

# Northwestern

## Wildcat Beamer Theme

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# Introduction

The Wildcat theme is a Beamer theme for Northwestern University that can be easily customized with different colors, fonts, and background patterns.

It is inspired by the Metropolis theme by Matthias Vogelgesang, and incorporates the Northwestern University facet design pattern. Licensed under the GNU GENERAL PUBLIC LICENSE.

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– 1. Background Patterns

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# Background Patterns

The theme ships with 12 built-in background patterns. The easiest way to switch is via a theme option:

```
\usetheme[pattern=triangle]{wildcat}
```

Section pages automatically use the same pattern as the title page. Available pattern options:

- **facet** — NU facets (default)
- **facetrans** — NU facets (alternate)
- **triangle** — triangle mosaic
- **triangleiso** — isometric triangles
- **trianglemesh** — wireframe mesh
- **squares** — square grid
- **circles** — circles
- **hexraise** — raised hex clusters
- **hexrand** — random hex shading
- **network** — network grid
- **quilt** — quilt rings
- **plain** — solid color

See **wildcat-gallery.pdf** for a visual preview of all patterns.

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# Colors

The theme has a few Northwestern-specific colors defined, which you can use in your slides. These are:

- nupurple
- nupurple90
- nupurple80
- nupurple70
- nupurple60
- nupurple50
- nupurple40
- nupurple30
- nupurple20
- nupurple10
- nupurple160
- nupurple150
- nupurple140
- nupurple130
- nupurple120
- nupurple110
- nurichblack
- nubrightgreen
- nubrightteal
- nubrightblue
- nubrightyellow
- nubrightorange
- nubrightred
- nudarkgreen
- nudarkteal
- nudarkblue
- nudarkyellow
- nudarkorange
- nudarkred

## Modifying the Primary Color

Pass a **color** option to `\usetheme` — the theme auto-generates all lighter and darker shades automatically:

```
\usetheme[color=nudarkblue]{wildcat}
```

You can combine **color** and **pattern** in a single line:

```
\usetheme[color=nudarkblue, pattern=hexraise]{wildcat}
```

The **nu\*** colors from the previous slide are all valid choices, as are the standard `xcolor` built-ins (**red**, **blue**, **cyan**, etc.). The alert and example colors (**wcalerted**, **wcexample**) are not affected and can be overridden separately.

## Modifying the Primary Color: Custom RGB

The `color` option accepts any *named* color — not raw RGB values. If your brand color isn't already defined, declare it first:

```
\definecolor{myblue}{RGB}{0,53,107}  
\usetheme[color=myblue]{wildcat}
```

When you pass a color via the `color` option, that color becomes available to use as `wcprimary` in your slides, and the theme auto-generates the lighter and darker shades as `wcprimary10–40` and `wcprimary110–140`, respectively. These are also available as named colors you can use in your slides, and the theme uses them internally for block backgrounds and pattern fills.

The auto-generated shades follow a simple scale: `wcprimary10–40` mix the base color with white (lighter tints), and `wcprimary110–140` mix it with black (darker shades). These are sufficient for most use cases — if you need precise per-shade control, see the Advanced Customization section at the end of this document.

# Using Colors in Graphs

Python

```
import matplotlib.pyplot as plt
import pandas as pd
plt.style.use('ggplot')
# Create colors
wcprimary = (78/255,42/255,132/255)
df = pd.read_stata("source/graphs/auto.dta")
plt.scatter(df["weight"], df["mpg"], color=wcprimary)
plt.xlabel("Weight")
plt.ylabel("MPG")
plt.savefig("source/graphs/plot-python.pdf")
plt.show()
```

