Overleaf

A Simple LaTeX Beamer Template for Southern Methodist University (SMU)
with SMU-styled Color Themes and Fonts

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This template is intended for non-commercial use only.

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Outline

SMU Dedman College of Humanities & Sciences

Introduction
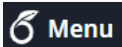
SMU **Dedman College**
of Humanities & Sciences

Introduction

This template provides a simple LaTeX Beamer design that follows Southern Methodist University's visual identity, as specified in the official brand guidelines at `smu.edu/brand`.

Due to its reliance on the `fontspec` package, this template requires compilation with **XeLaTeX**—it will not work with pdfLaTeX or LuaTeX.

Before you begin:

- **Save these slides** for future reference
- **Set `main.tex` as your main document** in the Overleaf upperleft ⬡ Menu

if using this template on 🍃verleaf.

SMU Dedman College of Humanities & Sciences

SMU Appearance Features

SMU Dedman College
of Humanities & Sciences

SMU Appearance Features

The core SMU style is built upon three key elements:

- **SMU** logo,
- **S**M**U** color theme,
- S*M*U font set.

Together, these components form the university's signature aesthetic.

SMU Dedman College
of Humanities & Sciences

SMU Logos

All logos in this template are sourced directly from the official SMU Box repository, linked from the university's brand site at `smu.edu/brand/logos`.

The official repository is available at:

`smu.app.box.com/s/bkdanzfumpcle67rfcqlakx3c9aa0lay`

You can download any required logos directly from this source.

SMU Logos

Corrently, the Dallas Hall icon is placed at the title page, and the department logo is put at the lower right corner of each page with high transparency. Of course, these settings are all open to changes.

- to change the title page logo (or do other background settings), find `\titlegraphic{...}` command in the template file (`smu_beamer_template.sty`), and replace the file name `"..."` with your own logo file name.
- to change or remove the logo at the corner of each page, find `\setbeamertemplate{background}{...}` code block in the template file, and modify the image file name in the `\includegraphics` command.

SMU Color Theme

Unlike most universities and colleges in the world, SMU uses a series of high-saturation, high-contrast colors as the theme color of the university's brand.

- The **Blue** and **Red** colors are the primary colors
- **Yellow**, **Salmon**, **Teal** and **Black** are secondary.

The details are listed below (source: `smu.edu/brand/color-palette`)

Primary Colors

Blue	Red
RGB: 53/76/161	RGB: 204/0/53
#354CA1	#CC0035
PMS 286	PMS 186

Secondary Colors

Yellow	Salmon	Teal	Black
RGB: 249/200/14	RGB: 255/16/83	RGB: 89/195/195	RGB: 38/38/38
#F9C80E	#FF1053	#59C3C3	#262626
PMS 7548	PMS 192	PMS 325	PMS 426

SMU Color Theme

These colors are defined as `SMUBlue`, `SMURed`, `SMUYellow`, `SMUSalmon`, `SMUTeal` and `SMUBlack` through the `xcolor` package, so you may use them in the conventional way. For example, the commands

- `Please \textcolor{SMUBlue}{water} the \textcolor{SMURed}{flower}.`
- `Please {\color{SMUBlue}water} the {\color{SMURed}flower}.`

both compiles to

<div align="center">Please water the flower.</div>

The latter can also be used in math formula. For example,

`$$\frac{x^2}{2} {\color{SMUSalmon} + C}$$` compiles to $\dfrac{x^2}{2} + C$.

SMU Color Theme

Besides the text, we also use SMU color themes for the theorem blocks:

Block Title

You can use \begin{block}{Block Title} ... \end{block} to generate a default block like this, whose default color is set as SMU Blue.

Alert Title

You can use \begin{block}{Alert Title} ... \end{block} to generate an alert block like this, whose default color is set as SMU Red.

Example Title

You can use \begin{block}{Example Title} ... \end{block} to generate an example block like this, whose default color is set as SMU Yellow.

SMU Color Theme

One who wants to change the color of these boxes may look for the following commands and modify the color in "{ ... }") to the desired ones.

- \setbeamercolor{block title}{...},
  \setbeamercolor{block body}{...}
- \setbeamercolor{block title alerted}{...},
  \setbeamercolor{block body alerted}{...}
- \setbeamercolor{block title example}{...},
  \setbeamercolor{block body example}{...}

When using SMU's colors, keep this order of importance in mind:

<div align="center">

Blue > **Red** > **Yellow** > **Salmon** ≈ **Teal**,

</div>

Use this as a helpful guide when choosing which colors to feature in your slides.

