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** v0.9.0, dated 2014/12/05.

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   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}
```

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.

(Margin notes: `\title`, `\date`, `\where`, `\authorFirstname`, `\authorLastname`, `\thesisMention`, `\thesisSupervisorA-B`, `\thesisCommitteeA-F`, `\thesisNumber`)

2.4 Configuring and printing the front matter pages

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.

(Margin notes: `\printfrontmatter`, `\acknowledgements`, `\abstractEN`, `\abstractFR`, `\dedication`)

2.5 Introduction and conclusion

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.

(Margin notes: `\startintroduction`, `\startconclusion`)

2.6 Bibliography

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

2.7 *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}
```

2.8 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[b5paper,10pt,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 \usepackage[american]{babel}
73 \usepackage{csquotes}
74 \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

```
75 \DeclareSortingScheme{nymdt}{
76   \sort{
77     \field{presort}
78   }
79   \sort[final]{
80     \field{sortkey}
81   }
82   \sort{
83     \name{sortname}
84     \name{author}
85     \name{editor}
86     \name{translator}
87     \field{sorttitle}
88     \field{title}
89   }
90   \sort{
91     \field{sortyear}
92     \field{year}
93   }
94   \sort{
95     \field[padside=left,padwidth=2,padchar=0]{month}
```

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

3.8   Cover page

3.8.1   System-level functions

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

```
110 \iftoggle{fr}{
111   \def\thesisLabel{Thse de Doctorat}
112 }{
113   \def\thesisLabel{PhD Thesis}
114 }
115 \def\thesisLocationLabel{
116 Defended at \\[0.4em]%
117 the {\large Geneva School of Economics and Management} \\[0.4em]%
118 \emph{University of Geneva, Switzerland}
119 }
120 \def\thesisByLabel{By}
121 \def\thesisDirectionLabel{under the direction of}
122 \def\thesisGradeLabel{for the grade of}
123 \def\thesisGrade{PhD in Economics and Managment}
124 \def\thesisMentionLabel{mention}
125 \def\thesisCommitteeLabel{Members of the dissertation committee :}
126 \def\thesisNumberLabel{Thesis number}
```

3.8.2   User-level functions

Set up of the cover page and assimilated functions.

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

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

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

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

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

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

\thesisCommitteeA The thesisCommitteeA macro

```
133 \newcommand{\thesisCommitteeA}[4]{%
134 \ifx&#3&%
135   \def\thethesisCommitteeA{}%
136 \else
137   \def\thethesisCommitteeA{#1~#2~\textsc{#3},~#4}%
138 \fi
139 }
```

\thesisCommitteeB The thesisCommitteeB macro

```
140 \newcommand{\thesisCommitteeB}[4]{%
141 \ifx&#3&%
142   \def\thethesisCommitteeB{}%
143 \else
144   \def\thethesisCommitteeB{#1~#2~\textsc{#3},~#4}%
145 \fi
146 }
```

\thesisCommitteeC The thesisCommitteeC macro

```
147 \newcommand{\thesisCommitteeC}[4]{%
148 \ifx&#3&%
149   \def\thethesisCommitteeC{}%
150 \else
151   \def\thethesisCommitteeC{#1~#2~\textsc{#3},~#4}%
152 \fi
153 }
```

\thesisCommitteeD The thesisCommitteeD macro

```
154 \newcommand{\thesisCommitteeD}[4]{%
155 \ifx&#3&%
156   \def\thethesisCommitteeD{}%
157 \else
158   \def\thethesisCommitteeD{#1~#2~\textsc{#3},~#4}%
159 \fi
160 }
```

\thesisCommitteeE The thesisCommitteeE macro

```
161 \newcommand{\thesisCommitteeE}[4]{%
162 \ifx&#3&%
163   \def\thethesisCommitteeE{}%
164 \else
165   \def\thethesisCommitteeE{#1~#2~\textsc{#3},~#4}%
166 \fi
167 }
```

\thesisCommitteeF The thesisCommitteeF macro

```
168 \newcommand{\thesisCommitteeF}[4]{%
169 \ifx&#3&%
170   \def\thethesisCommitteeF{}%
171 \else
172   \def\thethesisCommitteeF{#1~#2~\textsc{#3},~#4}%
173 \fi
174 }
```

