The **gsemthesis** class*

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Abstract

This article introduces the `gsemthesis` class for LaTeX. The `gsemthesis` class is a Phd thesis template for the Geneva School of Economics and Management (GSEM), University of Geneva, Switzerland. The class provides utilities to easily set up the cover page, the front matter pages, the pages headers, etc. with respect to the official guidelines of the GSEM Faculty for writing PhD thesis. This class is released under the LaTeX Project Public License version 1.3c.

Contents

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*This document corresponds to **gsemthesis** v0.9.1, dated 2014/12/06.

1 Introduction

PhD thesis published within the Geneva School of Economics and Management have to follows some guidelines, especially for the cover page. The gsemthesis class is a LaTeX template providing utilities to easily set up these guidelines in your thesis. In addition the class loads several usefull packages generally used when writing a thesis. We recommend the user to have a look to the class definition in Section 3.1 to be aware of the list of packages that the class already includes. The Section 2 details how to start with the gsemthesis class and how to configure your thesis. The user interested in customizing the class can read the Section 3 which details the full implementation of the class with usefull comments.

This class was successfully tested with pdfTeX 3.1415926-2.5-1.40.14 (TeX Live 2013/Debian).

This class has been written by Emmanuel Rousseaux with contributions from William Aeberhard and Tuan Nguyen.

2 Usage

This Section introduces the use of the gsemthesis class. All macros and environments the class provides are described. We assume the user is already familiar with LaTeX.

2.1 Installation

2.1.1 Requirements

2.2 Getting started

To use the class start your document with the command \documentclass{gsemthesis}. A minimal file is:

```
\documentclass{gsemthesis}
\begin{document}
Here is it, I started my PhD!
\end{document}
```

2.3 Writing the dissertation in French

The GSEM accepts English and French for PhD thesis dissertations. Default language is English. If you write your dissertation in French, you have to you the fr class option as follows:

```
\documentclass[fr]{gsemthesis}
```

2.4 Configuring and printing the cover page

\printcoverpage   The class provides the GSEM PhD thesis cover page ready to be printed. You can ask to print it by calling `\printcoverpage` just after the `\begin{document}`. Before printing the cover page you first need to configure it with your thesis details: title, author, supervisors, comittee, etc. The minimal example becomes:

```
\documentclass{gsemthesis}
\title{My PhD thesis}
\date{\today}
\where{Geneva}
\thesisNumber{480}
... (others configuration commands)
\begin{document}
\printcoverpage
Here is it, I started my PhD!
\end{document}
```

`\title`
`\date`
`\where`
`\authorFirstname`
`\authorLastname`
`\thesisMention`
`\thesisSupervisorA-B`

`\thesisCommitteeA-F`

`\thesisNumber`

The class use the classical `\title{`*text*`}` and `\date{`*text*`}` commands of the `book` class to set the title and the date. We add a command `\where{`*text*`}` to specify where the thesis was defended. Instead of using the `\author{`*text*`}` command we provide the two commands `\authorFirstname{`*text*`}` and `\authorLastname{`*text*`}` to separately handle the firstname and the lastname. You specify the specialization of your thesis with the `\thesisMention{`*text*`}`. You can specify information about your thesis supervisor with the `\supervisorA`*title*`}{`*firstname*`}{`*lastname*`}` command. The *title* field is usually filled with "Prof." If you have a second supervisor your can use the `\supervisorB` command to provides her/his information. You can specify information about members of your thesis comittee with the six `\thesisCommitteeA-F{`*title*`}{`*firstname*`}{`*lastname*`}{`*role*`}` commands. With the *role* field you specify the role played by this member in the committee. Generally you specify the role "Chair" in `\thesisCommitteeA` and leave the field empty for others commands `\thesisCommitteeB-F`. When you submit your PhD thesis to the Press Service of the Unige, a unique thesis number will be assign to identify your thesis. This number has to be printed on the cover page. The `\thesisNumber{`*text*`}` allows to print it.

2.5 Configuring and printing the front matter pages

`\printfrontmatter`

`\acknowledgements`
`\abstractEN`
`\abstractFR`
`\dedication`

After the cover page the thesis has to provide in a the following order (1) the acknowledgements, (2,3) an abstract in both English and French (the order depending on the main language of your dissertation: if your dissertation is written in English you will start with the English abstract; if your dissertation is written in Frenchyou will start with the French abstract), (4) the table of contents, and (5) an optional dedication. These elements are usually called the front matter. These pages will be printed by calling the `\printfrontmatter` command. The best place for this command is just after the `\printcoverpage` command. To fill these pages use the commands `\acknowledgements{`*text*`}`, `\abstractEN{`*text*`}`, `\abstractFR{`*text*`}`, and `\dedication{`*text*`}`. We suggest you use these commands in the preambule of the document, just after the commands used to set the cover page.

