message{Fancy mode }%
192   \RequirePackage{fancyhdr}
193   \pagestyle{fancy}
```

We set the default page style to fancy. Although we are using the `report` class as our basis, it is single-sided by default, but we need to accommodate two-sided usage.

```
194 \ifUCC@oneside
195   \message{One-sided plain}%
196   \fancypagestyle{plain}{%
197     \fancyhf{}
198     \cfoot{\thepage}%
199     \renewcommand{\headrulewidth}{0pt}
200     \renewcommand{\footrulewidth}{0pt}}
201 \else
202   \message{Two-sided plain}%
203   \fancypagestyle{plain}{%
204     \fancyhf{}
205     \fancyfoot[CO,CE]{\thepage}%
206     \renewcommand{\headrulewidth}{0pt}
207     \renewcommand{\footrulewidth}{0pt}}
208 \fi
```

For the one-sided running headers, the left-hand one checks to see if the right and left marks are the same: if so, do nothing (ie, leave the header as it is); otherwise, use the left mark (the chapter title). As chapter titles can be quite long, we set them in a `\parbox` just under half a page-width wide, so they will wrap and not interfere with the right-hand running header...

```

209 \fancyhf{}
210 \newlength{\rheadhang}
211 \settowidth{\rheadhang}{\footnotesize\thechapter.\space}
212 \ifUCC@oneside
213 \message{One-sided fancy headers}%
214 \lhead{\ifthenelse{\equal{\leftmark}{\rightmark}}{\footnotesize\scshape\parbox[b]{.475\UCC@textbodywidth}{%
215 \hangindent\rheadhang\hangafter1\raggedright
216 {\let\\\space\leftmark}}}}
217

```

...which contains the section title in the right mark, which we typeset exactly the same way, except that it is made flush right for symmetry. There is no centre running header.

```

218 \rhead{\footnotesize\itshape
219 \parbox[b]{.475\UCC@textbodywidth}{%
220 \flushright{\let\\\space\rightmark}}}
221 \chead{}

```

For two-sided running headers it's simpler, because no cross-checking is needed.

```

222 \else
223 \message{Two-sided fancy headers}%
224 \fancyhead[LE]{\ifthenelse{\equal{\leftmark}{\rightmark}}{\footnotesize\scshape\parbox[b]{\UCC@textbodywidth}{%
225 \hangindent\rheadhang\hangafter1\raggedright
226 {\let\\\space\leftmark}}}}
227 \fancyhead[RO]{\footnotesize\itshape
228 \parbox[b]{\UCC@textbodywidth}{%
229 \flushright{\let\\\space\rightmark}}}
230 \fi
231

```

The running footers are different on fancy and plain pages: on the left goes the title; on the right goes the author; but on plain pages they are left empty. The centre running footer always contains the page number,

as required by the Registrar's Rules.

```
232 \ifUCC@oneside
233 \message{One-sided fancy footers}%
234 \lfoot{\fancyplain{}{\footnotesize
235 \parbox[t]{.475\UCC@textbodywidth}{%
236 \itshape\raggedright{\@@title}}}}%
237 \rfoot{\fancyplain{}{\footnotesize\UCC@author}}
238 \cfoot{\fancyplain{\small\thepage}{\small\thepage}}
239 \else
240 \message{Two-sided fancy footers}%
241 \fancyfoot[LE]{\fancyplain{}{\footnotesize
242 \parbox[t]{.475\UCC@textbodywidth}{%
243 \itshape\raggedright{\@@title}}}}
244 \fancyfoot[RO]{\fancyplain{}{\footnotesize\UCC@author}}
245 \fancyfoot[CE,CO]{\fancyplain{%
246 \small\thepage}{\small\thepage}}
247 \fi
```

Finally, we set the header and footer rules to null, and we implement the chapter and section marking to gather the current titling in `\chaptermark` and `\sectionmark`, and ensure that the default headers do not perform any uppercasing by setting the `\ps@headings` command to null.

```
248 \addtolength{\headheight}{10pt}
249 \renewcommand{\headrulewidth}{0pt}
250 \else
251 \message{^MPlain (non-fancy) mode }%
252 \fi
253 \renewcommand{\chaptermark}[1]{\markboth{\thechapter.\ #1}{}}
254 \renewcommand{\sectionmark}[1]{\markright{\thesection\ #1}{}}
255 \def\ps@headings{}
```

`\now` Calculate the time of day and provide for a timestamp to identify draft versions.

```
256 \newcounter{hours}
257 \newcounter{minutes}
258 \newcounter{temp}
259 \setcounter{hours}{\time}%
260 \setcounter{minutes}{\value{hours}}%
261 \divide\c@hours by60 % hours is now right
262 \setcounter{temp}{\value{hours}}%
```

```

263 \multiply\c@temp by60 % integer part to deduct
264 \addtocounter{minutes}{-\value{temp}}% make deduction
265 \newcommand{\now}{% \time is in minutes since midnight
266   \ifnum\c@hours>9\else0\fi\thehours:%
267   \ifnum\c@minutes>9\else0\fi\theminutes}
268 \def\adobedate{D:\number\year
269   \ifnum\month>9\else0\fi\number\month
270   \ifnum\day>9\else0\fi\number\day\now00}

```

`\TODAY` Redefine `\today` the European way round as `\TODAY`, and provide an ISO-format version for the footers.

```

271 \def\today{\number\day\space\ifcase\month\or
272   January\or February\or March\or
273   April\or May\or June\or
274   July\or August\or September\or
275   October\or November\or December\fi
276   \space\number\year}
277 \def\TODAY{\number\year{-}%
278   \ifnum\month<10 0\fi\number\month{-}%
279   \ifnum\day<10 0\fi\number\day}

```

`\define@newfont` The test for small caps in the next command below is due to David Carlisle on [StackExchange](#). This redefinition enables it by recording the availability.

