LaTeX font packages

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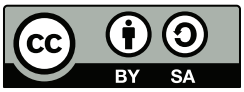

Traditionally, a Latex package is loaded to provide a font or set of fonts. Table 1, adapted from the PSNFSS documentation, summarizes the commonly used Latex font packages. PSNFSS provides the default Type 1 fonts listed, excluding Computer Modern (CM), Utopia, Fourier, and Euler.

Package	**Roman**	**Math**	**Sans serif**	**Typewriter**
(none)	CM Roman	CM Roman	CM Sans	CM Typewriter
mathpazo	Palatino	Palatino		
mathptmx	Times	Times		
helvet			Helvetica	
avant			Avant Garde	
courier				Courier
chancery	Zapf Chancery			
bookman	Bookman		Avant Garde	Courier
newcent	New Century Schoolbook		Avant Garde	Courier
charter	Charter			
fourier	Utopia	Fourier		
eulervm		Euler		

Table 1: Latex font packages. Blanks indicate package does not set font for that category.

The `sectsty` package is useful to set the font for chapter and section headers. (The examples I've included below all use `fontspec`, but `sectsty` works with or without `fontspec`.)

`xelatex` enables you to use any font on your Mac OS X or Windows system. The `fontspec` package loads system fonts, as shown in examples below. When loading `fontspec`, it reverts the main roman font to Computer Modern (actually, Latin Modern). It will, however, leave the math font alone if you use the no-math option. Thus, to set a math font, load one of the above packages, then load `fontspec`, then set the main font again using `fontspec`. The main font must also be installed as a Mac OS X or Windows system font. I've used Palatino and Times this way, but unfortunately have not had success using `xelatex` with the Mac OS X Utopia fonts from http://ctan.mirrorcatalogs.com/systems/mac/fonts/oztex/. If you find a way to use Utopia with `fontspec`, let me know. SmallCaps also don't seem to work with `xelatex`.

The Times font (mathptmx) does not provide bold math symbols. Ostensibly this is because bold Greek symbols are not available (for free). Instead, it simulates bold symbols by printing the same symbol twice, slightly offset, producing an ugly, blurry result. I've included a hack for \bm that works well for Roman letters, but not for Greek letters. It is thus highly suggested to use the Fourier math font or use Palatino instead of Times.

Computer Modern (CM), CM math, **CM sans**, `CM typewriter`

```
% no packages -- computer modern is Latex's default font
```

SmallCaps Lorem ipsum dolor sit amet, consectetur *italic adipiscing elit.* Sed libero odio, pulvinar sed pretium id, viverra eget ligula, 10.2367. Vivamus gravida pulvinar libero $f(x) = \sin(x)$ nec faucibus. Proin eget ipsum ut eros sans-serif interdum adipiscing.

$$f(\boldsymbol{x}, z) = \sum_{i=0}^{\infty} \int_0^{\infty} \int_{d\Gamma} \alpha\beta \boldsymbol{M}^{-1} \boldsymbol{A} g(\boldsymbol{x}) \sin(z)\ d\Gamma\ d\boldsymbol{\Omega}.$$

Sample Serif	**Bold**	*Italic*	***Bold-Italic***	10.2367
Sample Math	**Bold**	$Italic$	$\boldsymbol{Bold\ Italic}$ (bm)	10.2367
Sample Sans-serif	**Bold**	*Italic*	**Bold-Italic**	10.2367
Sample `Typewriter`	`Bold`	*`Italic`*	***`Bold-Italic`***	`10.2367`

Table 1: Lorem ipsum dolor sit amet. Duis hendrerit placerat est sed tempus.

