A Simple Beamer Theme for Lectures

theme **cbflec** for colorblind-friendly slides

October 9, 2026

Colors

Why different colors?

Color Picks

- Colors suitable for color-blind readers based on Wong (2011)

Color	Color name	RGB (1–255)	CMYK (%)	P	D
	Black	0, 0, 0	0, 0, 0, 100		
	Orange	230, 159, 0	0, 50, 100, 0		
	Sky blue	86, 180, 233	80, 0, 0, 0		
	Bluish green	0, 158, 115	97, 0, 75, 0		
	Yellow	240, 228, 66	10, 5, 90, 0		
	Blue	0, 114, 178	100, 50, 0, 0		
	Vermillion	213, 94, 0	0, 80, 100, 0		
	Reddish purple	204, 121, 167	10, 70, 0, 0		

Source: Wong (2011)

Color Picks, Cont.

- Blue for
  - title page
  - frame title (bold series)
  - itemize item markers (enumerate item markers are in black)
  - transition frame
- Red for
  - highlighting
  - description item
  - alert environment
- Yellow as an alternative color for the transition frame background
- Orange for the block environment
- Teal for the example environment

Title Page

- Title page is inspired by Kenton Hamaluik
- I don't like to have author and institution information on lecture slides
- My students know these already!
- But **cbflec** allows you to have them on the title page. Try!
- It also works fine with aspect ratio 16:9, which I prefer for my lectures (`\documentclass[aspectratio=169]{beamer}`)

Descriptions

- Description item labels are left aligned by default

  Lion — King of the savanna.

  Tiger — King of the jungle.

Blocks

Let's discuss...

Blocks are useful to pose questions for classroom discussion!

Use Transition Frames Along with Subsections

Subsection titles prepare students for a new part in the lecture

Reveal here one or two key points before you explain them in detail

Transition Frame

- Inspiration for using transition frames like the previous one comes from Paul Goldsmith-Pinkham
- **cbflec** offers two background color options (blue in addition to GP's yellow color suggestion) (see the last slide)

Subsections and Transtion Frames

- Subsectioning allows you to structure your presentation
- Use **hyperref** package to create bookmarks
- Call the `tframe` environment right after `\subsection{subsection title}`
- New frame shows the subsection title automatically as above
- You can insert more text to tframes as follows:

```
\subsection{Questions}
\begin{tframe}
    Questions go here
\end{tframe}
```

Table Example

No "Table:" or "Figure:" label in captions by default

Defense R&D Spending to Total Government R&D Spending

	1981	1989	1999	2007	2018
United States	54.6	65.5	53.2	49.1	46.7
United Kingdom	46.3	44.7	37.1	23.0	14.1
France	38.4	37.0	22.7	28.8	6.9
Sweden	15.4	24.7	7.4	16.4	3.7
Germany	8.9	12.8	8.3	6.0	3.3
Italy	6.5	6.8	1.3	4.5	0.6
Japan	4.8†	5.1	4.6	4.5	2.7
Canada	5.5	6.7	5.4	3.2	2.2‡

Source: OECD Main Science and Technology Indicators. Numbers are in percentage terms. † In 1988 due to data availability.
‡ In 2016 due to data availability.

How to Use

How to Use **cbflec**

- **cbflec** offers two color options for the transition frame's background color
- Insert `\usetheme[blue]{cbflec}` for blue
  - text color on tframes will be white
- Or insert `\usetheme[yellow]{cbflec}` for yellow
  - text color on tframes will be black
- **cbflec** also offers three options for itemize item markers: circle (default), square, and triangle
- Insert `\usetheme[blue,square]{cbflec}` to get blue transition background and square item markers (the order of parameters does not matter)
- Place *beamerthemecbflec.sty* file in the same folder as your .tex file before calling it