The wsemclassic Document Class (v1.0.1)

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Abstract

This package provides a LaTeX 2_ε document class named wsemclassic for typesetting Bavarian school w-seminar papers.

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1 Introduction

The wsemclassic document class is designed to either conform with the recommendations of the Bavarian Kultusministerium for typesetting w-seminar papers (`strict` mode) or to use another style which should look better. It is based on the report class which comes with the standard LaTeX distribution.

If you have any wishes or find bugs, please send an email to the author or create an issue at GitHub.

2 Usage

To use wsemclassic for your W-Seminar paper, simply insert the following into your LaTeX preamble (before `\begin{document}`):

```
\documentclass[bibfile=<bibtex database name>]{wsemclassic}

\author{<Your Name>}
\title{<Paper Title>}
\date{Abiturjahrgang~<year>}
\subject{<Seminar Title/Subject>}
\school{<School Name>}
\major{major}{<Seminar Major Subject (Leitfach)>}
\teacher{<Your Teacher>}
\place{<The place where you live/write your paper>}
```

3 License

wsemclassic is distributed under a BSD License

4 Options

Like many other LaTeX document classes, wsemclassic accepts options in the well known `key=value` syntax. In the following, you will find a description of all `keys` and their possible `values` ('`true`' may be omitted; '`nofoo`' may be used instead of '`foo=false`' multiple values, where allowed, must be enclosed in braces).

Option descriptions are in the following format:

⟨*option*⟩ ⟨*opt type*⟩
⟨*default value*⟩

⟨*describing paragraph: This is an option description. This option does this and that and you can change many things by specifying it.*⟩

Since wsemclassic is based on report it accepts all of its options, but some of them should not be used.

All Options not specified in wsemclassic are passed to report.

4.1 Unrecommended report options

⟨*foo*⟩`paper` Use `paper`=⟨*foo*⟩ instead.
⟨*foo*⟩`pt` Use `fontsize`=⟨*foo*⟩ instead.
⟨*language*⟩ Use `lang`=⟨*foo*⟩ instead.

4.2 Strictness

`strict` *boolean*
`false`

Use exactly the format recommended by the Bavarian Kultusministerium.
This option sets `stricttitle` and `frenchspacing` to *true*.
It also sets the `fontsize` to `12`, the `paper` to `a4` and the `lang` to `german`.

`stricttitle` *boolean*
`false`

Typeset "Seminararbeit" uppercase and not in small capitals as recommended by the Bavarian Kultusministerium.

`frenchspacing` *boolean*
`false`

Make the spaces after words and sentences equal.

4.3 Format and Language

`fontsize` *number*
`12`

Fontsize in pt.

`paper` *text*
`a4`

Paper format as used as report option `\meta{format}paper`.

`lang` *text*
`german`

Language.
If `lang=german`, the babel language is `ngerman`.

`plxtex` *boolean*
`true`

Specifies whether one of pdfTeX, LuaTeX or XeTeX is used.
Set to false if you don't use one of these engines!

4.4 Bibliography

`bib` *boolean*
`true`
: Specifies whether to use a bibliography (requires BibTeX) or not.

`bibstyle` *text*
`natdin`
: Specifies the bibliographystlye for BibTeX.

`bibfile` *text*
`\jobname`
: Specifies the filename of the main BibTeX database (`*.bib`).
`.bib` *can be omitted.*
All etries are included in the document.

4.5 Options Related to Used Packages

⟨*package name*⟩`args` *option list*
: For most of the packages used by wsemclassic, options can be specified in the format ⟨*package name*⟩`args={`⟨*option list*⟩`}`.

These packages are fontspec (`*quiet`), hyperref (`*unicode`), microtype (`*babel`), amsmath, titlesec (`*small`), geometry, fancyhdr, tocbibind (`*nottoc`) and natbib (`*round`).

For some packages there are additional or other options available:

4.5.1 fontspec

`defaultfontfeatures` *type: key value*
`Ligatures={TeX, Common}, Fractions=On`
: Specifies the fontspec `\defaultfontfeatures`.

`mainfont` *text*
`CMU Serif`
: These options specifie the fonts used as main (normally serif),

`sansfont` *text*
`CMU Sans Serif`
: sans serif

`monofont` *text*
`CMU Typewriter Text`
: and monospaced font.

