The adfathesis class

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Abstract
This article describes the adfathesis class, which is designed as the ADFA PhD thesis style — a modification to the report class: Style information from the ‘1993 Handbook’ for the University College known as the ‘Blue Book’, see pages 168 to 170. Updated for 1997. This version is modified only to use the docstrip mechanism.

1 Introduction
The adfathesis class is based on the Monash University version of suthesis.sty called mthonthesis.sty by Tony McGrath, Dept. of Physics, Monash Uni: 5-NOV-87 and the adfathesis.sty that is/was on ccadfa.cc.adfa.oz.au.
Some basic information on the use of adfathesis follows. This class file can only be used under \LaTeX{2e}. Firstly an example of use:
\begin{verbatim}
documentclass[a4paper,12pt,openright,twoside]{adfathesis}
\includeonly{chapter1,chapter2,chapter3}
\title{How to Write Theses\With Two Line Titles}
\authornameonly{John Henry Candidate}
\author{\Authornameonly \ B.Sc.(Hons)}
\copyrightfalse % No copyright page
\figurespagefalse % No List of Figures
\tablespagefalse % No List of Tables
\begin{document}
\beforepreface
\prefacesection{Abstract}
This thesis tells you all you need to know about…
\declaration % Declaration page
\prefacesection{Acknowledgements}
I would like to thank...
\end{verbatim}
2 Documentation:

This class modifies the standard report class to meet the ADFA requirements given in the ‘University College Handbook’. It sets the margins, interline spacing, the figure and table numbering style, and disallows page breaks at hyphens.

The \beforepreface command creates the title page, a copyright page (optionally), and the table of contents. Then the user should put preface section(s), using the command \preface\section{Section Title}; this should include the declaration page. The tables of tables and figures are then produced by the \afterpreface command, which also sets things up to start the main body (on arabic page 1).

The following commands can control what goes in the front matter material:

\title{thesis title} Title of the thesis.
\authornameonly{name} The author’s name without degrees earned, needed for the declaration.
\author{name} The author’s name with degrees earned, for the titlepage.
\dept{department} The default value is School of ‘Physics’.
\thesistype{Type of thesis} The default value is ‘Doctor of Philosophy’, for an Honours report this should be the faculty (e.g. ‘Science’).
\degreetype{Faculty for degree} The default value is ‘Science’, used for Honours only.
\submitdate{date} Month and year in which submitted; date \LaTeX’d if omitted.
\copyrightyear{year} Year degree conferred, or year \LaTeX’d if omitted (next year if in December).
\declaration Produce the required declaration that the thesis is all the author’s own work.
\copyrighttrue Produce or \copyrightfalse don’t produce a ‘copyright’ page (true by default).

\figurespagetrue Produce or \figurespagefalse don’t produce a ‘List of Figures’ page (true by default).

\tablespagetrue Produce or \tablespagefalse don’t produce a ‘List of Tables’ page (true by default).

This class uses space and a half interline spacing, except in footnote, figure and table environments where normal spacing is used. The command: \texttt{\textbackslash linespread}\{-1.655\} can be used to change this (use whatever you want instead of 1.655). For 12 point Computer Modern fonts 1.241 corresponds to space and a half, and 1.655 to double spacing. This command should be given in the preamble (i.e. before the \texttt{\textbackslash begin\{document\}}).

The example given shows the \texttt{12pt} option being used. This is required by the 1997 handbook, but may be omitted (at your own risk) to get smaller print. There are three options which may be declared in \texttt{\documentclass[a4paper,12pt]{adfathesis}}:

- \texttt{draft} which changes the pagestyle to include the date on the page header.
- \texttt{normalbib} which stops the document using the Harvard style, and hence allows use of either the standard \LaTeX bibliography style or an alternative package. The supplied \texttt{adfathesis.bst} may not be appropriate in this case, so you could use an alternative such as \texttt{plain.bst}.
- \texttt{honours} which changes the titlepage to one more appropriate to an Honours report.

To get the correct page number for the bibliography in the table of contents you need to put a \texttt{\textbackslash clearpage} command before the \texttt{\textbackslash addcontentsline} command. The thickness of the rules used for the chapter headings is controlled by \texttt{\textbackslash chaprule} and can be set to another value, say \texttt{0 pt}, by the command \texttt{\setlength{\textbackslash chaprule}\{0pt\}} in the preamble. There is a maximum value of 6 pt for \texttt{\textbackslash chaprule}.