# Using Colors in Graphs

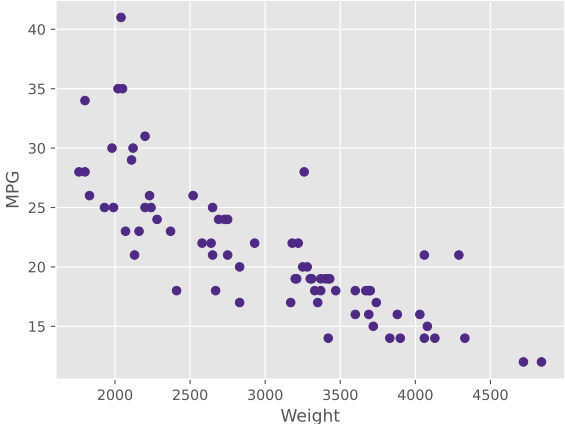


Figure: Python Graph Example

## Using Colors in Graphs

R

```
library(ggplot2)
library(haven)
# Load data
df <- read_dta("source/graphs/auto.dta")
# Define custom RGB colors
wcprimary <- rgb(78/255, 42/255, 132/255)

# Plot mpg against weight, with marker color wcprimary
plot <- ggplot(df, aes(x = weight, y = mpg)) +
  geom_point(color = wcprimary) +
  labs(x = "Weight", y = "MPG")

# Save the plot to a file with a specific size
ggsave("source/graphs/plot-R.pdf", plot, width = 8, height = 5)
```

# Using Colors in Graphs

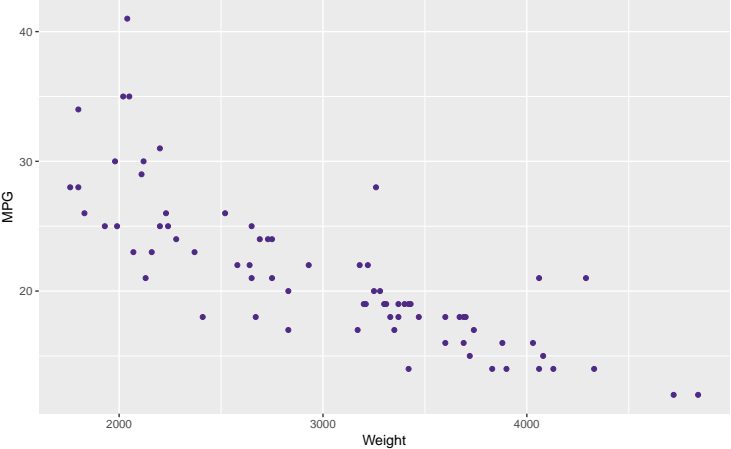


Figure: R Graph Example

## Using Colors in Graphs

Stata

```
ssc install schemepack, replace
sysuse auto, clear
local wcprimary "78 42 132"

twoway (scatter mpg weight, mcolor("`wcprimary'")), ///
       scheme(gg_tableau)

graph export "source/graphs/plot-stata.pdf", replace
```

## Using Colors in Graphs

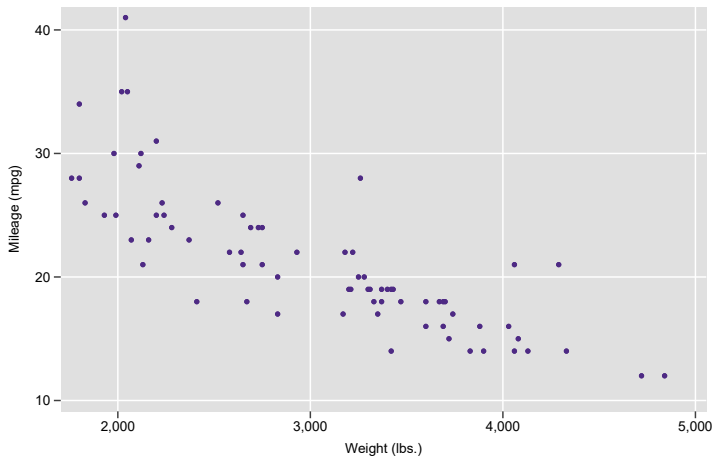


Figure: Stata Graph Example

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## Fonts: Default (Fira Sans)

By default, the theme uses Fira Sans — a clean, geometric sans-serif that ships with TeX Live and MiKTeX and is pre-installed on Overleaf. No font files need to be downloaded or bundled:

```
\usetheme{wildcat}           % Fira Sans loads automatically
```

Overleaf: works out of the box.

MiKTeX: auto-installs on first compile.

TeX Live: if the font is not found, run `tlmgr install fira` in your terminal, then recompile.

Requires XeLaTeX or LuaLaTeX — PDFLaTeX will fail.

## Fonts: Noto Sans

For another bundled, Overleaf-friendly option, use **font=noto**. It uses Noto Sans and mirrors the same weight structure as the default Fira setup:

```
\usetheme[font=noto]{wildcat}
```

This is a good default when you want broad Unicode coverage and don't want to upload font files. As with the other theme fonts, compile with XeLaTeX or LuaLaTeX.