4.5.2 hyperref and natbib

`hyperref` *boolean*
`true`
: Turn hyperref or

`natbib` *boolean*
`true`
: natbib on/off.

File II
Implementation

\report is set to the name of the parent class. So it can be changed later easier.

```
\newcommand{\report}{report}
```

5 Option processing

kvoptions is needed to parse key-value options:

```
\RequirePackage{kvoptions}

\SetupKeyvalOptions{
prefix = ws@
}
```

Now we parse the key-value options. They are specified in the format

\Declare⟨*Type*⟩Option[⟨*default value*⟩]{⟨*option name*⟩}.

5.1 Strictness

strict First the strictness options.

```
\DeclareBoolOption[false]{strict}
\DeclareComplementaryOption{nostrict}{strict}
```

stricttitle

```
\DeclareBoolOption[false]{stricttitle}
\DeclareComplementaryOption{nostricttitle}{stricttitle}
```

frenchspacing

```
\DeclareBoolOption[false]{frenchspacing}
\DeclareComplementaryOption{nofrenchspacing}{frenchspacing}
```

5.2 Format and Language

fontsize

```
\DeclareStringOption[12]{fontsize}
```

paper

```
\DeclareStringOption[a4]{paper}
```

lang

```
\DeclareStringOption[german]{lang}
```

plxtex

```
\DeclareBoolOption[true]{plxtex}
\DeclareComplementaryOption{noplxtex}{plxtex}
```

5.3 Bibliography

bib

```
\DeclareBoolOption[true]{bib}
\DeclareComplementaryOption{nobib}{bib}
```

bibfile

```
\DeclareStringOption[\jobname]{bibfile}
```

5.4 Options Related to Used Packages

5.4.1 fontspec

fontspecargs

```
\DeclareStringOption[quiet]{fontspecargs}
```

defaultfontfeatures

```
\DeclareStringOption[Ligatures={TeX, Common},
  Fractions=On]{defaultfontfeatures}
```

mainfont

```
\DeclareStringOption[CMU Serif]{mainfont}
```

sansfont

```
\DeclareStringOption[CMU Sans Serif]{sansfont}
```

monofont

```
\DeclareStringOption[CMU Typewriter Text]{monofont}
```

5.4.2 hyperref and natbib

hyperref

```
\DeclareBoolOption[true]{hyperref}
\DeclareComplementaryOption{nohyperref}{hyperref}
```

hyperrefargs

```
\DeclareStringOption[unicode]{hyperrefargs}
```

natbib

```
\DeclareBoolOption[true]{natbib}
\DeclareComplementaryOption{nonatbib}{natbib}
```

natbibargs

```
\DeclareStringOption[round]{natbibargs}
```

bibstyle

```
\DeclareStringOption[natdin]{bibstyle}
```

5.4.3 Other Packages which Can Get Args

`microtypeargs` Access to microtypographic features in pdfTEX, XƎTEX and LuaTEX.

```
\DeclareStringOption[babel]{microtypeargs}
```

`amsmathargs` Enhanced math.

```
\DeclareStringOption{amsmathargs}
```

`titlesecargs` Better control over sectioning title appearance.

```
\DeclareStringOption[small]{titlesecargs}
```

`geometryargs` Better page layout.

```
\DeclareStringOption{geometryargs}
```

`fancyhdrargs` Easier headers and footers.

```
\DeclareStringOption{fancyhdrargs}
```

`tocbibindargs` Makes a toc entry for the bibliography.

```
\DeclareStringOption[nottoc]{tocbibindargs}
```

5.5 Options Passed to Parent Class (report) and Option Processing

All options not declared above are set to be passed to class report, then options are processed.

```
\DeclareDefaultOption{\PassOptionsToClass{\CurrentOption}{\report}}

\ProcessKeyvalOptions*\relax
```

Now the `strict`(doc,impl) option sets other related options.