### 3 The code

The current version is defined at the top of the file looking something like this:

```latex
\texttt{\langle\star\ package\rangle}
\%\texttt{\textbackslash NeedsTeXFormat\{LaTeX2e\}}
\%\texttt{\textbackslash ProvidesPackage\{adfathesis\}}
\% \texttt{\[\textbf{filedate}\texttt{space version}\textbackslash fileversion]}\n```

First we set up some new flags: A new flag for draft printing, at this stage all I do is reset the page style. This is not true by default, must be changed in the thesis BASE file A new flag whether to use the Harvard bib package? This is true by default, must be changed in the thesis BASE file A new flag whether a
Honours report rather than PhD or Masters thesis? This is not true by default, must be changed in the thesis BASE file

Now we define the default values for the flags, and make 12 point text the default.

Now process the options and load the standard report class. We merely make modifications to the report classs.

From the Blue book we find the following regulations: The size of the paper shall approximate A4 (297mm x 210 mm). The margins on each sheet shall be not less than 40mm on the left hand side, 20mm on the right hand side, 30mm at the top and 20mm at the bottom. \TeX has default margins of 1 inch (25.4mm) at the top and left.

Use the code from size12.clo to set \textheight to an integer multiple of \baselineskips. Use \raggedbottom and add one \baselineskip to \topskip to allow pagelength to vary.
Set spacing for space and a half, using values from setspace.sty. Use the new \linespread command rather than \renewcommand{\baselinestretch}{1.25} etc.

\ifcase \@ptsize \relax % 10pt
\linespread{1.25} %
\or % 11pt
\linespread{1.213} %
\or % 12pt
\linespread{1.241} %
\fi

Next two sections taken from setspace.

newcommand{\displayskipstretch}{\baselinestretch}
newcommand{\setdisplayskipstretch}[1]{\renewcommand{\displayskipstretch}{#1}}

Fix up spacing before and after displayed math (arraystretch seems to do a fine job for inside LaTeX displayed math, since array and eqnarray seem to be affected as expected). Changing \baselinestretch and doing a font change also works if done here, but then you have to change @setsize to remove the call to @nomath).

\everydisplay\expandafter{\the\everydisplay
\abovedisplayskip \displayskipstretch\abovedisplayskip
\belowdisplayskip \displayskipstretch\belowdisplayskip
\abovedisplayshortskip \displayskipstretch\abovedisplayshortskip
\belowdisplayshortskip \displayskipstretch\belowdisplayshortskip}

The Following changed by Stephen Harker, October 1993 to:

• Make Chapter title centred, and modify size to \Large not \Huge, use small caps for ‘chapter’ and rules above and below. Rule thickness defined by new length \chaprule. To change this use \setlength. The value is forced to be less than 6 points below!
- Make corresponding reductions to size of section, subsection and subsubsection headers.
- Rename Bibliography section to References.

\newlength{\chaprule}
\newlength{\ATchapskip}
\setlength{\chaprule}{0.4\p@}
\setlength{\ATchapskip}{10\p@}
\advance \ATchapskip by -1\chaprule
\renewcommand{\@makechapterhead}[1]{\%}
\ifdim\chaprule>6\p@ \setlength{\chaprule}{6\p@}\fi
\vspace{\ATchapskip}\%
\noindent\rule{\textwidth}{\chaprule}\par%
\vskip 10\p@\%
\{\parindent \z@ \centering \normalfont
\ifnum \c@secnumdepth >\m@ne
{\Large\scshape \@chapapp\space \thechapter} \par
\vskip 8\p@\%
\fi
\interlinepenalty\@M
\Large #1\par\nobreak \vskip 10\p@\%
\noindent\rule{\textwidth}{\chaprule}\par%
\vskip\ATchapskip\%
\}}
\renewcommand{\@makeschapterhead}[1]{\%}
\ifdim\chaprule>6\p@ \setlength{\chaprule}{6\p@}\fi
\vspace{\ATchapskip}\%
