

Durham Beamer Theme

A content-first theme for teaching and research

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Motivation

The Strength of the Beamer Ecosystem

Beamer has a rich and mature ecosystem that remains central to academic life:

- conceptually well-designed themes,
- strong support for structure and navigation,
- deep integration into teaching and research workflows.

Many existing themes are genuinely effective and widely trusted in academia.

Where Tension Emerges in Daily Use

In everyday academic work, a recurring tension appears:

- themes that look impressive in short demonstrations,
- but feel heavy in long lectures or multi-hour workshops,
- and visually crowded when slides carry dense material.

A common experience is that:

- large visual bands consume valuable content space,
- navigation elements compete with slide material,
- presenters adapt content to the theme rather than the reverse.

What Typically Breaks

What Typically Breaks in Real Use

Across teaching and research presentations, three issues recur:

- **Readability under density**
 - ▶ hierarchy weakens as slides become fuller,
 - ▶ spacing degrades under pressure.
- **Structural over-assertion**
 - ▶ navigation draws attention to itself,
 - ▶ visual noise increases as structure deepens.
- **Loss of pacing awareness**
 - ▶ speakers lose a sense of progress,
 - ▶ audiences lose a sense of direction.

A Gap Between Design and Practice

Over time, many presenters want:

- the structural clarity of classic Beamer themes,
- the calm aesthetics of modern minimalist design,
- without excessive colour, bands, or visual rules.

A content-first theme should:

- stay visually quiet when content is dense,
- remain structured without becoming intrusive,
- adapt naturally to the presenter's workflow.

What the Durham Theme Optimizes For

This demo deck showcases the Durham theme under realistic academic conditions:

- long-form structure (`\section`, optional `\subsection`),
- stable layout for dense text, lists, and mathematics,
- navigation that orients without competing for attention,
- progress that remains truthful by excluding non-content frames.

Design note: the palette is inspired by Durham University's visual identity; the theme is not an official or endorsed institutional template.

Development

Core Design Principles

Every design decision was tested against realistic academic scenarios:

- **Minimalism:** only elements with a clear purpose are visible
- **Consistency:** predictable layout across all frames
- **Hierarchy:** titles, bullets, and sub-bullets clearly separated
- **Restraint:** navigation present but visually quiet
- **Robustness:** no reliance on fragile, optional structure

Typography and Spacing Under Stress

Academic slides are often dense because the material itself is dense. Under such conditions, the theme should:

- remain calm rather than amplify complexity,
- preserve spacing and hierarchy,
- avoid forcing artificial slide breaks.

This matters most in multi-week courses and technical seminars.

Sections as Chapters

Sections are treated as meaningful milestones:

- consistent opening slide resets attention,
- identical behaviour across all sections,
- useful in long lectures and seminars.

Subsections as Optional Signposts

Subsections are intentionally optional:

- they enhance clarity when needed,
- their absence never breaks layout or navigation,
- presenters never add structure just to satisfy the theme.

Implementation

Theme Architecture (Conceptual)

The theme is organized so the presenter changes as little as possible:

- a calm visual baseline with restrained color use,
- typography tuned for sustained reading,
- headline and progress indicators used as subtle orientation aids.

Goal: not to impress visually, but to remain dependable and unobtrusive in long sessions.

Navigation as Orientation, Not Decoration

Navigation is intentionally understated.

For presenters:

- continuous sense of progress in long lectures,
- support for pacing without external timers,
- reduced cognitive load during delivery.

For audiences:

- clear orientation without distraction,
- stable sense of where the talk is heading.

Mathematics Under Realistic Layout Stress

The theme should remain stable when equations and text coexist:

$$y_t = \alpha + \beta x_t + \varepsilon_t, \quad t = 1, 2, \dots, T$$

$$\hat{\beta} = \frac{\sum_{t=1}^T (x_t - \bar{x})(y_t - \bar{y})}{\sum_{t=1}^T (x_t - \bar{x})^2}$$

- equations should not force awkward spacing,
- surrounding text should remain readable.

Blocks and Emphasis

Principle

Navigation should support comprehension, not compete with content.

Failure Mode

If navigation becomes visually dominant, it increases cognitive load.

Design Outcome

A quiet theme makes dense slides easier to deliver and easier to follow.

Tables and Alignment

A small table to test spacing and typography:

Element	Goal	Risk	Mitigation
Headline	Orientation	Distraction	restrained contrast
Footline	Pacing	Visual noise	minimal geometry
Sections	Structure	Fragmentation	consistent transitions

Tables should remain clean and consistent with surrounding typography.

Conclusion

Demo: A Section With No Subsections

This frame exists to demonstrate a common edge-case:

- some sections in real lectures are short,
- they may not justify `\subsection`,
- the theme should remain stable and navigable regardless.

What the Durham Theme Delivers

The Durham theme is designed for everyday academic use:

- calm, neutral visual environment,
- stable layout for dense and sparse content,
- structural clarity without visual noise,
- navigation that supports pacing rather than competing for attention.

An Open Question

This theme reflects experience of teaching and research over time.

A question for regular Beamer users:

- which aspects of this approach feel most useful in practice?
- where could minimalism be pushed further without losing structure?

Thank you!

References I

- [1] Till Tantau. *The Beamer Class*. Available with standard TeX distributions.
- [2] The Metropolis Contributors. *Metropolis: a modern beamer theme*. Conceptual influence acknowledged; no code reuse.