SMU Color Theme

Salmon and Teal are almost never used in formal occasions at SMU. Therefore, we did not set them as default colors for any element in this template.

Nevertheless, they're more vibrant and eye-catching than Red and Blue, so you may use them for emphasis, usually together with bolding (`\textbf` or `\bf`)

- Use Salmon to highlight one concept:
  - It is the **hydrogen bond** that combines the two DNA strands.
  - Gradient descent usually converges to a **local** minimum.
- Use Salmon and Teal to contrast two concepts:
  - For a flow with a high Reynolds number, we are more likely to observe a **turbulent flow** than a **laminar flow**.

(Teal is too shallow, so we used `\color{SMUTeal!85!black}` in the last example to make it darker. Here 85 means "85% Teal+15% black).

SMU Fonts

The Font Makes a Difference!

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**Even with identical logos and colors,
different fonts create completely different impressions.**

SMU Dedman College of Humanities & Sciences

SMU Fonts

According to `smu.edu/brand/fonts`, SMU's official brand fonts are

- Serif: Tiempos,
- Sans Serif: Trade Gothic,

and acceptable alternatives are Georgia (serif) and Arial (sans serif).

Although declairing "Both fonts can be used for headlines and/or body copy", SMU uses **serif for Title** and **sans serif for body** most of the time, and the body is usually **not** in Trade Gothic.

We will follow this practice.

Tiempos

DETAILS	DESIGN FOUNDRY KLIM TYPE FOUNDRY WWW.KLIM.CO.NZ	PRIMARY USAGE HEADLINE & BODY *Except FINE should be used for headlines only	ALTERNATIVE FONT GEORGIA Only use for projects that aren't highly visible
FAMILY 32 STYLES	FINE * Light × Light Italic Regular × Regular Italic Medium × Medium Italic Semibold × Semibold Italic Bold × Bold Italic Black × Black Italic	HEADLINE Light × Light Italic Regular × Regular Italic Medium × Medium Italic Semibold × Semibold Italic Bold × Bold Italic Black × Black Italic	TEXT Regular × Regular Italic Medium × Medium Italic Semibold × Semibold Italic Bold × Bold Italic

TRADE GOTHIC

DETAILS	DESIGN FOUNDRY MERGENTHALER-LINOTYPE WWW.MYFONTS.COM	PRIMARY USAGE HEADLINE & BODY	ALTERNATIVE FONT ARIAL Only use for projects that aren't highly visible
FAMILY 14 STYLES	Light × Light Oblique Regular × Oblique Bold × Bold Oblique Bold No. 2 × Bold No. 2 Oblique		Condensed No. 18 × Condensed No. 18 Oblique Bold Condensed No. 20 × Bold Condensed No. 20 Oblique Extended × Bold Extended

SMU Fonts (Frame Title In Serif)

Frame Subtitle in Serif

This template uses **Tiempos Headline** as the serif font, and **Arial** as the sans serif font. And following SMU's practice, we

- use serif font only for the titles, subtitles and special cases (e.g. the big **"THANK YOU"** at the end of the presentation).
  - **Fully Bold** for the **Presentation Title and Subtitle**,
  - **Semibold** (default \textbf font) for the **Frame Titles and Subtitles**.
  - Regular serif font is rarely used, included here only for completeness.
  - Each of ***bold***, ***Semibold***, *Regular* has its Italic version.
- use sans serif font for the contents (except formula and codes), including
  - normal text, listed items, tables
  - title and content in a block (theorem, remark, example, etc.)
  - captions of images, diagrams and tables.
  - table of contents ...

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SMU Fonts

The \serif command can be used for inputting serif contents e.g.

> {\serif\textbf{Southern} \textit{Methodist} University}

compiles to

Southern *Methodist* University.

Nevertheless, serif font is not encouraged to be used in the content unless for very special purposes.

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Alternatives for Tiempos

The font Tiempos is commercial (we are using the test version of it). To avoid licensing issues, this template provides the free alternative **Source Serif 4**, available from Google Fonts.

We've included this font in `template-source/SourceSerif4`. To use it:

1. Find and uncomment this block in the template (the `.sty` file):
   `\newfontfamily\sourceserif[...]{SourceSerif4}`
2. Also in the `.sty` file, find and change the command
   `\def\serif{\tiempos}` into `\def\serif{\sourceserif}`.

Of course, if you have your own preferred serif font (e.g. Georgia), you may also upload it and define it as the `\serif` font. But this requires you to know how to use the `\newfontfamily` command.

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Other Features

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The Math Formula Font

In this template, we **use the default math serif font in LaTeX for formula**, i.e.