5.6 Making other Options `strict`

The `strict` (doc,impl) option sets other options to certain values, ignoring their custom values.

```
\ifws@strict
\renewcommand{\ws@fontsize}{12}
\renewcommand{\ws@paper}{a4}
\renewcommand{\ws@lang}{german}
\ws@frenchspacingtrue
\ws@stricttitletrue
\ws@bibtrue
\fi
```

And then the fontsize (doc,impl), the language (doc,impl) and the paper size (doc,impl) are set.
If the paper size is `custom` it is not passed to report.

```
\PassOptionsToClass{\ws@fontsize pt, \ws@lang}{\report}
\ifx \ws@paper custom \else
\PassOptionsToClass{\ws@paper paper}{\report}
\fi
```

Now the reportclass (parent class) is loaded.

```
\LoadClass{\report}
```

6 Package Loading and Settings

\babellang When using babel, ngerman should be used instead of german. So we use this macro for babel.

```
\newcommand{\babellang}{
\ifx \ws@lang german
  ngerman
\else
  \ws@lang
\fi
}
```

6.1 TEX Engine Dependent Settings

iftex is needed to determine which TEX engine we are running.

```
\RequirePackage{iftex}
```

inputenx

fontenc \ifPDFTeX only means 'if not XETEX/LuaTEX'. If this is true, we need inputenx for UTF-8 support and fontenc for T1 font support.

babel

polyglossia babel is used if we are not running XETEX for which polyglossia is recommended.

fontspec If we are running XETEX or LuaTEX then we use the fontspec package.

```
\ifPDFTeX
  \RequirePackage[utf8x]{inputenx}
  \RequirePackage[T1]{fontenc}

  \RequirePackage[\babellang]{babel}
  \RequirePackage[fixlanguage]{babelbib}

\else % if luatex or xelatex
  \ifXeTeX
    \RequirePackage{polyglossia}
    \setdefaultlanguage[babelshorthands, spelling=new]{german}
  \else
    \RequirePackage[\babellang]{babel}
    \RequirePackage[fixlanguage]{babelbib}
  \fi

  \RequirePackage[\ws@fontspecargs]{fontspec}
  \defaultfontfeatures{\ws@defaultfontfeatures}
\fi
```

6.2 Loading Styling Packages

hyperref is used to use PDF features.

```
\ifws@hyperref
  \RequirePackage[\ws@hyperrefargs]{hyperref}
\fi
```

microtype is used to use microtypographic features of pdfTeX/XeTeX/LuaTeX.

```
\ifws@plxtex
  \RequirePackage[\ws@microtypeargs]{microtype}
\fi
```

amsmath

amsthm

amssymb Use better mathematical formatting.

```
\RequirePackage[\ws@amsmathargs]{amsmath}
\RequirePackage{amsthm,amssymb}
```

titlesec is used to change title formatting.

```
\RequirePackage[\ws@titlesecargs]{titlesec}
```

natbib is needed for DIN conform bibliographies.

```
\ifws@natbib
  \RequirePackage[\ws@natbibargs]{natbib}
\fi
```

setspace is needed for better setting of linespacing.

```
\RequirePackage{setspace}
\onehalfspacing
```

geometry is needed for setting the page layout.

```
\RequirePackage[\ws@geometryargs]{geometry}
\newcommand{\setgeometry}[1]{\geometry{#1}}
\ifx \ws@paper custom \else
  \setgeometry{\ws@paper paper, scale=0.75, centering}
\fi
```

fancyhdr is used for easier setting of the header/footer.

```
\RequirePackage{fancyhdr}
\pagestyle{fancy}
\renewcommand{\headwidth}{\textwidth}
```

Now a pagestyle which displays chapters, sections and subsections in the header and the page number in the footer is constructed.

```
\fancypagestyle{wsfancy}{
  \fancyhead{}

  \newif\iffirstsection
  \firstsectiontrue

  \def\setchaptermark##1{
  \firstsectiontrue
  \edef\mark@chapter{##1}
  \rhead{\mark@chapter}
  }
  \def\setsectionmark##1{
  \edef\mark@section{##1}
  \lhead{\mark@section}
  }
  \def\setsubsectionmark##1{
```

```
  \iffirstsection
  \firstsectionfalse
  \edef\mark@section{##1}
  \lhead{\mark@section\\\mark@section}
  \fi
  }

  \renewcommand{\chaptermark}[1]{\setchaptermark{\chaptername~\thechapter.~~##1}}
  \renewcommand{\sectionmark}[1]{\setsectionmark{\thesection~~##1}}
  \renewcommand{\subsectionmark}[1]{\setsubsectionmark{\thesubsection~~##1}}
}
```

tocbibind is needed for having a toc entry for the bibliography.

```
\RequirePackage[\ws@tocbibindargs]{tocbibind}
```

