

Get started with the HKUST Beamer Theme

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Beamer for UST presentations

If you would like \LaTeX in your presentation, Beamer is a great way to go!

- Beamer has a detailed [user manual](#), but we will go over the most common features.
- The most common of all slide types involve bulleted points, like these.
- Regular \LaTeX commands will help you type math, as below.

$$i\hbar\frac{\partial}{\partial t}\Psi(\mathbf{r},t) = -\frac{\hbar^2}{2m}\nabla^2\Psi(\mathbf{r},t) + V(\mathbf{r})\Psi(\mathbf{r},t)$$



Slide Layouts

An overview of some different slide types you can have.





More with bullet points

Unrolling

- You could also unroll the slides in a sequence.



More with bullet points

Unrolling

- You could also unroll the slides in a sequence.
- Just added [`<+>`] option to `\begin{itemize}` in this frame.



More with bullet points

Unrolling

- You could also unroll the slides in a sequence.
- Just added [`<+>`] option to `\begin{itemize}` in this frame.
- **Note:** If you use verbatim text (i.e. the `\verb` command) in a frame, the [`fragile`] option must be specified on the frame, otherwise the compiler will run into problems.



More with bullet points

Alerts and repeats

Sections 12.1 through 12.3 of the [Beamer user manual](#) demonstrate many more features, like alerts and repeats.

- The `\alert{}` feature can be particularly useful.
- Like this.
- You may as well choose the highlighting to stick.
 - Previous one did not, but this one will.
- Another common slide type involves columns and/or images.
 - We show them in the next slides.



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Images and columns

Adding images works like in normal \LaTeX :

Code for Adding Images

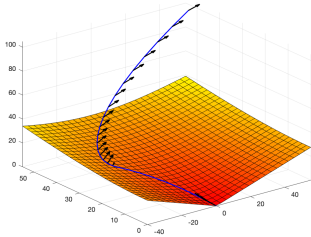
```
\usepackage{graphicx}
% ...
\includegraphics[width=\textwidth]
{images/ust_wallpaper.jpg}
```

This slide layout was achieved using the `columns` feature. The number and widths of the columns is totally user preference. Another columns example follows on the next slide.





Another images/columns example



Left: Solving for optimal fuel consumption **Right:** Solving for optimal time taken

Figure: Minimum fuel trajectory

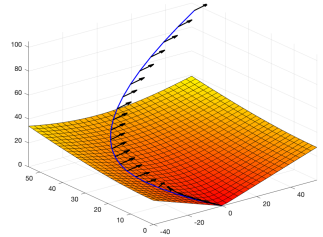


Figure: Minimum time trajectory



Blocks

Blocks are another great way to partition your slide. They can be combined with columns, as shown here.

Standard Blocks

For the light theme, their color matches the footline. We will discuss light and dark themes soon.

```
\begin{block}{title}  
content...  
\end{block}
```

Color Blocks

Similar to the ones on the left, but you pick the color. Text will be white by default, but you may set it with an optional argument.

```
\begin{colorblock}[white]{uihteal}{title}  
content...  
\end{colorblock}
```




Blocks of Highlighted Text

In this slide, some important text will be **highlighted** because it's important. Please, don't abuse it.

Block

Sample text

Alertblock

Sample text in red box

Examples

Sample text in green box. The title of the block is "Examples".



Blocks for theorems

Beamer also uses blocks by default to wrap theorems.

Theorem

This is a theorem.



Side-Picture Slides

Just another another layout you may want to use.

- These type of slides are created using `\begin{sidepic}{<image>}{<title>}`
- Otherwise, `sidepic` works just like `frame`





Pseudocode Example

Algorithm Bellman-Kalaba (adapted from [algorithmicx documentation](#)).

```
Input:  $G, u, l, p$   
for all  $v \in V(G)$  do  
   $l(v) \leftarrow \infty$   
end for  
 $l(u) \leftarrow 0$   
repeat  
  for  $i \leftarrow 1, n$  do  
     $min \leftarrow l(v_i)$   
    for  $j \leftarrow 1, n$  do  
      if  $min > \text{EDGE}(v_i, v_j) + l(v_j)$  then  
         $min \leftarrow \text{EDGE}(v_i, v_j) + l(v_j)$   
         $p(i) \leftarrow v_j$   
      end if  
    end for  
     $l'(i) \leftarrow min$   
  end for  
   $changed \leftarrow l \neq l'$   
   $l \leftarrow l'$   
until  $\neg changed$ 
```

▷ Example comment



Personalization

Themes, fonts and colors





If you need more space in slides


If you would like more space, you can control the font size by specifying an option in the `\documentclass` command at the beginning of this file.

- Use `\documentclass[smaller]{beamer}` to reduce font size.
- For all options, refer to Section 18.2.1 of the [Beamer user manual](#).