```

280 \def\define@newfont{%
281   \begingroup
282   \let\typeout\@font@info
283   \escapechar\m@ne
284   \expandafter\expandafter\expandafter
285     \split@name\expandafter\string\font@name\@nil
286   \try@load@fontshape % try always
287   \expandafter\ifx
288     \csname\curr@fontshape\endcsname \relax
289     \expandafter\gdef\csname \curr@fontshape/sub\endcsname{}}% new
290   \wrong@fontshape\else
291   \extract@font\fi
292   \endgroup}

```

`\UCC@sc` Test if the current typeface has small caps, and if not, fake them.

```

293 \newcommand{\UCC@sc}[1]{%

```

```

294 \ifcsname \f@encoding/\f@family/\f@series/sc/sub\endcsname
295   {\smaller\MakeTextUppercase{#1}}%
296 \else
297   \ifcsname \f@encoding/\f@family/\f@series/sc\endcsname
298     \textsc{#1}%
299   \else
300     {\smaller\MakeTextUppercase{#1}}%
301   \fi
302 \fi}

```

## 6.6 Metadata

Define the metadata (`\title` and `\date` are already given by  $\text{\LaTeX}$  in the report class, and we redefine `\author` below). These are all done the same way, with a default value that gets overridden when an authorial value is given.

`\institution` Institution (nominally still the NUI). You can't change this.

```

303 \def\UCC@institution@en{National University of Ireland, Cork}
304 \def\UCC@institution@ga{Ollscoil na hÉireann, Corcaigh}
305 \def\UCC@university@en{University College Cork}
306 \def\UCC@university@ga{Coláiste na hOllscoile Corcaigh}
307 %\newcommand{\institution}[2][en]{%
308 %   \def\csname UCC@institution@#2\endcsname{#1}}

```

`\author` Provide a mandatory first argument on the `\author` command for giving the student number or ORCID.

```

309 \def\UCC@idno{0000-0000-0000-0000}
310 \def\UCC@author{Anon}
311 \newif\ifUCC@orcid
312 \def\UCC@find@orcid#1#2#3#4#5#6\sentinel{%
313   \if-#5 \UCC@orcidtrue
314   \else \UCC@orcidfalse
315   \fi}
316 \renewcommand{\author}[2]{%
317   \gdef\UCC@idno{#1}%
318   \expandafter\UCC@find@orcid#1\sentinel
319   \gdef\UCC@author{#2}%
320 }

```



`\subtitle` Optional subtitle.

```
321 \def\UCC@subtitle{\relax}
322 \newcommand{\subtitle}[1]{\gdef\UCC@subtitle{#1}}
```

`\sponsor` Sponsor or funding agency.

```
323 \def\UCC@sponsor{\relax}
324 \newcommand{\sponsor}[1]{\gdef\UCC@sponsor{#1}}
```

`\supervisor` Supervisor, but syntactically this needed a plural value for the string label used in formatting, so we define `\supervisors` as well.

```
325 \def\UCC@supervisor{[Name not supplied]}
326 \def\UCC@supervisorname{Supervisor}
327 \newcommand{\supervisor}[1]{\gdef\UCC@supervisor{#1}}
328 \newcommand{\supervisors}[1]{\gdef\UCC@supervisor{#1}%
329   \def\UCC@supervisorname{Supervisors}}
```

`\module` Only for dissertations and essays.

```
330 \def\UCC@module{\relax}
331 \newcommand{\module}[1]{\gdef\UCC@module{#1}}
```

`\handles`

```
332 \def\UCC@collegehandle@en{College of}
333 \def\UCC@schoolhandle@en{School of}
334 \def\UCC@departmenthandle@en{Department of}
335 \def\UCC@institutehandle@en{Institute}
336 \def\UCC@hospitalhandle@en{Hospital}
337 \def\UCC@centrehandle@en{Centre}
338 \def\UCC@unithandle@en{Unit}
339 \def\UCC@degreehandle@en{Degree of}
340 %
341 \def\UCC@collegehandle@ga{Coláiste}
342 \def\UCC@schoolhandle@ga{Scoil an}
343 \def\UCC@departmenthandle@ga{Roinn an}
344 \def\UCC@institutehandle@ga{Institúid }
345 \def\UCC@hospitalhandle@ga{Spidéal }
346 \def\UCC@centrehandle@ga{Lárionad }
347 \def\UCC@unithandle@ga{Aonad }
348 \def\UCC@degreehandle@ga{Céim }
```

`\college` Define the Colleges.

```
349 \newcommand{\college}[1]{%
350   \ifthenelse{\equal{#1}{acsss}}{%
351     \gdef\UCC@college@en{%
352       \UCC@collegehandle@en\
353       Arts, Celtic Studies and Social Sciences}%
354   \gdef\UCC@college@ga{%
355     \UCC@collegehandle@ga\
356     na nEalaíon, an Léinn Cheiltigh agus na
357     nEolaíochtaí Sóisialta}}%
358   {\ifthenelse{\equal{#1}{sefs}}{%
359     \gdef\UCC@college@en{%
360       \UCC@collegehandle@en\
361       Science, Engineering and Food Science}%
362   \gdef\UCC@college@ga{%
363     \UCC@collegehandle@ga\
364     na hEolaíochta, na hInnealtóireachta
365     agus na hEolaíochta Bia}}%
366   {\ifthenelse{\equal{#1}{med}}{%
367     \gdef\UCC@college@en{%
368       \UCC@collegehandle@en\ Medicine and Health}%
369   \gdef\UCC@college@ga{%
370     \UCC@collegehandle@ga\
371     an Leighis agus na Sláinte}}%
372   {\ifthenelse{\equal{#1}{buslaw}}{%
373     \gdef\UCC@college@en{%
374       \UCC@collegehandle@en\ Business and Law}%
375   \gdef\UCC@college@ga{%
376     \UCC@collegehandle@ga\ an Ghnó agus an Dlí}}%
377   {\gdef\UCC@college@en{No college identified}%
378   \gdef\UCC@college@ga{Níor aithníodh aon choláiste}}%
379   }}}}
```

`\school` Define the School, Department, or Discipline. Also the Hospital, Institute, Centre, or Unit.