2.6 Introduction and conclusion

`\startintroduction`
`\startconclusion`

Generally we don't want to number the introduction and the conclusion, but we want they appear in the table of contents. This leads to a specific handling of the creation of these chapter, especially to have correct page headers. Therefore, instead of using `\chapter{introduction}` (respectively `\chapter{conclusion}`) to start a such chapter we provide the function `\startintroduction` (respectively `\startconclusion`) to easily start the chapter with a correct handling of the table of contents and page headers.

2.7 Bibliography

Forthcoming (to discuss: use biblatex, require biber, author-year style, sorting scheme)

2.8 *Draft* mode

When sharing draft versions of your dissertation you may prefer to hide some items of the cover page (thesis committee, thesis number, etc.) and some Sections (acknowledgments, the dedications. etc.) that probably have not been defined yet. For this purpose you can use the `draft` option:

```
\documentclass[draft]{gsemthesis}
```

4

2.9 Miscellaneous

itemize*

The class also provides some optional functions that can turn out to be usefull when writing your thesis. The default `itemize` environment set important spaces between each items, the previous paragraph and the next paragraph. The `itemize*` environment reduces these spaces to allow a more compact (and nicer) presentation of a list item. *Forthcoming.* To add: section in redaction, todonotes

3 Implementation

In this Section the full code of the `gsemthesis` is discussed. The reader interested in customizing the class will find useful comments to understand the design of the class.

3.1 Document properties

The class is derived from the standard `book` class as follows:

```
1 \LoadClass[a4paper,12pt,twoside]{book}
```

We set the document encoding to UTF-8

```
2 \usepackage[utf8]{inputenc}
```

We use the `lmodern` vectorial fonts to render the document.

```
3 \usepackage{lmodern}
```

We use the `etoolbox` package for defining class options (fr, draft)

```
4 \usepackage{etoolbox}
```

We add the option *fr*

```
5 \newtoggle{fr}
6 \DeclareOption{fr}{\toggletrue{fr}}
```

We add the option *draft*

```
7 \newtoggle{draft}
8 \DeclareOption{draft}{\toggletrue{draft}}
```

We process options we just defined

```
9 \ProcessOptions
```

We use the `geometry` package to set margin properties

```
10 \RequirePackage[top=2.5cm, bottom=2.5cm, left=2.5cm, right=2.5cm]{geometry}
```

We use the package to handle some specific text spacing (title)

```
11 \usepackage{setspace}
```

3.2 Colors

We define some nice colors that will be later used for links (url, email, citations, etc.). The `gsemblue` color is the official color (to date 2014.02.20) of the GSEM Faculty.

```
12 \usepackage{xcolor}
13 \definecolor{erblue}{HTML}{126199}
14 \definecolor{erorange}{HTML}{FF7F00}
15 \definecolor{gsemblue}{HTML}{465F7F}
```

3.3 Graphics

We add some practical packages to handle several image files (.png, .pdf), handle placement of graphics, and handle subfigures

```
16 \usepackage{graphicx}
17 \usepackage{float}
18 \usepackage{subfigure}
```

3.4 Link management

We use the `hyperref` package to manage internal links and set colors for each link type.

```
19 \RequirePackage{hyperref}
20 % \hypersetup{%
21 % colorlinks=true,%
22 % linkcolor=black,%
23 % filecolor=gsemblue,%
24 % citecolor=gsemblue,%
25 % urlcolor=gsemblue%
26 % }%
27 \hypersetup{%
28 colorlinks=true,%
29 linkcolor=black,%
30 filecolor=erblue,%
31 citecolor=erblue,%
32 urlcolor=erblue%
33 }%
```

We use the `url` package for a complete support of external links and define a nice font style.

```
34 \RequirePackage{url}
35 \urlstyle{sf}
```

3.5 Maths

We add standard packages from the American Mathematical Society to handle mathematical symbols, environment (equations, etc.) and the Computer Modern font use by default to render math.

```
36 \usepackage{amssymb,amsmath,amsfonts}
```

3.6 Page headers management

We use the `fancyhdr` package for a fine tuning of headers and footers of the different page type (cover page, chapters, unumbered chapters, etc.)

```
37 \usepackage{fancyhdr}
```

We set the `fancy` page style (default page style) as follows:

```
38 \pagestyle{fancy}
39 \fancyhf{}
40 \fancyhead[LO]{\thepage\hfill\nouppercase{\leftmark}}
41 \fancyhead[RE]{\nouppercase{\rightmark}\hfill\thepage}
42 \fancyfoot[LE,RO]{}
```

