# fhnwreport: PDF-LaTeXclass for articles, reports, and theses

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```
1 \NeedsTeXFormat{LaTeX2e}[1995/12/01]
2 \ProvidesClass{fhnwreport}[2017/05/17 v2.3 PDF-LaTeX class for FHNW reports]
```

```
3 \LoadClass{article}
```

This packages requires several other packages that we now load: `geometry` to set the page layout, `calc` for arithemtics within arguments, `times` such that the font Times is used, `graphicx` for having graphics.

```
4 \RequirePackage{geometry}
5 \RequirePackage{calc}
6 \RequirePackage{times}
7 \RequirePackage{graphicx}
```

## 1 Page Layout

The standard page stlye is two-sided; if you want it one-sided, you have to write `\geometry{twoside=false}` in your own document.

```
 8 \geometry{a4paper,twoside=true}
 9 \geometry{width=160mm,height=241mm,top=32mm,outer=25mm}
10 \geometry{footskip=19mm,headsep=13mm}
```

`\CapFont`
`\CapNumFont`
`\SecFont`
`\SecNumFont`
`\ChapFont`
`\TitleFont`
`\HeaderFont`
`\BackgroundFont`
The following macros define, in this order, the fonts used for captions, caption lables, section titles, section numbers, chapter titles, the document title, the page headings, and the `background` environment, and the fonts used on the official title page.

```
11 \newcommand{\CaptionFont}{\em}
12 \newcommand{\SecFont}{\sf\bfseries}
13 \newcommand{\SecNumFont}{\sf\bfseries}
14 \newcommand{\ChapFont}{\sf\bfseries}
15 \newcommand{\TitleFont}{\sf\bfseries}
16 \newcommand{\HeaderFont}{\sf\small}
17 \newcommand{\BackgroundFont}{\em}
18 \newcommand{\DTfont@author}{\sf\bfseries}
19 \newcommand{\DTfont@normal}{\sf}
```

```
20 \newcommand{\DTfont@series}{\sf\bfseries}
21 \newcommand{\DTfont@title}{\sf\bfseries}
```

\maketitle

```
22 \renewcommand\maketitle{\par
23   \begingroup
24     \renewcommand\thefootnote{\@fnsymbol\c@footnote}%
25     \def\@makefnmark{\rlap{\@textsuperscript{\normalfont\@thefnmark}}}%
26     \long\def\@makefntext##1{\parindent 1em\noindent
27             \hb@xt@1.8em{%
28                 \hss\@textsuperscript{\normalfont\@thefnmark}}##1}%
29     \if@twocolumn
30       \ifnum \col@number=\@ne
31         \@maketitle
32       \else
33         \twocolumn[\@maketitle]%
34       \fi
35     \else
36       \newpage
37       \global\@topnum\z@   % Prevents figures from going at top of the title page.
38       \@maketitle
39     \fi
40     \thispagestyle{empty}\@thanks
41   \endgroup
42   \setcounter{footnote}{0}%
43   \global\let\thanks\relax
44   \global\let\maketitle\relax
45   \global\let\@maketitle\relax
46   \global\let\@thanks\@empty
47   \global\let\@author\@empty
48   \global\let\@date\@empty
49   \global\let\@title\@empty
50   \global\let\title\relax
51   \global\let\author\relax
52   \global\let\date\relax
53   \global\let\and\relax
54 }
```

The maketitle function assumes that there is a file called fhnwlogo.pdf in the working directory. Choose the one you need.

\@maketitle

```
55 \def\@maketitle{%
56   \newpage
57   \null
58   \setlength{\unitlength}{1cm}%
59   \begin{picture}(0,0)
60     \linethickness{0.025mm}
61     \put(-0.85,2.2){\mbox{\includegraphics[height=12mm]{fhnwlogo.pdf}}}}
62   \end{picture}
```

```
63    \par%
64    \vskip 2em%
65    \begin{center}%
66      \let \footnote \thanks
67      {\LARGE \@title \par}%
68      \vskip 1.5em%
69      {\large
70        \lineskip .5em%
71        \begin{tabular}[t]{c}%
72          \@author
73        \end{tabular}\par}%
74      \vskip 1em%
75      {\large \@date}%
76    \end{center}%
77    \par
78    \vskip 1.5em}
```

\noparskip    This class uses the European book layout, i.e., a layout that has no paragraph indentations, but some paragraph skip. This is sometimes not wanted in tables of contents, so we provide a macro that makes it possible to produce tables of contents with tight vertical spacing by writing something like {\noparskip \tableofcontents}.