6.3 Making the Document Strict

strict Now that the necessary packages are loaded we can make the document `strict`.

```
\ifws@strict
  \setgeometry{top=2cm, bottom=2cm, left=2.5cm, right=2.5cm, a4paper}
  \titleformat{\chapter}{\normalfont\Large\bfseries}{\thechapter}{1em}{}{}

  \fancypagestyle{plain}{
    \fancyhf{}
    \chead{\thepage}
    \renewcommand{\headrulewidth}{0pt}
    \renewcommand{\footrulewidth}{0pt}
  }
  \pagestyle{plain}
  \addtocontents{toc}{\protect\thispagestyle{empty}}
\else
```

Or we make it fancy.

```
  \pagestyle{wsfancy}
\fi
```

frenchspacing Set frenchspacing if needed.

```
\ifws@frenchspacing
  \frenchspacing
\fi
```

7 The Titlepage

7.1 The Caption Styles

plxtex If `true` use microtype for tracking(letter spacing), else use the soulutf8 package.

microtype

soulutf8

```
\ifws@plxtex
  \newcommand{\spaced}[1]{%
  \textls[250]{\ifPDFTeX\else\addfontfeatures{Renderer=Basic}\fi#1}}
  \newcommand{\mainstyle}[1]{\Large\bfseries\textsc{\spaced{#1}}}
```

```
\else
  \RequirePackage{soulutf8}
  \newcommand{\spaced}[1]{\so{#1}}
  \newcommand{\spaced}[1]{
    {
      \def\text{#1~}
      \so\text
    }
  }
  \newcommand{\mainstyle}[1]{\Large\bfseries\textsc{\spaced{#1\,}}}
\fi
```

Now we set the other caption styles for the title page.

```
\newcommand{\submainstyle}[1]{#1}
\newcommand{\subjectstyle}[1]{\textit{#1}}
\newcommand{\titlestyle}[1]{\large\textit{#1}}
```

`stricttitle` If `true`, make the main title uppercase and the title of the paper smaller.

```
\ifws@stricttitle
  \renewcommand{\mainstyle}[1]{\large\bfseries\MakeUppercase{\spaced{#1}}}
  \renewcommand{\titlestyle}[1]{\textit{#1}}
\fi
```

7.2 The Meta Information

`\onlyhypermeta` This macro does sets PDF meta info or, if hyperref is not used, does nothing.

```
\ifws@hyperref
  \newcommand{\onlyhypermeta}[2]{
    \hypersetup{
      pdf#1=#2
    }
  }
\else
  \newcommand{\onlyhypermeta}[2]{}
\fi
```

`\setmeta` This macro sets the TEX meta info.

```
\newcommand{\setmeta}[2]{
  {
    \def\@metaname{@#1}
    \expandafter\gdef\csname\@metaname\endcsname{#2}
  }
}
```

`\sethypermeta` This macro sets the PDF and TEX meta info via the `\onlyhypermeta` and `\setmeta` macros.

```
\newcommand{\sethypermeta}[2]{
  \setmeta{#1}{#2}
  \onlyhypermeta{#1}{#2}
}
```

These macros store the

`\@author` author name,

```
\renewcommand{\@author}{Author}
```

\@title title of the paper,

```
193 \renewcommand{\@title}{Title}
```

\@date year of the abitur,

```
194 \renewcommand{\@date}{Date}
```

\@subject subject of the paper,

```
195 \newcommand{\@subject}{Subject}
```

\@school school,

```
196 \newcommand{\@school}{School}
```

\@major major subject (‘Leitfach’),

```
197 \newcommand{\@major}{Major}
```

\@teacher teacher name,

```
198 \newcommand{\@teacher}{Teacher Name}
```

\@place place where you write your thesis.

```
199 \newcommand{\@place}{Place}
```

The default values are only descriptions so that compiliation does not fail if one information is not specified.