Let's talk themes

Three fundamental features greatly affect the look and feel of your slides. Two of them can be controlled with the `\themecolor` command.

- The background color.
 - The default is `light` theme, which has a light background, which we are currently using.
- The foreground color.
 - The `light` theme has a dark foreground (i.e. text color) and vice versa.
- The third, the footer color can be set using `\footlinecolor` command.
 - We are currently using  `ustblue` color for our footer.
 - The default is no footline, but I believe page numbers are incredibly helpful for your audience to ask questions later.



Let's talk themes

- I just called `\themecolor{dark}` before `\begin{frame}` for this slide.
 - Ideally you should set the theme globally in the preamble (i.e. before `\begin{document}`). Default is light.
- You can also change the footer color with `\footlinecolor{color}`, as we did for this slide.
- All the changes we talked about here happen for the current **as well as subsequent** frames.
 - I will manually revert all the changes for the next slide.



Fonts

Fonts are categorized as Serif and Sans-Serif (see [this link](#) for when to use which).

- **Open Sans** and **IBM Plex Serif** have been provided with this template.
- Beamer uses Sans-Serif mode by default.
 - To switch to Serif mode, please change `\usefonttheme[onlymath]{serif}` to `\usefonttheme{serif}` in the preamble.
- If you want to mix and match Serif and Sans-Serif
 - You can still typeset in Serif font in Sans-Serif mode (and vice versa) using `\textrm` and `\textsf` commands.

For more options with fonts, you need to modify the self explanatory `ustfont.sty` file. Next few slides will be helpful in this regard.



Font formats over time

Here are the **old** formats (still used in the LaTeX ecosystem):

- *PostScript Type 1* format developed by Adobe in 1980s
 - Support officially ended by Adobe in January 2023
- *TrueType format* (.ttf) developed by Apple, also in 1980s, licensed to Microsoft

The **new** font formats are *OpenType*, developed jointly by Microsoft and Adobe in the 1990s as an extension of Apple's TrueType font format. *OpenType* fonts are either

- *PostScript flavor OpenType* (.otf) that supercedes Adobe's PostScript Type 1
- *TrueType flavor OpenType* (also .ttf!) that supercedes Apple's TrueType
 - Distinguishing them from the old TrueType format is non trivial, since they have the same file extension.



Font formats compatibility

The new *OpenType* fonts have several new features over the old formats. They are however, supported natively only by XeLaTeX and LuaLaTeX compilers. The most popular pdfLaTeX compiler has limited support for them:

- *OpenType* fonts are not pdfLaTeX-ready by default.
- They require the production of TeX font metrics and other ancillary files in order to be used with LaTeX.
- The production of these files is not easy for the average user.

Consequently, if using pdfLaTeX, the most convenient option is to restrict yourself to the fonts packages available at the [LaTeX Font Catalogue](#), which are already pdfLaTeX-ready.



Font formats compatibility

If you want to use fonts beyond those in the [LaTeX Font Catalogue](#) (for example, fonts from Google Fonts), the recommended approach is to use XeLaTeX.

- XeLaTeX is set as the default compiler on the Overleaf version of this template.
- The fonts included in the fonts folder are *TrueType flavor OpenType* fonts.
- You can still use pdfLaTeX, except that the included fonts will not be applied.



Text color

- Font color can be set with the `\textcolor{<color name>}{text}` command.
- The colors are defined in the `ustcolor` package.
 - UST's primary colors are Navy Pier Blue ( `ustblue`) and Fire Engine Red ( `ustred`).
 - UST's secondary colors are Chicago Blue ( `chicagoblue`), UI Health Teal ( `uihteal`) and Champions Gold ( `championsgold`).
 - UST's neutral colors are Expo White ( `expowhite`) and Steel Gray ( `steelgray` or  `steelgrey`).
- A *simpler alternative* to font colors is often just `\emph{}`.



Chapter slides

- Allow you to partition your presentation into multiple chapters
- Also frames, but with a few more options
- Created with `\begin{chapter} [<image>] {<color>} {<title>}`
 - Image is optional, color and title are mandatory.
- Multiple background images have been provided in this template which may be used for chapter slides:
 - Some campus photos that I have taken over the years and;
 - some departmental logos.
 - Let's look at a few examples!



Title goes here

Subtitle goes here





Title goes here

Subtitle goes here





Other departments

- Download your logo.
 - What you need is “departmental lockup in SVG format and RGB/inverted RGB color”.
- Overlay it on a static background (LaTeX cannot natively handle SVG images)
 - Use the `overlay_svg.py` Python script provided in the GitHub repository of this template (link on next slide)



Good luck with your presentation!

- I would appreciate contributions of all sorts (pull requests, identifying issues, etc).
- If you have any suggestions[1], [send them to me!](#)



References

- [1] Author Name. "Sample Article". In: *Journal Name* 12 (2021), pp. 34–56.



Thank you!