We reset the `plain` style

```
43 \fancypagestyle{plain}{
44   \fancyhf{}
45   \renewcommand{\headrulewidth}{0pt}
46   \fancyfoot[LE,RO]{}
47 }
```

We define a style for the cover page (actually not used)

```
48 \fancypagestyle{cover}{
49   \fancyhf{}
50   \renewcommand{\headrulewidth}{0.5pt}
51   \renewcommand{\footrulewidth}{0.5pt}
52 }
```

We define a style for unumbered chapters (starred chapters)

```
53 \fancypagestyle{unnumberedchapter}{
54   \fancyhf{}
55   \renewcommand{\headrulewidth}{0pt}
56   \renewcommand{\footrulewidth}{0pt}
57   \fancyhead[LO]{\nouppercase{\leftmark}}
58   \fancyhead[RE]{\nouppercase{\rightmark}}
59   \fancyfoot[LE,RO]{}
60 }
```

When a new chapter starts on a odd number, we add a blank page to force it to start to a even number. We define an empty style for this blank page

```
61 \fancypagestyle{empty}{
62   \fancyhf{}
63   \renewcommand{\headrulewidth}{0pt}
64   \fancyfoot[LE,RO]{}
65 }
```

Then we apply the empty style to odd page before a new chapter

```
66 \def\cleardoublepage{\clearpage\if@twoside \ifodd\c@page\else
67       \hbox{}
68       \thispagestyle{empty}
69       \newpage
70       \if@twocolumn\hbox{}\newpage\fi\fi\fi}
71 \clearpage{\pagestyle{empty}\cleardoublepage}
```

3.7 Bibliography management

We use biblatex/biber to process the bibliography

```
72 \iftoggle{fr}{
73   \usepackage[francais]{babel}
74 }{
75   \usepackage[english]{babel}
76 }
77 \usepackage{csquotes}
78 \usepackage[backend=biber,natbib=true,style=authoryear,sorting=nymdt]{biblatex}
```

We use the style authoryear to print authors and the year when citing a document in the text. We define a customized sorting style to sort the list of references (printed at the end of the document) according to this (ordered) attributes: name, year, month, day, and title. FIXME: remove the volume, or add the journal before the title. And we define the following sorting scheme

```
79 \DeclareSortingScheme{nymdt}{
80   \sort{
81     \field{presort}
82   }
83   \sort[final]{
84     \field{sortkey}
85   }
86   \sort{
87     \name{sortname}
88     \name{author}
89     \name{editor}
90     \name{translator}
91     \field{sorttitle}
92     \field{title}
93   }
94   \sort{
95     \field{sortyear}
```

```
96      \field{year}
97    }
98    \sort{
99      \field[padside=left,padwidth=2,padchar=0]{month}
100     \literal{00}
101   }
102   \sort{
103     \field[padside=left,padwidth=2,padchar=0]{day}
104     \literal{00}
105   }
106   \sort{
107     \field{sorttitle}
108   }
109   \sort{
110     \field[padside=left,padwidth=4,padchar=0]{volume}
111     \literal{0000}
112   }
113 }
```

3.8   Cover page

3.8.1   System-level functions

The following commands define labels for the different parts of the cover page

```
114 \iftoggle{fr}{
115   \def\thesisLabel{Thse de Doctorat}
116 }{
117   \def\thesisLabel{PhD Thesis}
118 }
119 \def\thesisLocationLabel{
120 ~ \\[0.4em]%
121 \iftoggle{fr}{
122 Une thse soumise  la\\[0.2em]
123 Geneva School of Economics and Management,\\[0.2em]
124 Universit de Genve, Suisse,\\[0.2em]
125 pour l'obtention du\\[0.2em]
126 }{
127 A thesis submitted to the\\[0.2em]
128 Geneva School of Economics and Management, \\[0.2em]
129 University of Geneva, Switzerland,\\[0.2em]
130 in fulfillment of the requirements for the degree of\\[0.2em]
131 }
132 }
133
134 \iftoggle{fr}{
135   \def\thesisByLabel{par}
136 }{
137   \def\thesisByLabel{by}
138 }
139 \def\thesisGrade{PhD in Economics and Managment}
140 \def\thesisMentionLabel{mention}
141 \iftoggle{fr}{
142   \def\thesisCommitteeLabel{Membres du jury}
143 }{
144   \def\thesisCommitteeLabel{Members of the dissertation committee:}
145 }
146 \iftoggle{fr}{
147   \def\thesisNumberLabel{Thse no.}
148 }{
```

```
149   \def\thesisNumberLabel{Thesis No.}
150 }
```

3.8.2   User-level functions

Set up of the cover page and assimilated functions.