\noindent\rule{\textwidth}{\chaprule}\par%
\vskip 10\p@\%
\{\parindent \z@ \centering \normalfont
\Large \#1\par\nobreak \vskip 10\p@\%
\noindent\rule{\textwidth}{\chaprule}\par%
\vskip\ATchapskip\%
\}}
\renewcommand{\section}{\@startsection{section}{1}{\z@}{-1.5ex \@plus-1ex \@minus -.2ex}{0.8ex \@plus.2ex}{\normalfont\large\raggedright}}
\renewcommand{\subsection}{\@startsection{subsection}{2}{\z@}{-1.2ex \@plus -.5ex \@minus-.2ex}{0.5ex \@plus 0.1ex}{\normalfont\normalsize\itshape\raggedright}}
\renewcommand{\subsubsection}{\@startsection{subsubsection}{3}{\z@}{-1.0ex \@plus -.5ex \@minus -.2ex}{0.3ex \@plus .1ex}{\normalfont\normalsize\itshape\raggedright}}
The following is taken from sober.sty, Nico Poppelier and rapport1.cls (NTG classes). Makes list (enumerate and itemize) more reasonable in vertical space, by adjusting the spacing between items. Unfortunately in the size*.clo files \small etc also redefine these values. We could redefine \small etc, but they are size dependent! Leave alone, since \small is not usually used as an environment, at least not for large sections of a document.

\def\@listi{\leftmargin{\leftmargini} \labelsep .5em \labelwidth{\leftmargini} \advance\labelwidth-\labelsep \parskip \z@ \parsep \z@ \topsep 0\p@ \@plus\p@ \itemsep \parskip}
\let\@listI\@listi
\@listi
\def\@listii{\leftmargin{\leftmarginii} \labelsep .5em \labelwidth{\leftmarginii} \advance\labelwidth-\labelsep \topsep 0\p@ \@plus\p@ \parsep \z@ \@plus\p@ \itemsep \topsep}
\def\@listiii{\leftmargin{\leftmarginiii} \labelsep .5em \labelwidth{\leftmarginiii} \advance\labelwidth-\labelsep \topsep 0\p@ \@plus\p@ \partopsep \z@ \@plus\p@ \itemsep \topsep}
\def\@listiv{\leftmargin{\leftmarginiv} \labelsep .5em \labelwidth{\leftmarginiv} \advance\labelwidth-\labelsep \topsep 0\p@ \@plus\p@ \partopsep \z@ \@plus\p@ \itemsep \topsep}
\def\@listv{\leftmargin{\leftmarginv} \labelsep .5em \labelwidth{\leftmarginv} \advance\labelwidth-\labelsep \topsep 0\p@ \@plus\p@ \partopsep \z@ \@plus\p@ \itemsep \topsep}
Next re-define \cleardoublepage as recommended by Piet van Oostrum in the documentation for fancyhdr.sty page 15. This is to avoid blank pages having headers or footers.

\renewcommand{\cleardoublepage}{\clearpage\if@twoside \ifodd\c@page\else\thispagestyle{empty}\hbox{}\newpage\if@twocolumn\hbox{}\newpage\fi\fi\fi}


\doublehyphendemerits=10000 % No consecutive line hyphens.
\brokenpenalty=4991 % Reduce broken words across columns/pages.
\widowpenalty=9999 % Almost no widows at bottom of page.
\clubpenalty=9996 % Almost no orphans at top of page.
\interfootnotelinepenalty=9999 % Almost never break footnotes.
\predisplaypenalty=10000 % Default value
\postdisplaypenalty=1549 % Few breaks between display and widows
\displaywidowpenalty=1602 % At least as high as \postdisplaypenalty

Change float placement parameters to reduce problems. Based on values posted by Donald Arsenau on comp.text.tex at various times. See in particular 17th Nov 1997.

\renewcommand{\topfraction}{.85}
\renewcommand{\bottomfraction}{.7}
\renewcommand{\textfraction}{.15}
\renewcommand{\floatpagefraction}{.66}
\renewcommand{\dbltopfraction}{.66}
\renewcommand{\dblfloatpagefraction}{.66}
\setcounter{topnumber}{9}
\setcounter{bottomnumber}{9}
\setcounter{totalnumber}{20}
\setcounter{dbltopnumber}{9}

Make tables and figures default to small text and be single spaced, and modify caption macro to allow this to take effect in the caption. Use this version rather than previous redefinition of \@xfloat, see setspace.sty for an improved example of the latter. From comp.text.tex, Donald Arsenau 25 July 1996. Also reverse \abovecaptionskip and \belowcaptionskip for tables.