```
79 \newcommand{\noparskip}{\parskip=\z@ \@plus\z@ \@minus\z@}
```

Now come the details of the paragraph layout. If `raggedright` is not used, \TextAlignment must be set anyway, and \parindent must be set to zero. (The command \RaggedRight does that too). The text alignement command is issued at the begin of the document, and the parskip is also set to a reasonable, non-zero value. Finally, clubs and widows are punished hard.

```
80 \ifx\TextAlignment\undefined
81   \newcommand{\TextAlignment}{\relax}
82   \parindent=0pt
83 \else\fi
84 \AtBeginDocument{\TextAlignment}
85 \parskip=1.6ex \@plus 0.4ex \@minus 0.4ex
86 \widowpenalty 10000
87 \clubpenalty 10000
88 \@clubpenalty 10000
```

Lists are generally defined with tighter vertical spacing, the following was adapted from `book.cls`.

```
89 \def\@listi{\leftmargin\leftmargini
90   \parsep \z@ \@plus2\p@ \@minus\z@
91   \topsep \z@ \@plus2\p@ \@minus\z@
92   \itemsep\z@ \@plus2\p@ \@minus\z@}
93 \let\@listI\@listi
94 \@listi
95 \def\@listii{\leftmargin\leftmarginii
96   \labelwidth\leftmarginii
```

```
97    \advance\labelwidth-\labelsep
98    \topsep \z@ \@plus2\p@  \@minus\z@
99    \parsep \z@ \@plus\p@ \@minus\z@
100   \itemsep \parsep}
101 \def\@listiii{\leftmargin\leftmarginiii
102   \labelwidth\leftmarginiii
103   \advance\labelwidth-\labelsep
104   \topsep \z@ \@plus\p@ \@minus\z@
105   \parsep \z@ \@minus\z@
106   \partopsep \z@ \plus\z@ \@minus\z@
107   \itemsep \topsep}
108 \def\@listiv {\leftmargin\leftmarginiv
109   \labelwidth\leftmarginiv
110   \advance\labelwidth-\labelsep}
111 \def\@listv  {\leftmargin\leftmarginv
112   \labelwidth\leftmarginv
113   \advance\labelwidth-\labelsep}
114 \def\@listvi {\leftmargin\leftmarginvi
115   \labelwidth\leftmarginvi
116   \advance\labelwidth-\labelsep}
```

We use font size 11pt, and notthing else, thus it is hard-wired. The following is adapted from `bk11.clo`.

```
117 \renewcommand\normalsize{%
118   \@setfontsize\normalsize\@xipt{13.6}%
119   \abovedisplayskip 11\p@ \@plus3\p@ \@minus6\p@
120   \abovedisplayshortskip \z@ \@plus3\p@
121   \belowdisplayshortskip 6.5\p@ \@plus3.5\p@ \@minus3\p@
122   \belowdisplayskip \abovedisplayskip
123   \let\@listi\@listI}
124 \normalsize
125 \renewcommand\small{%
126   \@setfontsize\small\@xpt\@xiipt
127   \abovedisplayskip 10\p@ \@plus2\p@ \@minus5\p@
128   \abovedisplayshortskip \z@ \@plus3\p@
129   \belowdisplayshortskip 6\p@ \@plus3\p@ \@minus3\p@
130   \def\@listi{\leftmargin\leftmargini
131             \topsep \z@ \@plus2\p@ \@minus\z@
132             \parsep \z@ \@plus\p@ \@minus\z@
133             \itemsep \parsep}%
134   \belowdisplayskip \abovedisplayskip
135 }
136 \renewcommand\footnotesize{%
137   \@setfontsize\footnotesize\@ixpt{11}%
138   \abovedisplayskip 8\p@ \@plus2\p@ \@minus4\p@
139   \abovedisplayshortskip \z@ \@plus\p@
140   \belowdisplayshortskip 4\p@ \@plus2\p@ \@minus2\p@
141   \def\@listi{\leftmargin\leftmargini
142             \topsep \z@ \@plus\p@ \@minus\z@
143             \parsep \z@ \@plus\p@ \@minus\z@
```

