

# The Durham Beamer Theme

**A Content-First Academic Presentation System**

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# Outline

- **Motivation**
  - Teaching-Centric
- **Development**
  - Design Principles
- **Implementation**
  - Saving Space
- **Accessibility**
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- **Conclusion**

# Motivation

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## Beamer Presentation Ecosystem

Beamer already has a rich and well-established ecosystem in academia:

- a wide range of themes,
- a strong structural model for presentations,
- excellent support for mathematics and technical content.

It remains the default tool for many lecturers and researchers.

## What was missing in practice

Despite this richness, sustained teaching use revealed recurring issues:

- themes optimised for *slides*, not for *lectures*,
- navigation elements that compete with content rather than support it,
- visual noise accumulating over long teaching sessions,
- limited support for pacing, time awareness, and audience orientation.

Most importantly, accessibility considerations were often absent or implicit.

## Teaching as the primary use case

In teaching contexts, presentations function differently:

- lectures unfold over time rather than as standalone slides,
- students benefit from a sense of structure and progress,
- visual consistency reduces cognitive load,
- accessibility is not optional, but integral to inclusive teaching.

This project began with the question: *What would Beamer look like if it were designed first and foremost for teaching?*

# Development



## Development philosophy

The Durham theme was developed from scratch, guided by three principles:

- content should dominate the slide, not decoration,
- navigation should support orientation without distraction,
- visual decisions should scale across long lecture sequences.

Rather than extending an existing theme, each element was reconsidered independently.



## Universal Design for Learning as a motivator

A key influence was the idea of **Universal Design for Learning (UDL)**:

- provide multiple means of representation,
- reduce unnecessary barriers to engagement,
- allow flexibility in how material is presented and consumed.

The theme aims to give lecturers control over presentation modes without fragmenting workflows.

## From experience to design

Design choices were informed by:

- repeated use in undergraduate and postgraduate lectures,
- long sessions with dense quantitative material,
- the need to balance structure with visual calm.

The result is not stylistic novelty, but a system shaped by real teaching constraints.

# Implementation



## Implementation overview

The Durham theme implements a small number of deliberate structural elements:

- sections treated explicitly as lecture chapters,
- a headline that indicates the current position in the lecture,
- a progress indicator to support pacing and time awareness,
- a restrained footline for contextual information.

## Sections as lecture chapters

Sections are designed to function as conceptual chapters:

- each section opens with a dedicated section page,
- students are signposted when the lecture moves to a new topic,
- the structure remains visible without interrupting flow.

This reinforces narrative continuity across long teaching sessions.

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## Headline and orientation

The headline provides lightweight orientation:

- shows the current section in context,
- avoids visual competition with slide content,
- remains consistent across the lecture.

The intention is not navigation for navigation's sake, but reassurance of structure.

## Progress and time awareness

The vertical progress indicator serves two roles:

- it gives students a sense of how the lecture is unfolding,
- it helps lecturers manage pacing and time allocation.

Importantly, it remains visually quiet and does not rely on colour alone.

## Footline as contextual metadata

The footline is intentionally minimal:

- short title and author for orientation,
- no duplication of information already present elsewhere,
- can be disabled entirely when distraction-free modes are preferred.

## Colour palette and institutional feel

The default colour palette is inspired by Durham University:

- chosen to convey a calm institutional aesthetic,
- consistent with sustained reading and projection.

However:

- this is **not** an official university theme,
- it does not use any trademarks or protected branding,
- documentation explicitly clarifies this distinction.

## Subsections without visual penalty

This slide intentionally introduces a subsection to illustrate a design choice.

In the Durham theme:

- the subsection indicator appears *only when a subsection exists*,
- no reserved or shaded space is shown otherwise,
- vertical space is returned to the content when subsections are absent.

This avoids persistent visual placeholders and returns scarce vertical space to content when structure is not needed.

# Accessibility



## Accessibility options

- The Durham theme includes optional modes to support:
  - ▶ high-contrast viewing (colour-vision impairment),
  - ▶ distraction-free reading (cognitive load),
  - ▶ reduced visual fatigue (dark background preference).
- All modes are opt-in via theme options (comma-separated).

### Usage pattern:

- `\usetheme[<options>]{durham}`

## Mode 1: accessibility (high contrast, B&W)

- Switches the palette to black-and-white (high contrast).
- Avoids colour-only cues (better for colour-vision deficiencies).
- Keeps the theme structure intact (headline/footline/progress).

### Enable:

```
\usetheme[accessibility]{durham}
```



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Figure: Accessibility Mode

## Mode 2: plain (distraction-free)

- Hides UI elements:
  - ▶ headline, footline, progress indicators.
- Leaves only the slide content for maximum focus.
- Useful for dense reading, handouts, or reduced cognitive load.

### Enable:

```
\usetheme[plain]{durham}
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Figure: Plain Mode

## Mode 3: plain, accessibility (minimal + B&W)

- Combines:
  - ▶ plain (removes UI elements),
  - ▶ accessibility (black text on white background).
- A clean reading mode with high-contrast text.

### Enable:

```
\usetheme[plain,accessibility]{durham}
```

### Mode 3: plain, accessibility (minimal + B&W)

- Combines:
  - ▶ plain (removes UI elements),
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- A clean reading mode with high-contrast text.

#### Enable:

```
\usetheme[plain,accessibility]{Durham}
```

Figure: Plain+Accessibility Mode

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## Mode 4: plain,accessibility,invert (minimal + dark)

- A dark reading mode for users uncomfortable with bright backgrounds.
- Combines:
  - ▶ plain: removes headline/footline/progress,
  - ▶ accessibility: enforces high contrast,
  - ▶ invert: black background with white text.

### Enable:

```
\usetheme[plain,accessibility,invert]{durham}
```

### Mode 3: plain,accessibility (minimal + B&W)

- Combines:
  - ▶ plain (removes UI elements),
  - ▶ accessibility (black text on white background).
- A clean reading mode with high-contrast text.

#### Enable:

```
\usetheme[plain,accessibility]{durham}
```

Figure: Plain+Accessibility+Invert Mode

## Accessibility note

- These options address **visual accessibility**: contrast, colour dependence, and reading comfort.
- For **screen readers / tagged PDF**, Beamer output can be limited by the current PDF tagging toolchain.
- Within these constraints, the theme addresses the aspects of accessibility that are realistically controllable at the theme level.
- Best practice (when required): provide an accessible companion output (e.g., detailed notes or a tagged handout) alongside slides.



# Conclusion

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## Content-first approach

The Durham Beamer theme represents:

- a shift from slide-centric to lecture-centric design,
- an explicit focus on pedagogy rather than aesthetics,
- a practical response to accessibility and inclusivity.

## Outcome and reflection

Rather than offering a single visual style, the theme provides:

- a coherent presentation system,
- adaptable modes for different teaching contexts,
- a structure that supports both lecturers and students.

It demonstrates how careful design of presentation technology can support teaching practice.

## Closing thought

Good teaching tools should:

- stay out of the way of content,
- respect the diversity of learners,
- and support, rather than dictate, pedagogy.

The Durham theme is a small but deliberate step in that direction.

# **Thank You!**

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**Questions • Feedback • Collaboration**