\where   The where macro.
```
151 \newcommand{\where}[1]{\def\thethesisWhere{#1}}
```

\authorFirstname   The authorFirstname macro
```
152 \newcommand{\authorFirstname}[1]{\def\theauthorFirstname{#1}}
```

\authorLastname   The authorLastname macro
```
153 \newcommand{\authorLastname}[1]{\def\theauthorLastname{\textsc{#1}}}
```

\thesisSupervisorA   The SupervisorA macro
```
154 \newcommand{\thesisSupervisorA}[3]{\def\thethesisSupervisorA{#1~#2~\textsc{#3}}}
```

\thesisSupervisorB   The SupervisorB macro
```
155 \newcommand{\thesisSupervisorB}[3]{\def\thethesisSupervisorB{#1~#2~\textsc{#3}}}
```

\thesisMention   The thesisMention macro
```
156 \newcommand{\thesisMention}[1]{\def\thethesisMention{#1}}
```

\thesisCommitteeA   The thesisCommitteeA macro
```
157 \newcommand{\thesisCommitteeA}[4]{%
158 \ifx&#3&%
159   \def\thethesisCommitteeA{}%
160 \else
161   \def\thethesisCommitteeA{#1~#2~\textsc{#3},~#4}%
162 \fi
163 }
```

\thesisCommitteeB   The thesisCommitteeB macro
```
164 \newcommand{\thesisCommitteeB}[4]{%
165 \ifx&#3&%
166   \def\thethesisCommitteeB{}%
167 \else
168   \def\thethesisCommitteeB{#1~#2~\textsc{#3},~#4}%
169 \fi
170 }
```

\thesisCommitteeC   The thesisCommitteeC macro
```
171 \newcommand{\thesisCommitteeC}[4]{%
172 \ifx&#3&%
173   \def\thethesisCommitteeC{}%
174 \else
175   \def\thethesisCommitteeC{#1~#2~\textsc{#3},~#4}%
176 \fi
177 }
```

\thesisCommitteeD   The thesisCommitteeD macro
```
178 \newcommand{\thesisCommitteeD}[4]{%
179 \ifx&#3&%
180   \def\thethesisCommitteeD{}%
181 \else
182   \def\thethesisCommitteeD{#1~#2~\textsc{#3},~#4}%
183 \fi
184 }
```

\thesisCommitteeE   The thesisCommitteeE macro

```
185 \newcommand{\thesisCommitteeE}[4]{%
186 \ifx&#3&%
187   \def\thethesisCommitteeE{}%
188 \else
189   \def\thethesisCommitteeE{#1~#2~\textsc{#3},~#4}%
190 \fi
191 }
```

\thesisCommitteeF   The thesisCommitteeF macro

```
192 \newcommand{\thesisCommitteeF}[4]{%
193 \ifx&#3&%
194   \def\thethesisCommitteeF{}%
195 \else
196   \def\thethesisCommitteeF{#1~#2~\textsc{#3},~#4}%
197 \fi
198 }
```

\thesisNumber   The thesisNumber macro

```
199 \newcommand{\thesisNumber}[1]{\def\thethesisNumber{#1}}
```

The cover page is created with the following code

\printcoverpage   Print the cover page of the thesis.

```
200 \newcommand{\printcoverpage}{%
201   \thispagestyle{empty}
202   \begin{center}
203   \rule{\linewidth}{0.4pt}
204
205   \vspace*{1.2cm}
206
207   {\huge
208     {\scshape
209       \begin{spacing}{0.8}
210         \@title
211       \end{spacing}
212     }
213   }
214
215   \vspace*{1.2cm}
216
217   {\Large \thesisLabel}
218
219   \vspace*{0.8cm}
220
221   \thesisLocationLabel
222
223   \vspace*{0.4cm}
224
225   \thesisByLabel
226
227   \vspace*{0.4cm}
228
229   {\large \theauthorFirstname~\theauthorLastname}
230
231   \vspace*{0.8cm}
232
233   \iftoggle{draft}{~}{\thethesisSupervisorA}
234
```

```
235  \iftoggle{draft}{~}{\thethesisSupervisorB}
236
237  \vspace*{0.8cm}
238
239  \iftoggle{draft}{
240    \iftoggle{fr}{
241      \emph{bauche}
242    }{
243      \emph{Draft}
244    }
245  }{} % something to add there?
246
247  \vspace*{0.4cm}
248
249  \iftoggle{draft}{~}{\thesisGrade} \\
250  \iftoggle{draft}{~}{\thesisMentionLabel ~ \thethesisMention}
251
252  \vspace*{0.8cm}
253
254  \iftoggle{draft}{~}{\thesisCommitteeLabel}
255
256  \vspace*{0.4cm}
257
258  \iftoggle{draft}{~}{\thethesisCommitteeA}
259
260  \iftoggle{draft}{~}{\thethesisCommitteeB}
261
262  \iftoggle{draft}{~}{\thethesisCommitteeC}
263
264  \iftoggle{draft}{~}{\thethesisCommitteeD}
265
266  \iftoggle{draft}{~}{\thethesisCommitteeE}
267
268  \iftoggle{draft}{~}{\thethesisCommitteeF}
269
270  % \vspace*{0.4cm}
271  \vfill
272
273  \iftoggle{draft}{~}{\thesisNumberLabel ~ \thethesisNumber}
274
275  \vspace*{0.1cm}
276
277  \iftoggle{draft}{~}{\thethesisWhere,} \@date
278
279
280  \vspace*{0.1cm}
281
282  \rule{\linewidth}{0.4pt}
283  \end{center}
284
285 }%
```