Bookman, CM math**, Avant Garde,** `Courier`

```
\usepackage{bookman}
```

SmallCaps Lorem ipsum dolor sit amet, consectetur *italic adipiscing elit.* Sed libero odio, pulvinar sed pretium id, viverra eget ligula, 10.2367. Vivamus gravida pulvinar libero $f(x) = \sin(x)$ nec faucibus. Proin eget ipsum ut eros sans-serif interdum adipiscing.

$$f(\boldsymbol{x}, z) = \sum_{i=0}^{\infty} \int_0^{\infty} \int_{d\Gamma} \alpha\beta \boldsymbol{M}^{-1} \boldsymbol{A} g(\boldsymbol{x}) \sin(z)\ d\Gamma\ d\boldsymbol{\Omega}.$$

Sample Serif	**Bold**	*Italic*	***Bold-Italic***	10.2367
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Table 1: Lorem ipsum dolor sit amet. Duis hendrerit placerat est sed tempus.

Charter, CM math, CM sans

```
\usepackage{charter}
```

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$$f(\boldsymbol{x}, z) = \sum_{i=0}^{\infty} \int_0^{\infty} \int_{d\Gamma} \alpha\beta \boldsymbol{M}^{-1} \boldsymbol{A} g(\boldsymbol{x}) \sin(z)\ d\Gamma\ d\boldsymbol{\Omega}.$$

Sample Serif	**Bold**	*Italic*	***Bold-Italic***	10.2367
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Sample Sans-serif	Bold	*Italic*	Bold-Italic	10.2367
Sample `Typewriter`	`Bold`	*`Italic`*	`Bold-Italic`	`10.2367`

Table 1: Lorem ipsum dolor sit amet. Duis hendrerit placerat est sed tempus.

New Century Schoolbook, CM math, Avant Garde, Courier

```
\usepackage{newcent}
```

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$$f(\boldsymbol{x}, z) = \sum_{i=0}^{\infty} \int_{0}^{\infty} \int_{d\Gamma} \alpha\beta \boldsymbol{M}^{-1} \boldsymbol{A} g(\boldsymbol{x}) \sin(z)\ d\Gamma\ d\boldsymbol{\Omega}.$$

Sample Serif	**Bold**	*Italic*	***Bold-Italic***	10.2367
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Table 1: Lorem ipsum dolor sit amet. Duis hendrerit placerat est sed tempus.

Utopia, Fourier math, CM sans

```
\usepackage{fourier}
```

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$$f(\boldsymbol{x}, z) = \sum_{i=0}^{\infty} \int_{0}^{\infty} \int_{d\Gamma} \alpha\beta \boldsymbol{M}^{-1} \boldsymbol{A} g(\boldsymbol{x}) \sin(z)\ d\Gamma\ d\boldsymbol{\Omega}.$$

Sample Serif	**Bold**	*Italic*	***Bold-Italic***	10.2367
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Table 1: Lorem ipsum dolor sit amet. Duis hendrerit placerat est sed tempus.

Palatino, Palatino math, Avant Garde

```
\usepackage{mathpazo}        % Palatino
\usepackage{avant}           % Avant Garde
```

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$$f(\boldsymbol{x}, z) = \sum_{i=0}^{\infty} \int_0^{\infty} \int_{d\Gamma} \alpha\beta \boldsymbol{M}^{-1} \boldsymbol{A} g(\boldsymbol{x}) \sin(z)\ d\Gamma\ d\boldsymbol{\Omega}.$$

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Table 1: Lorem ipsum dolor sit amet. Duis hendrerit placerat est sed tempus.

Palatino (smallcaps), Euler math, Helvetica

```
\usepackage[sc]{mathpazo}    % Palatino with smallcaps
\usepackage[scaled]{helvet}  % Helvetica, scaled 95%
\usepackage{eulervm}         % Euler math
```

SmallCaps Lorem ipsum dolor sit amet, consectetur *italic adipiscing elit*. Sed libero odio, pulvinar sed pretium id, viverra eget ligula, 10.2367. Vivamus gravida pulvinar libero $\mathrm{f}(\mathrm{x}) = \sin(\mathrm{x})$ nec faucibus. Proin eget ipsum ut eros sans-serif interdum adipiscing.

$$\mathrm{f}(\mathbf{x}, z) = \sum_{\mathrm{i}=0}^{\infty} \int_0^{\infty} \int_{\mathrm{d}\Gamma} \alpha\beta \mathbf{M}^{-1} \mathbf{A} \mathrm{g}(\mathbf{x}) \sin(z)\ \mathrm{d}\Gamma\ \mathrm{d}\boldsymbol{\Omega}.$$