```
380 \def\UCC@unitttype{School}
381 \def\UCC@school{\relax}
382 \newcommand{\school}[1]{\gdef\UCC@school{%
383   \csname UCC@schoolhandle@\UCC@language\endcsname\ #1}%
384   \gdef\UCC@unitttype{School}}
385 \def\UCC@discipline{\relax}
386 \newcommand{\discipline}[1]{\gdef\UCC@discipline{#1}%
```

```

387 \gdef\UCC@unitttype{Discipline}}
388 \def\UCC@department{\relax}
389 \newcommand{\department}[1]{\gdef\UCC@department{#1}%
390 \gdef\UCC@unitttype{Department}}
391 \def\UCC@hospital{\relax}
392 \newcommand{\hospital}[2][\relax]{%
393 \if#1\relax
394 \gdef\UCC@hospital{#2 \csname
395 UCC@hospitalhandle\UCC@language\endcsname}%
396 \else
397 \ifthenelse{\equal{#1}{}}%
398 {\gdef\UCC@hospital{#2}}%
399 {\gdef\UCC@hospital{#2 (#1)}}%
400 \fi}
401 \def\UCC@institute{\relax}
402 \newcommand{\institute}[2][\relax]{%
403 \if#1\relax
404 \gdef\UCC@institute{#2 \csname
405 UCC@institutehandle\UCC@language\endcsname}%
406 \else
407 \ifthenelse{\equal{#1}{}}%
408 {\gdef\UCC@institute{#2}}%
409 {\gdef\UCC@institute{#2 (#1)}}%
410 \fi}
411 \def\UCC@centre{\relax}
412 \newcommand{\centre}[2][\relax]{%
413 \if#1\relax
414 \gdef\UCC@centre{#2 \csname
415 UCC@centrehandle\UCC@language\endcsname}%
416 \else
417 \ifthenelse{\equal{#1}{}}%
418 {\gdef\UCC@centre{#2}}%
419 {\gdef\UCC@centre{#2 (#1)}}%
420 \fi}
421 \def\UCC@unit{\relax}
422 \newcommand{\unit}[2][\relax]{%
423 \if#1\relax
424 \gdef\UCC@unit{#2 \csname
425 UCC@unithandle\UCC@language\endcsname}%
426 \else
427 \ifthenelse{\equal{#1}{}}%
428 {\gdef\UCC@unit{#2}}%
429 {\gdef\UCC@unit{#2 (#1)}}%

```

430     \fi}

\degree The standard postgraduate degrees are given as the standard abbreviations: PhD, MA, MSc. All others MUST be given in full.

```
431 \def\UCC@degree{\relax}
432 \newcommand{\degree}[1]{%
433   \ifthenelse{\equal{#1}{PhD}}{%
434     \gdef\UCC@degree{Doctor of Philosophy}}%
435   {\ifthenelse{\equal{#1}{MA}}{%
436     \gdef\UCC@degree{Master of Arts}}%
437   {\ifthenelse{\equal{#1}{MSc}}{%
438     \gdef\UCC@degree{Master of Science}}%
439   {\gdef\UCC@degree{#1}}}}
```

\professor The name of the student's Professor. Also provide \hod for syntactic sugar.

```
440 \def\UCC@prof{\relax}
441 \newcommand{\professor}[1]{\gdef\UCC@prof{#1}}
442 \let\hod\professor
```

\quals Prior qualifications.

```
443 \def\UCC@quals{\relax}
444 \newcommand{\qualifications}[1]{\gdef\UCC@quals{#1}}%
```

\volume Optional volume number.

```
445 \def\UCC@volume{\relax}
446 \def\UCC@maxvolumes{\relax}
447 \def\volume #1 of #2 {\gdef\UCC@volume{#1}%
448   \gdef\UCC@maxvolumes{#2}}
```

\@submission This is the formal prioritising of the order in which the various divisional identifiers are given, if used: each one is enclosed in a test to ensure it is only used if it has been specified.

```
449 \def\UCC@submission{%
450   {\Large\bfseries\cename UCC@university@\UCC@language\endcename\par}%
451   {\bfseries\cename UCC@college@\UCC@language\endcename}%
452   \if\UCC@hospital\relax
453   \else\par\textsc{\UCC@hospital}}%
```

```

454 \fi
455 \if\UCC@school\relax
456 \else\par\textsc{\UCC@school}%
457 \fi
458 \if\UCC@department\relax
459 \else\par\textsc{\UCC@department}%
460 \fi
461 \if\UCC@discipline\relax
462 \else\par\textsc{\UCC@discipline}%
463 \fi
464 \if\UCC@institute\relax
465 \else\par\textsc{\UCC@institute}%
466 \fi
467 \if\UCC@centre\relax
468 \else\par\textsc{\UCC@centre}%
469 \fi
470 \if\UCC@unit\relax
471 \else\par\textsc{\UCC@unit}%
472 \fi
473 }

```

`\availability` If the document is available online the `\availability` command can be used to provide a short paragraph with links. Keep the 2.4 name (`\annotation`) for compatibility for a while.

```

474 \def\UCC@annot{\relax}
475 \newcommand{\availability}[1]{\gdef\UCC@annot{#1}}
476 \let\annotation\availability

```

Two final commands record the metadata needed to complete the PDF Properties, which is needed for electronic submission.

`\subject` This specifies the subject of the thesis.

```

477 \def\UCC@subject{SUBJECT NOT GIVEN BY AUTHOR}
478 \newcommand{\subject}[1]{\gdef\UCC@subject{#1}}

```

`\keywords` This specifies a comma-separated list of keywords for use when indexing your thesis.