Also use Donald Arsenau’s modified \@makecaption which fixes problems with spacing of captions before tables. Taken from \texttt{comp.text.tex} 21 May 1997. Regular version (acts like regular caption, but with Donald Arsenau’s improvements).

\begin{verbatim}
\long\def\@caption#1[#2]#3{
\par\addcontentsline{\csname ext#1\endcsname}{#1}{\protect\numberline{\csname the#1\endcsname}{\ignorespaces #2}}
\begingroup
\@parboxrestore
\if@minipage
\@setminipage
\fi
\@makecaption{\csname fnum@#1\endcsname}{\ignorespaces #3}\par
\endgroup}
\end{verbatim}

\renewcommand{\maketitle}{
Also use Donald Arsenau’s modified \@makecaption which fixes problems with spacing of captions before tables. Taken from comp.text.tex 21 May 1997. Regular version (acts like regular caption, but with Donald Arsenau’s improvements).

\long\def\@caption#1[#2]#3{
\par\addcontentsline{\csname ext#1\endcsname}{#1}{\protect\numberline{\csname the#1\endcsname}{\ignorespaces #2}}
\begingroup
\@parboxrestore
\if@minipage
\@setminipage
\fi
\@makecaption{\csname fnum@#1\endcsname}{\ignorespaces #3}\par
\endgroup}
\end{verbatim}

\setlength{\abovecaptionskip}{0\p@}
\setlength{\belowcaptionskip}{10\p@}
\linespread{1}\normalfont\small\@float{table}
\end@float
\renewenvironment{table*}
{\setlength{\abovecaptionskip}{0\p@}
 \setlength{\belowcaptionskip}{10\p@}
 \linespread{1}\normalfont\small\@dblfloat{table}
 \end@dblfloat}
\renewenvironment{figure}
{\linespread{1}\normalfont\small\@float{figure}
 \end@float}
\renewenvironment{figure*}
{\linespread{1}\normalfont\small\@dblfloat{figure}
 \end@dblfloat}
\def\onecaptflag{268}
\renewcommand{\@makecaption}[2]{
\let\@tempa\relax
\ifdim\prevdepth>-99\p@ \vskip\abovecaptionskip \relax
\else \def\@tempa{\vbox to\topskip{}}\fi
\ifnum\lastpenalty=\onecaptflag % single line; centre it
\unpenalty \setbox\@tempboxa\lastbox
\nointerlineskip
\hbox to\hsize{\hskip\parfillskip\unhbox\@tempboxa}\
\fi \relax
\vskip\belowcaptionskip}

\renewcommand{\thechapter}{\number\chapter}
\renewcommand{\thetable}{\@arabic{\thetable}}
\renewcommand{\theequation}{\@arabic{\theequation}}
\renewcommand{\@caption}{\@makecaption{\csname fnum@#1\endcsname}{\ignorespaces #3}\par}

\renewcommand{\maketitle}{
Number figures, tables and equations by chapter. Re-define footnotes and minipage footnotes to be single spaced. Make new macros needed for thesis definitions.

\renewcommand{\thefigure}{\thepage} \renewcommand{\thetable}{\@arabic{\thetable}} \renewcommand{\theequation}{\@arabic{\theequation}}

Re-define \texttt{\@footnotetext} and \texttt{\@mpfootnotetext} to use single spacing rather than the space-and-a-half that is the default elsewhere.
Now Define thesis related commands. Another change is to add `\thesistype` which can be defined as appropriate for Masters or Doctoral thesis (default Doctoral).

\newcommand{\dept}[1]{\gdef\@dept{#1}}
\newcommand{\thesistype}[1]{\gdef\@thesistype{#1}}
\newcommand{\degreetype}[1]{\gdef\@degreetype{#1}}
\newcommand{\principaladviser}[1]{\gdef\@principaladviser{#1} % Adviser}
\newcommand{\principaladvisor}[1]{\gdef\@principaladviser{#1} % Advisor}
\newcommand{\firstreader}[1]{\gdef\@firstreader{#1}}
\newcommand{\secondreader}[1]{\gdef\@secondreader{#1}}
\newcommand{\submitdate}[1]{\gdef\@submitdate{#1}}
\newcommand{\copyrightyear}[1]{\gdef\@copyrightyear{#1}} % author, \title in report
\renewcommand{\@title}{}
\renewcommand{\@author}{}
\newcommand{\@dept}{Physics}
\newcommand{\@degreetype}{Doctor of Philosophy}
\newcommand{\@thesistype}{Science}
\newcommand{\@principaladviser}{}
\newcommand{\@firstreader}{}
\newcommand{\@secondreader}{}
\newcommand{\@submitdate}{\ifcase\the\month\or January\or February\or March\or April\or May\or June\or July\or August\or September\or October\or November\or December\fi \space \number\the\year}