\thesisNumber The thesisNumber macro

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

The cover page is created with the following code

`\printcoverpage` Print the cover page of the thesis.

```
176 \newcommand{\printcoverpage}{%
177   \thispagestyle{empty}
178   \begin{center}
179   \rule{\linewidth}{0.4pt}
180
181   \vspace*{1.2cm}
182
183   {\huge
184     {\scshape
185       \begin{spacing}{0.8}
186         \@title
187       \end{spacing}
188     }
189   }
190
191   \vspace*{1.2cm}
192
193   {\Large \thesisLabel}
194
195   \vspace*{0.8cm}
196
197   \thesisLocationLabel
198
199   \vspace*{0.4cm}
200
201   \thesisByLabel
202
203   \vspace*{0.4cm}
204
205   {\large \theauthorFirstname~\theauthorLastname}
206
207   \vspace*{0.4cm}
208
209   \iftoggle{draft}{~}{\thesisDirectionLabel}
210
211   \vspace*{0.4cm}
212
213   \iftoggle{draft}{~}{\thethesisSupervisorA}
214
215   \iftoggle{draft}{~}{\thethesisSupervisorB}
216
217   \vspace*{0.8cm}
218
219   \iftoggle{draft}{\emph{Draft version}}{\thesisGradeLabel}
220
221   \vspace*{0.4cm}
222
223   \iftoggle{draft}{~}{\thesisGrade} \\
224   \iftoggle{draft}{~}{\thesisMentionLabel ~ \thethesisMention}
225
226   \vspace*{0.8cm}
227
228   \iftoggle{draft}{~}{\thesisDirectionLabel}
229
230   \vspace*{0.4cm}
231
232   \iftoggle{draft}{~}{\thethesisCommitteeA}
233
```

```
234  \iftoggle{draft}{~}{\thethesisCommitteeB}
235
236  \iftoggle{draft}{~}{\thethesisCommitteeC}
237
238  \iftoggle{draft}{~}{\thethesisCommitteeD}
239
240  \iftoggle{draft}{~}{\thethesisCommitteeE}
241
242  \iftoggle{draft}{~}{\thethesisCommitteeF}
243
244  % \vspace*{0.4cm}
245  \vfill
246
247
248
249  \vspace*{0.1cm}
250
251  \iftoggle{draft}{~}{\thethesisWhere,} \@date
252
253
254  \vspace*{0.1cm}
255
256  \rule{\linewidth}{0.4pt}
257  \end{center}
258
259 }%
```

3.9   Front matter

The `acknowledgements` macro

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

\abstractEN   The `abstractEN` macro

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

\abstractFR   The `abstractFR` macro

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

\dedication   The `dedication` macro

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

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

```
264 \newcommand{\printfrontmatter}{%
265
266   \iftoggle{draft}{~}{
267     \frontmatter
268
269     \chapter*{Acknowledgements}
270     \addcontentsline{toc}{chapter}{Acknowledgements}
271     \label{ch:acknowledgements}
272     \thispagestyle{plain}
273     \theacknowledgements
274
275     \newpage
276
277     \chapter*{Abstract}
278     \addcontentsline{toc}{chapter}{Abstract}
279     \label{ch:abstractEN}
```

10

```
280     \thispagestyle{plain}
281     \theabstractEN
282
283     \newpage
284
285     \chapter*{Rsum}
286     \addcontentsline{toc}{chapter}{Rsum}
287     \label{ch:abstractFR}
288     \thispagestyle{plain}
289     \theabstractFR
290   }
291
292   \tableofcontents
293
294   \iftoggle{draft}{~}{
295     \cleardoublepage
296
297     \thispagestyle{plain}
298
299     \vspace*{4cm}
300     {\em
301     \raggedleft\thededication\par
302     }
303
304     \newpage
305   }
306
307   \mainmatter
308 }%
```

3.10   Introduction and conclusion starter

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

```
309 \newcommand{\startintroduction}{%
310 \chapter*{Introduction}
311 \addcontentsline{toc}{chapter}{Introduction}
312 \label{ch:introduction}
313 \markboth{}{Introduction}
314 }
```

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

```
315 \newcommand{\startconclusion}{%
316 \chapter*{Conclusion}
317 \addcontentsline{toc}{chapter}{Conclusion}
318 \label{ch:conclusion}
319 \markboth{}{Conclusion}
320 }
```

3.11   Miscellaneous

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

```
321 \newenvironment{itemize*}%
322   {\vspace{-2mm}\begin{itemize}%
323     \setlength{\itemsep}{0pt}%
324     \setlength{\parskip}{0pt}%
325   }%
326   {\end{itemize}\vspace{-2mm}%
327   }
```

4   Complete example

Forthcoming