```

479 \def\UCC@keywords{KEYWORDS NOT GIVEN BY AUTHOR}
480 \newcommand{\keywords}[1]{\gdef\UCC@keywords{#1}}

```

## 6.7 Title page

Create the title page as per Registrar's Rules. This automatically triggers the Table of Contents, List of Figures, List of Tables, and the Declaration of Responsibility.

```
\ifmadetitle First, define a switch that can be used if \maketitle is forgotten.

481 \newif\ifmadetitle

\title Allow for an optional short (or unformatted) title

482 \def\@@title{\relax}
483 \renewcommand{\title}[2][\relax]{%
484 \gdef\@title{#2}%
485 \ifthenelse{\equal{#1}{\relax}}{%
486 \gdef\@@title{#2}%
487 \message{No short title}%
488 }{%
489 \gdef\@@title{#1}%
490 \message{Short title: #1}%
491 }%
492 }

\maketitle The order is: institution, crest, title, subtitle, volume, author,
qualifications, student/ORCID number, degree, college, institute, school,
department, professor, supervisor, sponsor, date.

493 \renewcommand\maketitle{%

We want this on a page by itself, centered both vertically and
horizontally.

494 \begin{titlepage}%
495 \ifthesis\relax\else\null\vfill\fi
496 \begin{center}%
497 \Large\UCC@institution@ga
498 \par\medskip
499 \textbf{\UCC@institution@en}
500 \par\bigskip
501 \ifthesis
502 \UCC@crest
503 \par\bigskip
504 \fi
```

Title is compulsory; subtitle is optional.

```
505     {\LARGE\bfseries\@title \par}%
506     \if\UCC@subtitle\relax\else\medskip
507         {\Large\bfseries\UCC@subtitle\par}%
508     \fi
```

Volume number is compulsory if the thesis is multi-volume.

```
509     \ifthesis
510         \if\UCC@volume\relax\else
511             \vspace{2pc}{\large Volume \UCC@volume\ of
512                 \UCC@maxvolumes\par}%
513         \fi
514     \fi
515     \vspace*{2pc}%
```

Author is compulsory; qualifications are optional; student number or ORCID is compulsory.

```
516     {\ifthesis\large Thesis presented by\par\fi
517     \LARGE\UCC@author\hspace{.333em}%
518     \if\relax\UCC@quals\else
519         \UCC@sc{\UCC@quals}%
520     \fi
521     \[\[6pt]\Large
522     \ifUCC@orcid
523         \href{https://orcid.org/\UCC@idno}{\UCC@idno}%
524     \else
525         \href{mailto:{\UCC@idno}@umail.ucc.ie}{\UCC@idno}%
526     \fi
527     \par}%
```

Grade of degree is compulsory. Phrasing for some degrees ‘in part fulfilment’ needs investigating.

```
528     \ifthesis
529         \medskip
530         {\large for the degree of\
531             \Large\bfseries\UCC@degree\par}%
532     \else
533         {\large\UCC@module~--- Minor Dissertation\par}%
534     \fi
535     \vspace*{1.5pc}%
```

Use the preformed `\UCC@submission` which reproduces those divisional elements which have been specified.

```
536     \ifthesis
537         {\large\UCC@submission\par}
538         \vspace*{1pc}%
539     \fi
```

If this is a thesis, give the Professor and Supervisor(s) as a tabular alignment.

```
540     \ifthesis\large
541         \begin{tabular}{%
542 >{\raggedleft\arraybackslash}p{.45\UCC@textbodywidth}%
543 >{\raggedright\arraybackslash}p{.45\UCC@textbodywidth}}
```

Professor or Head of School/Department is now required.

```
544         \if\UCC@prof\relax\else
545             Head of \UCC@unitttype:&\UCC@prof\\[1pc]
546         \fi
547     \UCC@supervisorname:&
```

Multiple supervisors must have been separated by double backslashes, so we can use a 1-column table to make them format vertically.

```
548         \begin{tabular}[t]{@{}l@{}}
549             \UCC@supervisor
550         \end{tabular}%
551     \end{tabular}\par
```

If this was not a thesis, just give the supervisor. This should probably be collapsed into the above formatting.

```
552     \else
553         Supervisor:\quad\UCC@supervisor\par
554     \fi
555     \medskip
```

Sponsor, if there is one.

```
556     \if\UCC@sponsor\relax\else
557         Research supported by \UCC@sponsor\par
558     \fi
```



Date of submission comes last.

```
559          \medskip\@date\par\vfill
```

That's all, folks!

```
560          \end{center}%
```

Set the title page number to one and make sure it has no running header or footer.

```
561          \setcounter{page}{1}%  
562          \pagestyle{empty}%
```

Set the PDF metadata, but temporarily redefine the double backslash in case it has been used in the title.

```
563          \let\doublebackslash\\\let\\\space  
564          \hypersetup{pdfauthor={\UCC@author},  
565                      pdftitle={\@title},  
566                      pdfsubject={\UCC@subject},  
567                      pdfkeywords={\UCC@keywords},  
568                      pdfcreator={Xelatex}}%  
569          \let\\\doublebackslash  
570          \end{titlepage}%
```

Now reset the commands used to create the title page so that they can't accidentally be used again. Note that the stored values in the \@-variables remain unaffected for re-use in running headers, etc.