\ifnum\month=12 \@tempcnta=\year \advance\@tempcnta by 1 \edef\@copyrightyear{\number\the\@tempcnta} \else \newcommand{\@copyrightyear}{\number\the\year} \fi
\newif\ifcopyright
\newif\iffigurespage
\newif\iftablespage
\copyrighttrue
\figurespagetrue
\tablespagetrue

\newcommand{\authornameonly}{\gdef\Authornameonly{#1}}

Title page, copyright page and declaration page definitions. Add re-definition for Honours reports rather than Higher Degree theses.

\newcommand{\titllep}{% \pagestyle{empty} % \null\vskip2.5cm % \begin{center} % \rmfamily\Large\uppercase\expandafter{\@title} % \end{center} % \vfill % \begin{center} % \textsc{A thesis submitted for the degree of \% \expandafter{\@thesistype}} % \end{center} % \vfill % \begin{center} % \rmfamily\normalsize By\% \@author\% % \end{center} % \vfill % \begin{center} % % Department changed to School July 1995 % \rmfamily\normalsize School of \expandafter{\@dept},\% University College, \% The University of New South Wales, \% Australian Defence Force Academy.\% % \vskip1cm % \rmfamily\normalsize \@submitdate\% % \end{center} % \vskip1cm % \newpage}
is made in the thesis. Any contribution made to the research by
colleagues, with whom I have worked at UNSW or elsewhere, during my
candidature, is fully acknowledged.

I also declare that the intellectual content of this thesis is the
product of my own work, except to the extent that assistance from
others in the project’s design and conception or in style,
presentation and linguistic expression is acknowledged.

\par
\vspace{2.5cm}
\mbox{}\hfill\Authornameonly
\end{minipage}
\end{center}
\vfill\null
\addcontentsline{toc}{chapter}{Declaration}

Add definitions for \beforepreface, \prefacesection and \afterpreface
to allow page numbering and headerstyle to be changed.
\newcommand{\beforepreface}{% 
 \pagestyle{empty} 
 \if@twoside\cleardoublepage\fi 
 \pagenumbering{roman} 
 \ifATdr@ft\pagestyle{draft}\else\pagestyle{plain}\fi 
 \setcounter{page}\@ne% Reset the page number to 1, i.e. titlepage is page 0 
 \ifcopyright\copyrightpage\fi 
 }
\newcommand{\prefacesection}[1]{% 
 \chapter*{#1} 
 \addcontentsline{toc}{chapter}{#1} 
 }
\newcommand{\afterpreface}{% 
 \if@twoside 
 \cleardoublepage 
 \else\newpage 
 \fi 
 \tableofcontents 
 \if@twoside 
 \cleardoublepage 
 \else\newpage 
 \fi 
 \iftablespace 
 \addvspace{10\p@} 
 \let\savedaddvspace=\addvspace 
 \def\addvspace##1{} 
 \listoftables 
 \let\addvspace=\savedaddvspace 
 \if@twoside 
 \cleardoublepage 
}
Create a brand new page style to include the date in the page header.

\newcommand{\ps@draft}{%\let\@mkboth\@gobbletwo
\renewcommand{\@oddfoot}{\@empty}%
\renewcommand{\@oddhead}{\rmfamily\slshape\today\hfil\thepage}%
\renewcommand{\@evenhead}{\rmfamily\slshape\thepage\hfil\today}%
\renewcommand{\@evenfoot}{\@oddfoot}}

Start with \pagestyle{plain} in case front matter isn’t processed.

\pagestyle{plain}

Modify Table of contents entry for chapter to normal font not bold. Second use word Chapter/Appendix before number. Use \appendixname rather than \@chapapp to set width for this element as it is longer!

\newcommand{\appendixname}{
\renewcommand*{\l@chapter}[2]{%\ifnum \c@tocdepth >\m@ne
\addpenalty{-\@highpenalty}%
\settowidth{\@chapwidth}{\appendixname}% not \@chapapp
\addtolength{\@chapwidth}{\@pnumwidth}
\setlength{\@tempdima}{\@chapwidth}%
\begingroup
\parindent \z@ \rightskip \@pnumwidth
\leavemode \normalfont
\hskip -\leftskip
#1\nobreak\hfil \nobreak\hspace{\@pnumwidth}{\hss \@chapapp}\par
\penalty\@highpenalty
\endgroup
\fi}
\def{\chapterlist}{%#1\chapterlist\@chapapp\hfill 1\hfill 2}