$x^2 + y^2$ compiles to $x^2 + y^2$ instead of $x^2 + y^2$

One who wants the sans serif math formula may go to find the command

```
\usefonttheme{professionalfonts}
```

and remove it in the template file.

Beamer adopts a modern concept that sans serif fonts are more visually comfortable because of its simpleness, so it sets the default font for all elements as sans serif fonts, including mathematical formulas. However, in mathematics (and also many other disciplines), different fonts of notations make a big difference, and an arbitrary modification on the font is not a good practice.

The Coding (Monospace) Font

This template provides **JetBrains Mono** as the default monospace (\texttt) font, which is the default coding font in JetBrains IDEs like PyCharm and IntelliJ. Its regular, bold and italic variations are as follows

- `I am a Robot.`
- **`I am a heavy Robot.`**
- *`I am a walking Robot.`*
- ***`I am a heavy walking Robot.`***

To adjust the \texttt font, find and modify the \setmonofont{...}[...] command in the template file smu_beamer_template.sty.

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The Coding (Monospace) Font

Besides, the template supports syntax highlighting for multiple languages including C/C++, Java, Python, LaTeX, MATLAB, and Fortran. For example, to display Python code:

```python
def hello_world():
    print("Hello, World!")
```

Wrap your code in the environment:

```
\begin{lstlisting}[style=python] ... \end{lstlisting}
```

environment.

You can modify existing styles or add new languages in `codestyle.tex` in the template-source directory.

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Background Color and Frame Title

The template provides two choices for the background (colored or white), and two choices for the header background (light or dark), so there are $2 \times 2 = 4$ different combinations in total, from which you can pick the one you like.

- See the next page for the visual result of the four combinations

To switch between these combinations, find the commands \usecolorbgtrue and \uselightheadertrue in the template file.

- Change \usecolorbgtrue to \usecolorbgfalse to use white background,
- Change \uselightheadertrue to \uselightheaderfalse use the header with dark background color.

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colored background + light title

colored background + dark title

white background + light title

white background + dark title

Each slide shows:
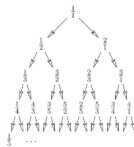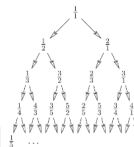
Calkin–Wilf tree
A systematic way to list all the positive rational numbers

The Calkin-Wilf tree provides an elegant way to build a bijection from $\mathbb{N}^+$ to $\mathbb{Q}^+$. The root is 1, for each rational number a/b in the tree, its left child is $a/(a + b)$ and its right chile is $(a + b)/b$, i.e. by a breadth-first traversal, we have the inductive formula

$$\begin{cases} q_1 = 1 \\ q_{2n} = \dfrac{q_n}{q_n + 1}, \; q_{2n+1} = q_n + 1, \; n \geq 1. \end{cases}$$

Theorem
For all $q \in \mathbb{Q}^+$, there exists a unique $n \in \mathbb{N}^+$, such that $q_n = q$.

Calkin-Wilf tree

Title Page

This template offers a flexible framework for designing your title page.

- **Above the title**: you can add conference logos, funder acknowledgments, or other organizational logos using `\titletop{...}` in the header of `main.tex`.

- **Below your name and institute**: you can include additional information like collaborators, email addresses, or other details using `\extrainfo{...}` in the header of `main.tex`.

You can add custom text and images in these two areas, but note that sizing, fonts, and alignment must be manually adjusted (e.g., centering logos yourself).

Examples

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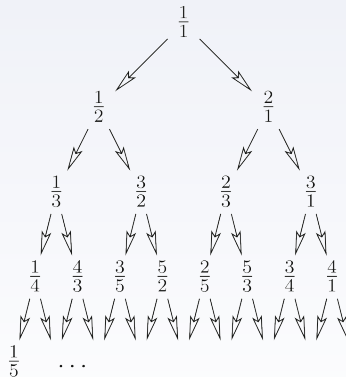
Calkin–Wilf Tree

A systematic way to list all the positive rational numbers

The Calkin-Wilf tree provides an elegant way to build a bijection from $\mathbb{N}^+$ to $\mathbb{Q}^+$. The root is 1, for each rational number a/b in the tree, its left child is $a/(a+b)$ and its right chile is $(a+b)/b$, i.e. by a breadth-first traversal, we have the inductive formula

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Theorem

For all $q \in \mathbb{Q}^+$, there exists a unique $n \in \mathbb{N}^+$, such that $q_n = q$.