```
571  \global\let\thanks\@empty  
572  \global\let\and\relax  
573  \global\let\title\relax  
574  \global\let\author\relax  
575  \global\let\date\relax  
576  \global\let\professor\relax  
577  \global\let\hod\relax  
578  \global\let\supervisor\relax  
579  \global\let\supervisors\relax  
580  \global\let\degree\relax  
581  \global\let\college\relax  
582  \global\let\school\relax  
583  \global\let\department\relax  
584  \global\let\discipline\relax  
585  \global\let\institute\relax
```

```

586 \global\let\subject\relax
587 \global\let\keywords\relax
588 \global\let\subtitle\relax
589 \global\let\qualifications\relax
590 \global\let\hospital\relax
591 \global\let\centre\relax
592 \global\let\unit\relax
593 \global\let\volume\relax
594 \global\let\sponsor\relax
595 \global\let\maketitle\relax

```

Set the footnote counter (back) to zero, establish Roman (lowercase) page numbering for the front matter, and set the ToC depth down to the subsection.

```

596 \setcounter{footnote}{0}%
597 \pagestyle{empty}
598 \setcounter{tocdepth}{3}

```

Insert the availability/annotation para on an empty page, either extra (for single-sided) or on the back of the title page (for double-sided).

```

599 \ifUCC@oneside\clearpage
600 \if\relax\UCC@annot
601 \else\null\vfill{\small\@annot\par}\clearpage\fi
602 \else
603 \if\relax\UCC@annot\cleardoublepage
604 \else\clearpage\null\vfill{\small\@annot\par}\clearpage\fi
605 \fi

```

If this is a thesis, set the section numbering depth to 5; otherwise to zero (other uses for this document class).

```

606 \ifthesis
607 \setcounter{secnumdepth}{5}
608 \pagenumbering{roman}%
609 \else
610 \setcounter{secnumdepth}{0}
611 \pagenumbering{arabic}
612 \fi

```

Turn on fancy page headers and footers if the option was set.

```

613 \iffancy
614 \pagestyle{fancy}

```

```

615 \else
616   \pagestyle{plain}
617 \fi

```

As an integral part of the `\maketitle` command, do the Table of Contents immediately after the title page, as required by the Registrar's rules; then do the List of Figures and List of Tables if they are needed.

```

618 \ifthesis
619   \tableofcontents
620   \iflof\listoffigures\fi
621   \iflot\listoftables\fi
622 \fi

```

Flag the titlepage as having been done.

```

623 \madetitletrue
624 }

```

`\makedecl` If this is a thesis (ie not a term paper or essay), start a new page, set both marks to null, and output the Declaration of Responsibility.

```

625 \newif\ifmadedecl
626 \newcommand{\makedecl}{%
627   \ifthesis
628     \ifUCC@oneside\clearpage\else\cleardoublepage\fi
629     \null\vfill\markboth{}{}\label{UCC:decl}%
630     \begingroup
631     This is to certify that the work I am submitting
632     is my own and has not been submitted for another
633     degree, either at University College Cork or
634     elsewhere. All external references and sources
635     are clearly acknowledged and identified within
636     the contents. I have read and understood the
637     regulations of University College Cork concerning
638     plagiarism.
639     \par\flushright\bigskip\bigskip\bigskip\leavevmode
640     \hbox to2in{\hrulefill}\par\medskip
641     \textit{\UCC@author}\par\endgroup\vfill
642   \fi
643   \global\madedecltrue
644   \addcontentsline{toc}{section}{Declaration of
645     Responsibility}
646   \global\UCC@delaydeclfalse}

```

## 6.8 General settings and redefinitions

This is a collection of changes (usually small) and additions (for convenience).

### 6.8.1 Floats

Reset the proportions of the page used for floats. This is taken from <https://texfaq.org/FAQ-floats>.

```
647 \renewcommand{\topfraction}{.85}
648 \renewcommand{\bottomfraction}{.7}
649 \renewcommand{\textfraction}{.15}
650 \renewcommand{\floatpagefraction}{.75}
651 \renewcommand{\dbltopfraction}{.75}
652 \renewcommand{\dblfloatpagefraction}{.75}
653 \setcounter{topnumber}{9}
654 \setcounter{bottomnumber}{9}
655 \setcounter{totalnumber}{20}
656 \setcounter{dbltopnumber}{9}
```

### 6.8.2 New front and back matter macros and environments

Firstly, a consistent way to provide a Dedication, Acknowledgements, and other preliminaries.

`dedication` The `dedication` environment is for dedicating a thesis. It creates a page on its own and does not make a ToC entry. If the title page has not yet been done, this will trigger it first.

```
657 \newenvironment{dedication}{%
658   \ifmadetitle\else\maketitle\fi
659   \ifmadedecl\else\makedecl\fi
660   \clearpage\null\vfill
661   \thispagestyle{empty}%
662   \begin{center}}{%
663   \end{center}\vfill}
```

`\prelim` The `\prelim` command creates a minor frontmatter (unnumbered) section.

```
664 \newif\ifUCC@delaydecl
665 \newcommand{\prelim}{%
```

```

666 \@ifnextchar *
667     {\UCC@delaydecltrue\UCC@prelim}
668     {\UCC@delaydeclfalse\UCC@prelim{*}}
669 \newcommand{\UCC@prelim}[2]{% dummy first arg
670 \ifmadetitle\else\maketitle\fi
671 \ifmadedecl\else
672     \ifUCC@delaydecl\else\makedecl\fi
673 \fi
674 \ifUCC@oneside\clearpage\else\cleardoublepage\fi
675 \section*{#2}\@mkboth{#2}{#2}%
676 \addcontentsline{toc}{section}{#2}%
677 \onehalfspacing}

```

`\refsec` A `\refsec` is a special form of `\prelim` that does not trigger the Declaration of Responsibility, and is typeset single-spaced.

```

678 \newcommand{\refsec}[1]{%
679 \ifUCC@oneside\clearpage\else\cleardoublepage\fi
680 \section*{#1}\@mkboth{#1}{#1}%
681 \addcontentsline{toc}{section}{#1}%
682 \singlespacing}

```

`\UCC@ackname` Define a string for the titling of the Acknowledgements section, so that it can be redefined in the **gaeilge** option.

```

683 \def\UCC@ackname{Acknowledgements}

```

**acknowledgements** The acknowledgements environment uses the `\prelim` format.

