

# Accessible Slides in LaTeX

[https://github.com/rhstanton/accessible\\_LaTeX](https://github.com/rhstanton/accessible_LaTeX)

Version 1.0

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# Introduction

- On January 8, 2026, we were notified by campus that, beginning in April 2026,  
“The updated requirements of the ADA require that digital course materials provided to students, even materials inside password-protected course sites like bCourses, will need to comply with accessibility standards (Web Content Accessibility Guidelines ([WCAG](#)) 2.1 Level AA).”
- Many of us use Beamer to create teaching slides.
- **But Beamer is not and never will be compatible with these requirements.**
- Fortunately, the  $\text{\LaTeX}$  Project team has created `ltx-talk`, a purpose-built accessible presentation class that:
  1. Generates accessible output meeting WCAG 2.1 Level AA standards,
  2. Requires little modification to existing Beamer source (uses same `frame` syntax), and
  3. Requires no manual processing of the resulting PDF file.
    - Part of the [LaTeX Tagging Project](#)
    - Included in TeX Live 2023+ (no separate installation needed)
    - See [latest detailed instructions](#)

# This template

- You can use [this presentation](#) as a template for modifying your own work.
  - Contains math, text, graphics, and tables.
  - Scores a perfect 100% from the bCourses accessibility checker, Ally.
  - **It's easy!** Most of the work is just editing the preamble.
- The template is available at:  
[https://github.com/rhstanton/accessible\\_LaTeX](https://github.com/rhstanton/accessible_LaTeX)

## The basics

- Slides are put inside a `frame` environment, just like in Beamer.
- So **existing source files don't need a lot of editing.**
- Here's some gratuitous *math* for the accessibility checker.

```
\begin{frame}{The basics}
\begin{itemize}
\item Slides are put inside a \texttt{frame} environment, just like in Beamer.
\item So \textbf{\color{blue}{existing source files don't need a lot of editing.}}
\item Here's some gratuitous \$\mathit{math}\$ for the accessibility checker.
\end{itemize}
\end{frame}
```

- **Note:** I set the fonts in this file so that numbers, percent signs, and dollar signs look the same in both math and text mode (my pet Beamer peave...)
  - **Text:** \$1234567890%.
  - **Math:** \$1234567890%.

# Important workflow change: Use LuaLaTeX

- You'll need to change your LaTeX compiler from pdfLaTeX to LuaLaTeX.
- Why switch to LuaLaTeX?
  1. **Automatic MathML:** LuaLaTeX automatically generates MathML (Mathematical Markup Language), making math accessible to screen readers without extra work.
  2. **Easier workflow:** While pdfLaTeX has partial support, it requires manually providing MathML files for each equation—tedious and error-prone.
  3. **Modern Fonts:** LuaLaTeX handles OpenType fonts (like Lato) natively, essential for proper Unicode support.
  4. **Full UTF-8:** Complete support for international characters and screen readers.
- How to switch:
  - Command line: `lualatex myfile.tex`
  - Most LaTeX editors: Select “LuaLaTeX” from the compiler menu
  - Overleaf: Set compiler to “LuaLaTeX” in the menu
- TeX version requirements:
  - Minimum: TeX Live 2023 (late 2023, with `tlmgr update --all`)
  - Recommended: TeX Live 2024 or later
  - Will NOT work: TeX Live 2022 or earlier

# Figures

- Including figures is the same as in Beamer (e.g., using `\includegraphics`), but you need to provide a **text description**.

```
\includegraphics[height=.4\textheight,alt={A capybara}]{capybara.jpg}
```



## Tables

- Including tables is the same as in Beamer (e.g., using the `tabular` environment), but you need to specify the **header rows**.
- Use `{1}` for 1 header row, `{1,2}` for 2 rows, `{1,2,3}` for 3 rows, etc.
- Example (table with 3 header rows):

```
\tagpdfsetup{table/header-rows={1,2,3}}
\begin{tabular}{ccccrcccr}
...
\end{tabular}
```

---

Payment date	Caplet expiry date	$DF_{\text{pay}}$	Forward rate	Days to expiry	Days in accrual period	$T_{\text{expiry}}$	$\Delta$	Caplet
2004/12/01	—	0.99550	0.01790	0	91	0.00000	0.25278	—
2005/03/01	2004/11/29	0.99008	0.02188	89	90	0.24384	0.25000	1,178.77
2005/06/01	2005/02/25	0.98401	0.02413	177	92	0.48493	0.25556	4,844.73
2005/09/01	2005/05/27	0.97733	0.02675	268	92	0.73425	0.25556	10,016.71

# Common pitfalls

- Forgetting alt text for images
  - Every `\includegraphics` needs an `alt={...}` parameter
  - Even decorative images need alt text (use `alt={decorative}`)
- Not specifying table header rows
  - Add `\tagpdfsetup{table/header-rows={...}}` before each table
  - Use `{1}` for 1 header row, `{1,2}` for 2 header rows, etc.
- Insufficient color contrast
  - WCAG 2.1 requires 4.5:1 contrast ratio for normal text
  - Avoid light colors: yellow, cyan fail contrast requirements
  - Darken red and green: use `red!80!black`, `green!40!black`
  - Standard blue is fine and meets WCAG requirements
  - Test with a contrast checker: <https://webaim.org/resources/contrastchecker/>
- Using the wrong compiler
  - Make sure your editor is set to use `LuaLaTeX`, not `pdfLaTeX`
- Old TeX distribution
  - TeX Live 2022 or earlier won't work
  - Run `tlmgr update --all` if using TeX Live 2023

# Conclusions

- Migrating Beamer-based materials to make them accessible is quite easy.
- Next steps:
  1. Download this template from [https://github.com/rhstanton/accessible\\_LaTeX](https://github.com/rhstanton/accessible_LaTeX)
  2. Copy the preamble to your existing Beamer files
  3. Change `\documentclass{beamer}` to  
`\documentclass[frame-title-arg]{ltx-talk}`
  4. Add alt text to images and table/header-rows to tables
  5. Set your compiler to LuaLaTeX
  6. Compile and test!
- Questions or suggestions? [richard.stanton@berkeley.edu](mailto:richard.stanton@berkeley.edu)