

# Documentation for **masterfrontpage**

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The L<sup>A</sup>T<sub>E</sub>X package **masterfrontpage** is used to generate official front pages for master's theses at The Department of Mathematics at the University of Oslo.

The cover illustration is a section of the root system of the exceptional Lie group  $E_8$ . How the figure is displayed on screen is very dependent on the PDF reader — it looks too dense and dark in many programs — so you should print the front page in order to get the right impression of the result.

To use **masterfrontpage**, place the downloaded files in the same folder as the .tex-file, or put them somewhere else L<sup>A</sup>T<sub>E</sub>X might find them; together with the rest of your local packages, for instance.

Two notes on usage: If the layout comes out wrong the first time, then recompile. Also, you *must* use the class option **a4paper** or equivalent. Otherwise, the result will become mutilated in print.

## 1 Package dependency

The following packages are employed by **masterfrontpage**:

- **calc**,
- **eso-pic**,
- **fix-cm**,
- **fontenc**,
- **picture**,
- **tikz**,
- **xifthen**.

If you lack some of these, you may download **T<sub>E</sub>X Live**. It is a collection of common L<sup>A</sup>T<sub>E</sub>X packages. **T<sub>E</sub>X Live** is available as a module on The Department of Mathematics' computers. All you need to do is to type the line

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```
$ module load texlive
```

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in the terminal. To avoid writing this each time you log in, place the command in a startup file. Read more about available modules here:

<http://www.mn.uio.no/math/english/services/it/help/user-environment.html>

## 2 Title Page

### 2.1 Basic Usage

The package `masterfrontpage` collects information from the commands

- `\author{...}`,
- `\title{...}`,
- `\subtitle{...}`.

The front page itself is produced with the command `\masterfrontpage`. It is optional to use `\subtitle{...}`. See [Section 8](#) for an example.

### 2.2 Title

Use one of the package options `LongTitle` or `ExtraLongTitle` if there is not enough room for your title.

The title is typeset in bold Helvetica. If your title contains mathematical symbols, consider enabling bold symbols, or better yet, use text italics to reduce the mismatch between the fonts. See the difference:

Input	Output
<code>\title{Algebraic <math>(K)</math>-theory}</code>	<b>Algebraic <math>K</math>-theory</b>
<code>\title{Algebraic <math>(\boldsymbol{K})</math>-theory}</code>	<b>Algebraic <math>K</math>-theory</b>
<code>\title{Algebraic <math>\textit{K}</math>-theory}</code>	<b>Algebraic <math>K</math>-theory</b>

## 3 Colophon

Following the title page, `masterfrontpage` prints a short text with information about your study programme and the scope of the thesis. The programme is specified with one of the package options

**MAT** — *Mathematics*, Mathematics;

**MFA** — *Mathematics for applications*, Mathematics;

**MEK** — *Mechanics*, Mechanics;

**FFR** — *Finance, Insurance and Risk*, Stochastic Modelling, Statistics and Risk Analysis;

**STK** — *Statistics*, Stochastic Modelling, Statistics and Risk Analysis;

**DS** — *Data Science*, Data Science;

**CSMEK** — *Mechanics*, Computational Science;

**AMRA** — *Applied Mathematics and Risk Analysis*, Computational Science;

**LEKMAT** — *Mathematics*, Lektorprogrammet;

**LEKMEK** — *Mechanics*, Lektorprogrammet;

Discontinued **OLDFFR** — *Finance, Insurance and Risk*, Modelling and Data Analysis;

Discontinued **SDATA** — *Statistics and Data Analysis*, Modelling and Data Analysis;

Discontinued **CS** — *Computational Science*, Computational Science and Engineering;

Discontinued **OLDMEK** — *Mechanics*, Computational Science and Engineering;

The discontinued study programmes no longer accept new students; they are not discontinued by **masterfrontpage**.

The scope of the thesis in terms of credits is specified with one of the package options **30** or **60**.

## 4 Print or web edition

By default, **masterfrontpage** will produce a front page fitted for viewing on a screen. When printing at the University Print Centre (Reprosentralen), a card stock rim will be added, which steals some of the left margin. In order to compensate for this, we recommend using the option **print** before submitting the file for printing. Then the logo, seal and text is shifted to the right.

## 5 Language

Choice of language will influence the university's logo, the words 'Master's Thesis' and the colophon. Language is preferably given as a document class option. The package recognises the following languages:

- **american**,
- **english**,
- **UKenglish**,
- **USenglish**,
- **norsk**,
- **nynorsk**.

If none of these are given, **english** is chosen by default.

## 6 Date

The date can if necessary be overwritten in the usual fashion with the  $\text{\TeX}$  primitives **\year** and **\month** before **masterfrontpage** is imported.

## 7 Compiler

If compiling  $\text{X}\text{\TeX}$ , the white banner will not be transparent. Both  $\text{pdf}\text{\TeX}$  and  $\text{Lua}\text{\TeX}$  works.

## 8 Example

Make sure that the format is A4, otherwise the section of the background illustration will be wrong. The default in L<sup>A</sup>T<sub>E</sub>X is letter paper, which is the most commonly used format in USA, but your thesis will be printed at a European press.

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```
\documentclass[a4paper]{memoir}

\usepackage[AMRA, 30]{masterfrontpage}

\title{Title}
\subtitle{Optional subtitle}
\author{Author's name}

\begin{document}
  \masterfrontpage
\end{document}
```

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The following four pages shows the colophon with the language options **UKenglish**, **USenglish**, **norsk** and **nynorsk**, respectively.

This master's thesis is submitted under the master's programme *Computational Science*, with programme option *Applied Mathematics and Risk Analysis*, at the Department of Mathematics, University of Oslo. The scope of the thesis is 30 credits.

The front page depicts a section of the root system of the exceptional Lie group  $E_8$ , projected into the plane. Lie groups were invented by the Norwegian mathematician Sophus Lie (1842–1899) to express symmetries in differential equations and today they play a central role in various parts of mathematics.

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Denne masteroppgaven er levert inn under masterprogrammet *Computational Science*, studieretning *Anvendt matematikk og risikoanalyse*, ved Matematisk institutt, Universitetet i Oslo. Oppgaven er normert til 30 studiepoeng.

Forsiden viser et utsnitt av rotsystemet til den eksepsjonelle liegruppen  $E_8$ , projisert ned i planet. Liegrupper ble oppfunnet av den norske matematikeren Sophus Lie (1842–1899) for å uttrykke symmetriene til differensiallikninger og spiller i dag en sentral rolle i flere deler av matematikken.

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Framsida viser eit utsnitt av rotsystemet til den eksepsjonelle liegruppa  $E_8$ , projisert ned i planet. Liegrupper vart funne opp av den norske matematikaren Sophus Lie (1842–1899) for å uttrykkje symmetriane til differensiallikningar og spelar i dag ei sentral rolle i fleire delar av matematikken.