```

684 \newenvironment{acknowledgements}{%
685 \ifmadetitle\else\maketitle\fi
686 \ifmadedecl\else\makedecl\fi
687 \prelim{\UCC@ackname}\singlespacing
688 }{}%

```

Redefine the Table of Contents as a section, and the same for the List of Figures and List of Tables.

`\tableofcontents` The ToC is just a section, otherwise unchanged.

```

689 \renewcommand\tableofcontents{%
690 \section*\contentsname
691 \@mkboth{\contentsname}{\contentsname}%

```

```

692   \@starttoc{toc}%
693   }

```

`\listoffigures` LoF works the same as ToC

```

694   \renewcommand\listoffigures{%
695     \ifUCC@oneside\clearpage\else\cleardoublepage\fi
696     \section*{\listfigurename
697       \@mkboth{\listfigurename}{\listfigurename}}%
698     \addcontentsline{toc}{section}{\listfigurename}%
699     \@starttoc{lof}%
700   }

```

`\listoftables` And so does LoT

```

701   \renewcommand\listoftables{%
702     \ifUCC@oneside\clearpage\else\cleardoublepage\fi
703     \section*{\listtablename
704       \@mkboth{\listtablename}{\listtablename}}%
705     \addcontentsline{toc}{section}{\listtablename}%
706     \@starttoc{lot}%
707   }

```

The Abstract is done slightly differently to normal for a page by itself.

`\maketitle` We can't use the `titlepage` environment, because it resets the page number, so we do it like all the other Prelims.

```

708   \renewenvironment{abstract}{%
709     \ifmadetitle\else\maketitle\fi
710     \ifmadedecl\else\makedecl\fi
711     \ifUCC@oneside\clearpage\else\cleardoublepage\fi
712     \@beginparpenalty\@lowpenalty
713     \section*{\abstractname}%
714     \addcontentsline{toc}{section}{\abstractname}%
715     \markboth{\abstractname}{\abstractname}%
716     \onehalfspacing
717   }{%
718     \clearpage
719   }

```

Lastly, the Index, if used.

`theindex` Again, this is a section-level start, otherwise it uses the same format as the default. Possibly this should use the `multicol` package if people wanted balanced columns; but indexes are rare in theses.

```
720 \renewenvironment{theindex}{%
721   \ifUCC@oneside\clearpage\else\cleardoublepage\fi
722   \columnseprule \z@
723   \columnsep 35\p@
724   \twocolumn[\section*{\indexname}]%
725   \@mkboth{\indexname}{\indexname}%
726   \parindent\z@
727   \parskip\z@ \@plus .3\p@\relax
728   \let\item\@idxitem}%
729   {\clearpage}
```

We should have a closer look at the `glossaries` package to see if there is anything there needs redefining.

### 6.8.3 Sectioning commands

Make sure that `\parts` and `\chapters` switch to Arabic numbering and the appropriate stretch, because all the prelims are Roman.

`\part` Same as the default, but with a switch to Arabic page numbering and wide spacing if this is the first Part (resets the page number to 1).

```
730 \renewcommand\part{%
731   \ifmadetitle\else\maketitle\fi
732   \ifmadedecl\else\madedecl\fi
733   \if@openright
734     \cleardoublepage
735   \else
736     \clearpage
737   \fi
738   \thispagestyle{plain}%
739   \if@twocolumn
740     \onecolumn
741     \@tempwattrue
742   \else
743     \@tempwafalse
744   \fi
745   \null\vfil
746   \ifnum\c@part=0
747     \pagenumbering{arabic}%
```

```

748     \onehalfspacing
749     \fi
750     \secdef\@part\@spart}

```

`\chapter` Same switch as in `\part`, checking that this is the first chapter and that we have not started an Appendix, *but only* if the Part number is also zero (ie Parts are not in use).

```

751 \renewcommand{\chapter}{%
752   \ifmadetitle\else\maketitle\fi
753   \ifmadedecl\else\makedecl\fi
754   \if@openright\cleardoublepage\else\clearpage\fi
755   \thispagestyle{plain}%
756   \global\@topnum\z@
757   \ifnum\c@chapter=0
758     \ifnum\c@part=0
759       \ifthenelse{\equal{\@chapapp}{\chaptername}}{%
760         {\pagenumbering{arabic}\onehalfspacing}%
761         }{%
762     \fi
763     \fi
764     \@afterindentfalse
765     \secdef\@chapter\@schapter}

```

#### 6.8.4 Epigraphs and quotations

`\@opttest` To enable optional argument testing for the null string in Epigraphs (and later, in Quotations), we define a Plain TeX macro which sets the `\ifoptarg` switch.

```

766 \newif\ifoptarg
767 \def\@opttest#1#2\sentinel{\ifx[#1\optargtrue
768   \else\optargfalse\fi}
769 \newlength{\mainparskip}
770 \newlength{\mainparindent}

```

`epigraph` Define an environment for Epigraphs. These would normally go immediate after the `\chapter` command. This is basically the quotation environment modified, but it has to allow for *either* manual *or* automated citation (because it may just be a phrase needing no citation), whereas a normal quotation *must* be cited. It therefore has *two* arguments, described below:



```
771 \newenvironment{epigraph}[2][\relax]{%
```

Record the existing paragraph space first, because the `list` environment may change it; set the font smaller; and record the argument values because they are needed in the end of the environment, so they have to pass across the group boundary.

The compulsory argument is for a  $\text{BIB}\text{T}_{\text{E}}\text{X}$  citation key, so that a proper citation can be formatted; the optional argument is for when a pre-formed, ‘full’ (actually often simpler, non-rigorous) citation is wanted (in which case the compulsory argument must be present but empty).

```
772 \mainparskip\parskip\small
773 \gdef\@fullcite{#1}%
774 \gdef\@quotcite{#2}%
```

Like the default quotation environment, this is done with an itemized list but with no bullet, no vertical space, and narrower right margin. The only difference is that for `epigraph` we use italic type.