## Fonts: Poppins + IBM Plex Sans

For a closer match to Northwestern's recommended free fonts, use `font=poppins`. Download Poppins and IBM Plex Sans from Google Fonts and place them in a `fonts/` folder next to your `.tex` file:

```
\usetheme[font=poppins]{wildcat}
```

```
your-presentation/  
  your-slides.tex  
  fonts/  
    Poppins/  
      Poppins-Medium.ttf      Poppins-MediumItalic.ttf  
      Poppins-SemiBold.ttf    Poppins-SemiBoldItalic.ttf  
      Poppins-Light.ttf       Poppins-LightItalic.ttf  
      Poppins-Regular.ttf     Poppins-Italic.ttf  
    IBM_Plex_Sans/  
      IBMPlexSans-Light.ttf    IBMPlexSans-LightItalic.ttf  
      IBMPlexSans-Regular.ttf  IBMPlexSans-Italic.ttf
```

For proprietary Northwestern brand fonts (Campton + Akkurat Pro), see the Advanced Customization section. [Appendix](#)

# Font Style: Examples

Here is what the body font will look like under normal usage:

- Regular
- *Italic*
- Bold
- ***Bold Italic***
- Alert
- *Alert Italic*
- Math:

$$e = \lim_{n \rightarrow \infty} \left( 1 + \frac{1}{n} \right)^n$$

# Slide Numbering Options

The **numbering** option controls the footer style on normal slides:

```
\usetheme[numbering=fraction]{wildcat}    % default: n/N
\usetheme[numbering=number]{wildcat}     % slide number only
\usetheme[numbering=progressbar]{wildcat} % bottom progress bar
\usetheme[numbering=none]{wildcat}       % no numbering
```

The count excludes the title page. The **progressbar** mode fills the bottom bar using **wcprimary** and leaves the remainder at 10% opacity. Section pages, title slides, standout slides, **[plain]** frames, and all appendix slides do not show numbering.

# Breadcrumb Options

The **breadcrumb** option controls whether normal frame titles show the current section and subsection above the title:

```
\usetheme[breadcrumb=none]{wildcat} % default  
\usetheme[breadcrumb=on]{wildcat}
```

Breadcrumbs appear only after the first section starts. They are hidden on title, plain, section, and standout slides.

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# Blocks

## Primary Block

The standard Beamer `block` environment uses the material-style outlined box with a floating title label.

## Alert Block

`alertblock` uses the theme alert color.

## Example Block

`exampleblock` uses the theme example color.

## Alternate: Pattern Blocks

### Pattern Block

If you want to use the main background pattern inside a `tcolorbox`, the theme also includes `pblock`, `palertblock`, and `pexampleblock`.

### Pattern Alert Block

Patterned alert block.

### Pattern Example Block

Patterned example block.

## Alternate: Custom Block Colors

### Custom Block

This block uses a custom color.

### Custom Pattern Block

This patterned block uses a custom color.

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5.1 Subsection Title

# Sections

`\section{}` groups slides and automatically inserts a section title slide. Pass `sectionpage=none` to `\usetheme` to disable them:

```
\usetheme[sectionpage=none]{wildcat}
```

Pass `agendastyle=pattern` to keep the 60% agenda panel white and show the active background pattern in the remaining 40%:

```
\usetheme[agendastyle=pattern]{wildcat}
```

## Subsections

The normal `\subsection{}` command creates subsections for the agenda slide and the expanded current-section view on section divider slides.

The `[plain]` option produces a fully blank frame with no header, footer, or background. Use it for title cards, full-bleed figures, or transition slides:

```
\begin{frame}[plain]{}  
...
```

```
...
```

```
\end{frame}
```

## Standout Slides

The `\standout{}` command creates a full-pattern slide with centered white text — useful for section breaks, closing slides, or emphasis. No manual formatting needed:

```
\standout{Appendix}
```

# Appendix

## Advanced: NU Brand Fonts (Bundled)

Northwestern affiliates can use the official brand fonts — Campton (headings) and Akkurat Pro (body). These are proprietary; obtain them from [northwestern.edu/brand](http://northwestern.edu/brand). Bundle the OTF files in a **fonts/** folder and use:

```
\usetheme [font=nu]{wildcat}
```

```
your-presentation/  
  your-slides.tex  
  fonts/  
    Campton/  
      Campton Medium.otf    Campton Light.otf  
    Akkurat/  
      AkkuratProLight-Regular.otf  AkkuratProLight-Italic.otf  
      AkkuratPro-Regular.otf      AkkuratPro-Bold.otf
```