Sample Serif	**Bold**	*Italic*	***Bold-Italic***	10.2367
Sample Math	**Bold**	Italic	**Bold Italic** (bm)	10.2367
Sample Sans-serif	**Bold**	*Italic*	***Bold-Italic***	10.2367
Sample `Typewriter`	`Bold`	*`Italic`*	*`Bold-Italic`*	`10.2367`

Table 1: Lorem ipsum dolor sit amet. Duis hendrerit placerat est sed tempus.

Palatino (smallcaps, oldstyle numbers), Palatino math, Helvetica

```
\usepackage[osf]{mathpazo}   % Palatino with smallcaps and oldstyle numbers
\usepackage[scaled]{helvet}  % Helvetica, scaled 95%
```

SmallCaps Lorem ipsum dolor sit amet, consectetur *italic adipiscing elit*. Sed libero odio, pulvinar sed pretium id, viverra eget ligula, 10.2367. Vivamus gravida pulvinar libero $f(x) = \sin(x)$ nec faucibus. Proin eget ipsum ut eros sans-serif interdum adipiscing.

$$f(\boldsymbol{x}, z) = \sum_{i=0}^{\infty} \int_0^{\infty} \int_{d\Gamma} \alpha\beta \boldsymbol{M}^{-1} \boldsymbol{A} g(\boldsymbol{x}) \sin(z)\ d\Gamma\ d\boldsymbol{\Omega}.$$

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Table 1: Lorem ipsum dolor sit amet. Duis hendrerit placerat est sed tempus.

Palatino, Palatino math, Optima

Section headers in Optima

```
% compile with xelatex
\usepackage{mathpazo}           % set math font
\usepackage[no-math]{fontspec}  % to load non-Latex fonts (keeping math font)
\setmainfont{Palatino}          % fontspec reverts to CM, so reset to Palatino
\setsansfont{Optima}            % set sans-serif font

\usepackage{sectsty}                  % to override section fonts
\allsectionsfont{\fontspec{Optima}}  % set header font
```

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$$f(\boldsymbol{x}, z) = \sum_{i=0}^{\infty} \int_0^{\infty} \int_{d\Gamma} \alpha\beta \boldsymbol{M}^{-1} \boldsymbol{A} g(\boldsymbol{x}) \sin(z)\, d\Gamma\, d\boldsymbol{\Omega}.$$

Sample Serif	**Bold**	*Italic*	***Bold-Italic***	10.2367
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Sample `Typewriter`	`Bold`	*`Italic`*	***`Bold-Italic`***	`10.2367`

Table 1: Lorem ipsum dolor sit amet. Duis hendrerit placerat est sed tempus.

Palatino, Fourier math, Optima

Section headers in Optima

```
% compile with xelatex
\usepackage{fourier}            % set math font
\usepackage[no-math]{fontspec}  % to load non-Latex fonts (keeping math font)
\setmainfont{Palatino}          % fontspec reverts to CM, so reset to Palatino
\setsansfont{Optima}            % set sans-serif font

\usepackage{sectsty}                  % to override section fonts
\allsectionsfont{\fontspec{Optima}}  % set header font
```

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$$f(\boldsymbol{x}, z) = \sum_{i=0}^{\infty} \int_0^{\infty} \int_{d\Gamma} \alpha\beta \boldsymbol{M}^{-1} \boldsymbol{A} g(\boldsymbol{x}) \sin(z)\, d\Gamma\, d\boldsymbol{\Omega}.$$

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Table 1: Lorem ipsum dolor sit amet. Duis hendrerit placerat est sed tempus.