```
775 \begin{itemize}[label={},noitemsep,rightmargin=\leftmargin]%
776 \item\parskip\mainparskip\itshape\ignorespaces
777 }{%
```

As for the quotation environment below, a citation is compulsory here, even if it’s just ‘Anon’. However, the  $\text{BIB}\text{T}_{\text{E}}\text{X}$  citation key can be empty if there was a manual citation in the optional argument.

```
778 \unskip\nobreak\hfil\penalty50
779 \hskip2em\hbox{\}\nobreak\hfil\upshape\footnotesize
```

If there is a manual citation (optional argument), use it before any  $\text{BIB}\text{T}_{\text{E}}\text{X}$  one:

```
780 \if\@fullcite\relax\else\@fullcite\fi
```

If the compulsory argument ( $\text{BIB}\text{T}_{\text{E}}\text{X}$  key) was empty (ie, just a pair of curly braces) *and* there was no optional argument, print ‘Anon.’

```
781 \ifthenelse{\equal{\@quotcite}{}}{}%
782 \if\@fullcite\relax(Anon.)\fi}{%
```

Otherwise (compulsory argument was provided), test it to see if it contains an optional argument of its own (for example, a page number for a citation key), and `\cite` it accordingly.

```
783         \expandafter\@opttest\@quotcite\sentinel
784         \ifoptarg\expandafter\cite\@quotcite
785         \else\cite{\@quotcite}\fi}%
```

`memoir` Now terminate the paragraph so that the citation is fitted in, using the same code from the memoir class as used for the quotation environment below.

```
786     \parfillskip\z@\finalhyphendemerits=0\par
787     \medskip\end{itemize}%
788 }%
```

See the user-level documentation for examples.

The Quotation environment is redefined exactly as for epigraph.

This is a change from previous versions. Read carefully.

`\quotation` In earlier versions, a citation is compulsory, so there was only one argument.

```
789 \renewenvironment{quotation}[2][\relax]{%
790   \mainparskip\parskip\small
791   \gdef\@fullcite{#1}%
792   \gdef\@quotcite{#2}%
793   \begin{itemize}[label={},noitemsep,rightmargin=\leftmargin]%
794   \item\parskip\mainparskip\ignorespaces
795 }{%
```

`memoir` This positional code, here and for `epigraph` is taken from the `\sourceatright` command of the memoir class (thanks to Lee Rudolph and Robin Fairbairns for identifying this).

```
796   \unskip\nobreak\hfil\penalty50
797   \hskip2em\hbox{\nobreak\hfill\upshape\footnotesize
798   \if\@fullcite\relax\else\@fullcite\fi
799   \ifthenelse{\equal{\@quotcite}{}}{ }{%
800   \if\@fullcite\relax(Anon.)\fi}{%
801   \expandafter\@opttest\@quotcite\sentinel
802   \ifoptarg\expandafter\cite\@quotcite
```

```

803     \else\cite{\@quotcite}\fi}%
804     \parfillskip\z@\finalhyphendemerits=0\par%
805     \medskip\end{itemize}%
806 }%

```

### 6.8.5 Odds 'n' sods

This is mostly fixes and utilities.

Add more space around captions with the `\abovecaptionskip` and `\belowcaptionskip` commands.

```

807 \setlength{\abovecaptionskip}{.5\baselineskip}
808 \setlength{\belowcaptionskip}{.5\baselineskip}

```

**table** Restyle the Table float to have the caption on top.

```

809 \floatstyle{plaintop}
810 \restylefloat{table}

```

**figure** Restyle the Figure float to have the caption below.

```

811 \floatstyle{plain}
812 \restylefloat{figure}

```

`\@pnumwidth` Make more space for the page number in the ToC, LoT, and LoF.

```

813 \renewcommand\@pnumwidth{2em}%

```

Define a few experimental utilities.

```

814 \def\inch{\ifmmode}^{\prime\prime}\else$
815     {}^{\prime\prime}$\fi}
816 \newcommand{\me}{\UCC@author}
817 \newcommand{\signature}[1][\relax]{%
818     \begin{flushright}\small\me\
819     \if#1\relax\else#1, \fi\@date
820     \end{flushright}}
821 \newcommand{\tm}{\raisebox{2pt}{%
822     \scriptsize\textsf{\texttrademark}}}
823 \newcommand{\etc}{etc.\ }
824 \newcommand{\eg}{e.g.\ }
825 \newcommand{\ie}{i.e.\ }

```

`\hyphenation` Add a few bells and whistles to the hyphenation.

```
826 \hyphenation{%
827 Analy-ses
828 Analy-sis
829 Regi-strar
830 Sebas-tian
831 analy-ses
832 analy-sis
833 bre-vi-ty
834 chan-ges
835 de-fi-ning
836 docu-ment
837 epex-e-ge-ses
838 epex-e-ge-sis
839 exa-mined
840 helico-pter
841 hier-ar-chy
842 inter-linea-ted
843 lexi-cal
844 manu-script
845 no-men-cla-ture
846 re-fe-ren-ces
847 re-prin-ted
848 smal-ler
849 spe-ci-fy
850 sub-con-sci-ous-ly
851 tech-no-logy
852 typo-gra-phy
853 }
```

`\foreign` Enable semantic distinction of foreign words and phrases.

```
854 \let\foreign\emph
```

`\marginal` Define a new command for marginal notes.

```
855 \newcommand{\marginal}[1]{%
856   \marginpar{\sffamily\tiny\raggedright#1\par}}
```

Add a trace to the log file to help in cutting the PDF to separate sections.

The new `\vstrut` command which takes account of the surrounding font size has been moved to the documentation.

Last of all, establish 1<sup>1</sup>/<sub>2</sub> line-spacing and a ragged page-bottom.