3.9   Front matter

\acknowledgements   The acknowledgements macro

```
286 \newcommand{\acknowledgements}[1]{\def\theacknowledgements{#1}}
```

\abstractEN   The abstractEN macro

```
287 \newcommand{\abstractEN}[1]{\def\theabstractEN{#1}}
```

\abstractFR The `abstractFR` macro

```
288 \newcommand{\abstractFR}[1]{\def\theabstractFR{#1}}
```

\dedication The `dedication` macro

```
289 \newcommand{\dedication}[1]{\def\thededication{#1}}
```

\printfrontmatter The front matter pages are created with the following code

```
290 \newcommand{\printfrontmatter}{%
291
292   \iftoggle{draft}{~}{
293     \frontmatter
294
295     \iftoggle{fr}{
296       \chapter*{Remerciements}
297       \addcontentsline{toc}{chapter}{Remerciements}
298     }{
299       \chapter*{Acknowledgements}
300       \addcontentsline{toc}{chapter}{Acknowledgements}
301     }
302     \label{ch:acknowledgements}
303     \thispagestyle{plain}
304     \theacknowledgements
305
306     \newpage
307
308     \iftoggle{fr}{
309       \chapter*{Rsum}
310       \addcontentsline{toc}{chapter}{Rsum}
311       \label{ch:abstractFR}
312       \thispagestyle{plain}
313       \theabstractFR
314
315       \newpage
316
317       \chapter*{Abstract}
318       \addcontentsline{toc}{chapter}{Abstract}
319       \label{ch:abstractEN}
320       \thispagestyle{plain}
321       \theabstractEN
322     }{
323       \chapter*{Abstract}
324       \addcontentsline{toc}{chapter}{Abstract}
325       \label{ch:abstractEN}
326       \thispagestyle{plain}
327       \theabstractEN
328
329       \newpage
330
331       \chapter*{Rsum}
332       \addcontentsline{toc}{chapter}{Rsum}
333       \label{ch:abstractFR}
334       \thispagestyle{plain}
335       \theabstractFR
336     }
337   }
338
339   \tableofcontents
340
341   \iftoggle{draft}{~}{
```

```
342      \cleardoublepage
343
344      \thispagestyle{plain}
345
346      \vspace*{4cm}
347      {\em
348      \raggedleft\thededication\par
349      }
350
351      \newpage
352   }
353
354   \mainmatter
355 }%
```

3.10   Introduction and conclusion starter

\startintroduction The front matter pages are created with the following code

```
356 \newcommand{\startintroduction}{%
357 \chapter*{Introduction}
358 \addcontentsline{toc}{chapter}{Introduction}
359 \label{ch:introduction}
360 \markboth{}{Introduction}
361 }
```

\startconclusion The front matter pages are created with the following code

```
362 \newcommand{\startconclusion}{%
363 \chapter*{Conclusion}
364 \addcontentsline{toc}{chapter}{Conclusion}
365 \label{ch:conclusion}
366 \markboth{}{Conclusion}
367 }
```

3.11   Miscellaneous

itemize* This is a dummy environment. If it did anything, we'd describe its implementation here.

```
368 \newenvironment{itemize*}%
369   {\vspace{-2mm}\begin{itemize}%
370     \setlength{\itemsep}{0pt}%
371     \setlength{\parskip}{0pt}%
372   }%
373   {\end{itemize}\vspace{-2mm}%
374   }
```

4   Complete example

Forthcoming