\author \title \date \subject \school \major \teacher \place These Macros can be used to set the meta info.

```
200 \renewcommand{\author}[1]{\sethypermeta{author}{#1}}
201 \renewcommand{\title}[1]{\sethypermeta{title}{#1}}
202 \renewcommand{\date}[1]{\setmeta{date}{#1}}
203 \newcommand{\subject}[1]{\sethypermeta{subject}{#1}}
204 \newcommand{\school}[1]{\setmeta{school}{#1}}
205 \newcommand{\major}[1]{\setmeta{major}{#1}}
206 \newcommand{\teacher}[1]{\setmeta{teacher}{#1}}
207 \newcommand{\place}[1]{\setmeta{place}{#1}}
```

7.3 Set Captions

\newcaption can be used to set a caption in a certain language.
Only some of the captions on the title page use this yet! are only german!

```
208 \newcommand{\newcaption}[3]{
209   {
210     \def\@capname{caption@#1@#2}
211     \def\@dcapname##1{caption@##1@#2}
212     \expandafter\gdef\csname\@capname\endcsname{#3}
213     \expandafter\xdef\csname#2\endcsname{\csname\@dcapname{\ws@lang}\endcsname}
214   }
215 }
```

Examples used here are:

```
216 \newcaption{german}{qpname}{Qualifikationsphase}
217 \newcaption{german}{mainname}{Seminararbeit}
218 \newcaption{german}{submainname}{im Wissenschaftsprop\"adeutischen Seminar}
219 \newcaption{german}{authorname}{Verfasser}
220 \newcaption{german}{majorname}{Leitfach}
221 \newcaption{german}{teachername}{Seminarleiter}
222 \newcaption{german}{closingname}{Selbstst\"andigkeitserkl\"arung}
```

7.4 Building the Title Page

\placeholder is a placeholder/form field to fill in things after printing.

```
\newcommand{\placeholder}{\rule[-.5ex]{5cm}{.4pt}}
```

\maketitle is now changed to print our title page.

```
\renewcommand{\maketitle}{
  \begin{titlepage}
    \ifws@strict \else
      \newgeometry{left=2.5cm, right=2.5cm}
    \fi
    \setlength{\parindent}{\z@}
    \setlength{\parfillskip}{\z@\@plus1fil}
    %\setparsizes{\z@}{\z@}{\z@\@plus1fil}\par@updaterelative
    \singlespacing
    {\@school\hfill\@date\par}
    {\qpname\par}
    \vskip 7em
    \begin{center}
    {\mainstyle{\mainname}\par}
      \vskip .5em
      {\submainstyle{\submainname}\par}
      \vskip .5em
      {\subjectstyle{\@subject}\par}
      \vskip .5em
      {\titlestyle{\@title}\par}
    \end{center}
    \vskip 10em
    \doublespacing
    \begin{tabular}{rl}
      \authorname: & \@author \\
      \majorname: & \@major \\
      \teachername: & \@teacher \\
      Abgabetermin: & \placeholder \\[1em]
      Note Seminararbeit: & \placeholder \\
      Punkte Seminararbeit (einfache Wertung): & \placeholder \\
      Punkte Pr\"asentation: & \placeholder \\
      Gesamtleistung (doppelte Wertung): & \placeholder \\
      Eintrag des Ergebnisses: & \placeholder \\[1em]
      Unterschrift des Seminarleiters: & \placeholder
    \end{tabular}
    \ifws@strict \else
      \restoregeometry
    \fi
  \end{titlepage}
  \stepcounter{page}
}
```

8 The Bibliography

\makebib The bibliography is made using `\nobib{*}` so all entries in the bibliography
bibstyle file are printed.
bibfile

```
\newcommand{\makebib}{
  \ifws@bib
    \nocite{*}
```

```
    \bibliographystyle{\ws@bibstyle}
    \bibliography{\ws@bibfile}
  \fi
}
```

9 The Closing

For Bavarian W-Seminar papers it is required that they contain a certain closing.

\makeclosing This closing is constructed here.

```
\newcommand{\makeclosing}{
 \newpage

 \setlength{\parindent}{\z@}
 \setlength{\parfillskip}{\z@\@plus1fil}
 %\setparsizes{\z@}{\z@}{\z@\@plus1fil}\par@updaterelative
 \chapter*{\protect\closingname}
 \addcontentsline{toc}{chapter}{\protect\closingname}
 {Ich erkl\"are, dass ich die Seminararbeit ohne fremde Hilfe angefertigt
 und nur die im Literaturverzeichnis angef\"uhrten Quellen und Hilfsmittel
 benutzt habe.\par}
 \vskip 2em
 {\@place, den \today\hfill\placeholder\par}
}
```

10 \At*(Begin|End)*Document

\AtBeginDocument
\AtEndDocument

```
\AtBeginDocument{\maketitle\tableofcontents}
\AtEndDocument{\makebib\makeclosing}
```

Change History

v1.0

General: Initial version. 1

v1.0.1

General: ctan package building bugfixes. 1