```
857 \raggedbottom  
858 \message{UCC thesis class loaded}
```

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2. If this search is successful, then enquire whether the Work is still maintained.
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3.
  - (a) If the Current Maintainer is reachable and agrees to pass maintenance of the Work to you, then this takes effect immediately upon announcement.
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```
%%% pig.dtx
%%% Copyright 2005 M. Y. Name
%%
%% This work may be distributed and/or modified under the
%% conditions of the LaTeX Project Public License, either version 1.3
%% of this license or (at your option) any later version.
%% The latest version of this license is in
%% http://www.latex-project.org/lppl.txt
%% and version 1.3 or later is part of all distributions of LaTeX
%% version 2005/12/01 or later.
%%
%% This work has the LPPL maintenance status `maintained'.
%%
%% The Current Maintainer of this work is M. Y. Name.
%%
%% This work consists of the files pig.dtx and pig.ins
%% and the derived file pig.sty.
```

Given such a notice and statement in a file, the conditions given in this license document would apply, with the ‘Work’ referring to the three files `pig.dtx`, `pig.ins`, and `pig.sty` (the last being generated from `pig.dtx` using `pig.ins`), the ‘Base Interpreter’ referring to any ‘ $\TeX$ -Format’, and both ‘Copyright Holder’ and ‘Current Maintainer’ referring to the person M. Y. Name.

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example, be achieved by explicitly listing all the files of the Work near the copyright notice of each file or by using a line such as:

```
%% This work consists of all files listed in manifest.txt.
```

in that place. In the absence of an unequivocal list it might be impossible for the licensee to determine what is considered by you to comprise the Work and, in such a case, the licensee would be entitled to make reasonable conjectures as to which files comprise the Work.

## Change History

v0.70	
General: First working version derived from the author's personal thesis class.: Added running headers and footers. . . . .	1
\@now: Added timestamp . . . . .	54
v0.90	
\@pnumwidth: Changed pnumwidth. . . . .	75
General: Last changes before release: 1) Added all known degrees; 2) Updated bibliographic reference styles for those schools and departments who responded to the request; 3) Fixed text-wrapping error in footers and headers. . . . .	1
\makedecl: Centering removed from Declaration of Responsibility. . . . .	67
Wording from Michelle Nelson. . . . .	67
\maketitle: Changed author to LARGE size. . . . .	63
v0.91	
General: Changes after first release: 1) Added justified option; 2) Implemented 10/11/12 point size options; 3) Changed proportions of the page for floats. . . . .	1
\pagestyle: Zapped the intrusive double backslash in titles affecting the running footers . . . . .	54
v0.92	
General: Bugs reported by testers: 1) Added code to automate detection of use of tables and figures, and disable LoT and LoF accordingly; 2) Added	
nolot and nolof options to manually disable automated Lists of Tables and Figures.; 3) Replaced the harvard package reference with natbib and har2nat, because harvard on its own was invoking html and breaking on an undefined htmladdnormallink* command (thanks to Dan Luecking, Mico Loretan, and others for this); 4) Corrected misspelling of Sociology.. . . . .	1
epigraph: Added Epigraphs. . . . .	72
v0.93	
General: More bugs reported by testers: 1) Re-placed refloating to put captions under figures (already above tables).; 2) Enclosed footmisc in ifjustified to defeat ragged footnotes; moved ragged redefinition of captions to do the same.; 3) Added plainheaders option to avoid fancy headers.; 4) Added indented option to revert to indented/unspaced paragraphs.; 5) Added stable option to footmisc to allow footnotes in chapter and section headings.. . . . .	1
justified: Added justified in response to user queries . . . . .	45
v0.94	
General: Fixed incorrect recording of justification option: Justification option was not resetting indentation and paragraph spacing.. . . . .	1
\ifjustified: updated (manual	

comment) . . . . .	51	to the start of the first part or chapter. . . . .	77
v0.95		Removed code for altering layout of description lists, as the modifications were not working consistently . . . . .	75
General: Reinforced wording of justification option: Justification option was open to misinterpretation.. . . . .	1	\chapter: Changed it back. . . . .	72
v0.96		Changed onehalfspacing to setstretch of 1.333 for prelims and moved the main 1.666 one to here. . . . .	72
General: Added subject and keywords . . . . .	61	\pagestyle: Fixed horrible default uppercased headings at last . . . . .	54
Rewrite of XML for new version of classpack: Changed method of specification of packages. . . . .	1	Italicised the thesis title in the footer . . . . .	54
\maketitle: Added PDF metadata	65	v1.00	
\now: Simplified now, added adobedate . . . . .	54	General: Added new code for citations in quotations: This tucks citations into the remaining space of the last line where possible.. . . . .	1
v0.97		epigraph: Added new positional code for citations to epigraphs	74
General: Added author so we can have optional student number	56	\pagestyle: Made plain style for chapter starts retain the page number . . . . .	52
Added mdiss option . . . . .	46	\quotation: Added new positional code for citations to block quotations . . . . .	74
Experimenting with mdiss option for dissertations: Minor Dissertation option. . . . .	1	v1.01	
twoside: added openright for Ethan Souidi . . . . .	48	General: Updated installation instructions: Added detail about installing the crest.. . . . .	1
v0.98		v1.02	
General: Tidying up packages: Removed xcolor and ulem. . . . .	1	General: Added revision date facility for drafts: Added @revdate and revdate; if present in drafts, they supersede the default TODAY date.. . . . .	1
\maketitle: Moved pdfinfo to the end of maketitle, temporarily nullified the double backslash	65	v1.03	
v0.99		General: Renamed Bibliography to	
General: Added tracing to bibliography: Reset page margins to allow printing on inkjets with restricted paper-handling. . . . .	1		
Added typeout to bibliography .	76		
Changed it back to single spacing for prelims and one and a half spacing for the rest. . . . .	77		
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