```
144                \itemsep \parsep}%
145      \belowdisplayskip \abovedisplayskip
146 }
147 \renewcommand\scriptsize{\@setfontsize\scriptsize\@viiipt{9.5}}
148 \renewcommand\tiny{\@setfontsize\tiny\@vipt\@viipt}
149 \renewcommand\large{\@setfontsize\large\@xiipt{14}}
150 \renewcommand\Large{\@setfontsize\Large\@xivpt{18}}
151 \renewcommand\LARGE{\@setfontsize\LARGE\@xviipt{22}}
152 \renewcommand\huge{\@setfontsize\huge\@xxpt{25}}
153 \renewcommand\Huge{\@setfontsize\Huge\@xxvpt{30}}
```

## 2   Page Headings, captions, etc.

The running heads are empty in this page style.

```
154 \def\ps@headings{%
155    \let\@oddfoot\@empty\let\@evenfoot\@empty
156    \def\@evenhead{\thepage\hfil\slshape\leftmark}%
157    \def\@oddhead{{\slshape\rightmark}\hfil\thepage}%
158    \let\@mkboth\markboth
159    \def\sectionmark##1{%
160      \markboth {\MakeUppercase{%
161          \ifnum \c@secnumdepth >\z@
162          \thesection\quad
163          \fi
164          ##1}}{}}%
165    \def\subsectionmark##1{%
166      \markright {%
167          \ifnum \c@secnumdepth >\@ne
168          \thesubsection\quad
169          \fi
170          ##1}}}
171 \pagestyle{headings}
```

Figures, tables and equations are counted as section.number, i.e., the first figure in Section 2 would get the number 2.1

```
172 \usepackage{chngcntr}
173 \counterwithin{figure}{section}
174 \counterwithin{table}{section}
175 \counterwithin{equation}{section}
```

## 3   Sections, subsections, . . .

Use a different font for sections: The following gives a normal heading with white space above and below the section heading, the title set in \SecFont\Large, and no indentation on the first paragraph.

```
176 \renewcommand\section{\@startsection {section}{1}{\z@}%
177    {-2.1ex \@plus -.6ex \@minus -.12ex}%
```

```
178   {1.38ex \@plus.12ex}%
179   {\SecFont\Large}}
180 \renewcommand\subsection{\@startsection{subsection}{2}{\z@}%
181   {-1.95ex\@plus -.6ex \@minus -.12ex}%
182   {.9ex \@plus .12ex}%
183   {\SecFont\large}}
184 \renewcommand\subsubsection{\@startsection{subsubsection}{3}{\z@}%
185   {-1.95ex\@plus -.6ex \@minus -.12ex}%
186   {.9ex \@plus .12ex}%
187   {\SecFont\normalsize}}
```

Paragraphs are never numbered; they just make their Argument bold.

```
188 \renewcommand{\paragraph}[1]{\noindent\textbf{#1}}
```

No trailing period in the section number

```
189 \def\@seccntformat#1{\csname the#1\endcsname\quad}
```

The bibliography should be numbered and appear in the table of contents

```
190 \usepackage[numbib,nottoc]{tocbibind}
```

# 4   Hyperrefs

Make hyperrefs work, but invisible.

```
191 \RequirePackage{hyperref,color}
192 \hypersetup{bookmarksnumbered={true},colorlinks={true},linkcolor=black,citecolor=black}
```

# 5   How to treat figures and captions

The bottomfraction set to 0.7 makes it easier to place figures at the bottom of the page.

```
193 \RequirePackage{caption}
194 \captionsetup{margin=10pt,font=small,labelfont=bf}
195 \setlength\floatsep    {24\p@ \@plus 2\p@ \@minus 4\p@}
196 \setlength\textfloatsep{30\p@ \@plus 2\p@ \@minus 4\p@}
197 \renewcommand{\bottomfraction}{0.7}
```

# 6   Conclusion