Calkin-Wilf tree

Comparison of the Complexity and Stability of Common Sorting Algorithms

I wrote this long title and subtitle intentionally to show the template's ability to handle multiline titles. In reality, titles should be clear and neat

Algorithm	Time (Avg)	Time (Worst)	Space	Stable	In-place
Bubble Sort	$O(n^2)$	$O(n^2)$	$O(1)$	Yes	Yes
Selection Sort	$O(n^2)$	$O(n^2)$	$O(1)$	No	Yes
Insertion Sort	$O(n^2)$	$O(n^2)$	$O(1)$	Yes	Yes
Merge Sort	$O(n \log n)$	$O(n \log n)$	$O(n)$	Yes	No
Quick Sort	$O(n \log n)$	$O(n^2)$	$O(\log n)$	No	Yes
Heap Sort	$O(n \log n)$	$O(n \log n)$	$O(1)$	No	Yes
Counting Sort	$O(n + k)$	$O(n + k)$	$O(k)$	Yes	No
Radix Sort	$O(nk)$	$O(nk)$	$O(n + k)$	Yes	No
Bucket Sort	$O(n + k)$	$O(n^2)$	$O(n)$	Yes	No

Figures: Remove the Background Color

When the background is not pure white, a good practice is to remove the background color before including any figures. This can leave a very good impression to your audience.
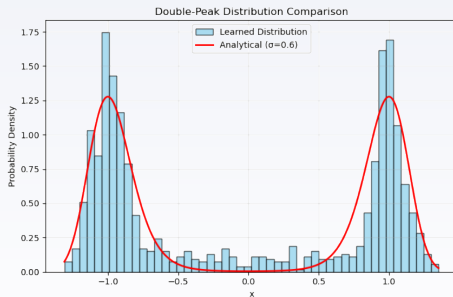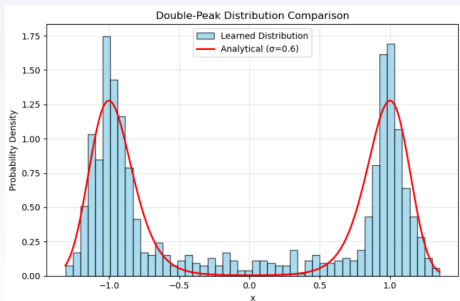

Figure: A figure before and after background removal

Figures: Remove the Background Color

```python
from PIL import Image
def make_transparent(input_path, output_path):
    img = Image.open(input_path)
    if img.mode != 'RGBA':
        img = img.convert('RGBA')
    data = img.getdata()
    new_data = []
    for item in data:
        if min(item[:3]) > 250:
            new_data.append((255, 255, 255, 0))
        else:
            new_data.append(item)
    img.putdata(new_data)
    img.save(output_path, "PNG")
```

A simple python script that reads an image from input_path, sets the pixels with all the RGB value greater than 250 to transparent, and saves the background-removed version of the image to output_path.

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References (Fake, Genereated by AI) I

📄 Christopher M. Bishop.
Pattern Recognition and Machine Learning.
Springer, New York, NY, 3rd edition, 2023.

📄 David A. Brown and Sarah M. Davis.
Neural network architectures: Past, present, and future.
Nature Machine Intelligence, 4:123--145, 2022.

📄 Maria Garcia, Carlos Martinez, and Ana Rodriguez.
Transfer learning in computer vision applications.
In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 3456--3465, Seattle, WA, 2024. IEEE.

📄 Ian Goodfellow, Yoshua Bengio, and Aaron Courville.
Deep Learning: Theory and Applications.
MIT Press, Cambridge, MA, 2024.

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References (Fake, Genereated by AI) II

📄 Michael Johnson and Patricia Anderson.
An efficient algorithm for large-scale optimization.
In *Proceedings of the International Conference on Machine Learning (ICML)*, pages 1234--1242, Honolulu, Hawaii, 2023. PMLR.

📄 Sung-Min Lee, Ji-Hye Kim, and Min-Soo Park.
Distributed computing for real-time data processing.
In *Proceedings of the ACM Symposium on Cloud Computing (SoCC)*, pages 89--98, Santa Cruz, CA, 2023. ACM.

📄 John Smith, Mary Johnson, and Robert Williams.
Machine learning approaches to data analysis.
Journal of Computational Science, 45(3):234--256, 2023.

📄 Wei Zhang, Chen Liu, and Li Wang.
Deep learning for image recognition: A comprehensive survey.
IEEE Transactions on Pattern Analysis and Machine Intelligence, 46(2):445--478, 2024.

THANK YOU!

Questions and Discussion

Notice that in this page, we have removed the logo at the corner.
This is set by surrounding the frame with
`{\setbeamertemplate{background}{} ... }`