Times, Times math (bm simulated), Avant Garde

```
\usepackage{mathptmx}  % Times
\usepackage{avant}     % Avant Garde
```

SMALLCAPS LOREM IPSUM dolor sit amet, consectetur *italic adipiscing elit*. Sed libero odio, pulvinar sed pretium id, viverra eget ligula, 10.2367. Vivamus gravida pulvinar libero $f(x) = \sin(x)$ nec faucibus. Proin eget ipsum ut eros sans-serif interdum adipiscing.

$$f(\boldsymbol{x}, z) = \sum_{i=0}^{\infty} \int_0^{\infty} \int_{d\Gamma} \alpha\beta \boldsymbol{M}^{-1} \boldsymbol{A} g(\boldsymbol{x}) \sin(z)\, d\Gamma\, d\boldsymbol{\Omega}.$$

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Table 1: Lorem ipsum dolor sit amet. Duis hendrerit placerat est sed tempus.

Times, Times math (bm simulated), Helvetica

```
\usepackage{mathptmx}              % Times
\usepackage[scaled=0.92]{helvet}   % Helvetica, scaled 92%
```

SMALLCAPS LOREM IPSUM dolor sit amet, consectetur *italic adipiscing elit*. Sed libero odio, pulvinar sed pretium id, viverra eget ligula, 10.2367. Vivamus gravida pulvinar libero $f(x) = \sin(x)$ nec faucibus. Proin eget ipsum ut eros sans-serif interdum adipiscing.

$$f(\boldsymbol{x}, z) = \sum_{i=0}^{\infty} \int_0^{\infty} \int_{d\Gamma} \alpha\beta \boldsymbol{M}^{-1} \boldsymbol{A} g(\boldsymbol{x}) \sin(z)\, d\Gamma\, d\boldsymbol{\Omega}.$$

Sample Serif	**Bold**	*Italic*	***Bold-Italic***	10.2367
Sample Math	**Bold**	*Italic*	***Bold Italic*** (bm)	10.2367
Sample Sans-serif	**Bold**	*Italic*	***Bold-Italic***	10.2367
Sample `Typewriter`	`Bold`	*`Italic`*	*`Bold-Italic`*	`10.2367`

Table 1: Lorem ipsum dolor sit amet. Duis hendrerit placerat est sed tempus.

Times, Times math (bm hack), Helvetica

```
\usepackage{mathptmx}              % Times
\usepackage[scaled=0.92]{helvet}   % Helvetica, scaled 92%
\renewcommand{\bm}[1]{\text{\textbf{\textit{#1}}}}  % hack for bold math
```

SMALLCAPS LOREM IPSUM dolor sit amet, consectetur *italic adipiscing elit*. Sed libero odio, pulvinar sed pretium id, viverra eget ligula, 10.2367. Vivamus gravida pulvinar libero $f(x) = \sin(x)$ nec faucibus. Proin eget ipsum ut eros sans-serif interdum adipiscing. **(Note: no bold Greek!)**

$$f(\boldsymbol{x}, z) = \sum_{i=0}^{\infty} \int_0^{\infty} \int_{d\Gamma} \alpha\beta \boldsymbol{M}^{-1} \boldsymbol{A} g(\boldsymbol{x}) \sin(z)\, d\Gamma\, d\Omega.$$

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Sample `Typewriter`	`Bold`	*`Italic`*	*`Bold-Italic`*	`10.2367`

Table 1: Lorem ipsum dolor sit amet. Duis hendrerit placerat est sed tempus.

Times, Fourier math, Optima

Section headers in Optima

```
% compile with xelatex
\usepackage{fourier}            % set math font
\usepackage[no-math]{fontspec}  % to load non-Latex fonts (keeping math font)
\setmainfont{Times}             % fontspec reverts to CM, so reset to Times
\setsansfont{Optima}            % set sans-serif font

\usepackage{sectsty}                  % to override section fonts
\allsectionsfont{\fontspec{Optima}}  % set header font
```

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$$f(\boldsymbol{x}, z) = \sum_{i=0}^{\infty} \int_0^{\infty} \int_{d\Gamma} \alpha\beta \boldsymbol{M}^{-1} \boldsymbol{A} g(\boldsymbol{x}) \sin(z)\, d\Gamma\, d\boldsymbol{\Omega}.$$

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