## Advanced: NU Brand Fonts (System-Installed)

If Campton and Akkurat Pro are already installed as system fonts (visible in Word, etc.), no **fonts/** folder is needed. Use:

```
\usetheme[font=installed]{wildcat}
```

fontspec loads the fonts directly from the OS font registry — no **fonts/** folder needed. This is convenient for local compilation, but won't work on Overleaf or when sharing with collaborators who don't have the fonts installed. In those cases, use **font=nu** with bundled OTF files as described on the previous slide.

## Advanced: Fine-Grained Color Control

The auto-generated shades are a good starting point, but for precise brand colors you can override individual shades manually. Redefine any of the **wcprimary\*** colors *after* `\usetHEME`:

```
\usetHEME{wildcat}                % or with color= option
\definecolor{wcprimary}{RGB}{0,53,107} % Yale Blue
\definecolor{wcprimary140}{RGB}{0, 34, 70}
\definecolor{wcprimary130}{RGB}{0, 40, 80}
\definecolor{wcprimary120}{RGB}{0, 45, 91}
\definecolor{wcprimary110}{RGB}{0, 50, 102}
\definecolor{wcprimary40}{RGB}{153, 174, 196}
\definecolor{wcprimary30}{RGB}{179, 194, 211}
\definecolor{wcprimary20}{RGB}{204, 215, 225}
\definecolor{wcprimary10}{RGB}{230, 235, 240}
```

Only the shades actually used by the theme need redefining: **wcprimary10–40** (block bodies) and **wcprimary110–140** (facet pattern segments).

## Advanced: Custom Background Pattern (I)

To create your own pattern, define a command that draws TikZ commands filling the slide. The command should take one argument — the color — so that the theme can reuse it in different contexts. Here is a minimal example:

```
\newcommand{\mypattern}[1]{  
  \fill[color=#1] (0,0) rectangle (\paperwidth,\paperheight);  
}
```

The pattern command is called inside a `tikzpicture` environment whose bounding box already covers the full slide, so you only need to provide the drawing commands — no `\begin{tikzpicture}` wrapper is needed.

Any valid TikZ commands work. The built-in patterns each take one color argument and use `\paperwidth` / `\paperheight` to scale to the slide dimensions automatically.

## Advanced: Custom Background Pattern (II)

Once your pattern command is defined, register it with the theme using two lines in your preamble *after* `\usetheme{wildcat}`:

```
\renewcommand{\bgpattern}{\mypattern{wcprimary}}  
\renewcommand{\bgpatternblock}[1]{\mypattern{#1}}
```

Two commands are needed because the theme uses the pattern in two different ways:

- `\bgpattern` — title page, section slides, and standout frames. The color is fixed, so you bake it in when registering.
- `\bgpatternblock{color}` — pattern block headers (`pblock`, `palertblock`, `pexampleblock`), where each block supplies its own color at render time.

## Advanced: Custom Background Pattern (III)

The 12 built-in pattern definitions in `beamerinnerthemewildcat.sty` (lines 31–386) are a useful reference and starting point.

`\bgpatternplain` (line 384) is the simplest — a single `\fill` command — and is a good template to copy and modify. The other patterns show progressively more complex TikZ techniques: coordinate scaling, `\foreach` loops, random seeds, scopes, and drop shadows.

The `\bgpatternblock` variant used in `pblock` headers is typically identical to `\bgpattern`, just registered separately so the theme can pass the block's color through as an argument.

## Advanced: Community Background Patterns

A pattern template and example patterns are available in the `bg-gallery/` folder. To use one, add a single `\input` line to your preamble *after* `\usetheme{wildcat}`:

```
\usetheme{wildcat}  
\input{bg-gallery/bg-template} % swap in any pattern file
```

Use `\input{}`, not `\include{}` — pattern commands must be set in the preamble, and `\include` only works in the document body.

Want to contribute? Copy `bg-gallery/bg-template.tex`, replace the drawing commands with your own TikZ, and open a pull request at [github.com/aarondwolf/wildcat](https://github.com/aarondwolf/wildcat). Community patterns are welcome!