

ModernAcademic-EN Template Showcase

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This document demonstrates the public features provided by the v2 ModernAcademic-EN.cls file. It shows title metadata, logo placement, theme colors, running headers, the abstract box, cross-references, mathematical material, theorem environments, captions, subfigures, tables, algorithms, code listings, and natbib citations. The body deliberately uses lipsum placeholder text to fill realistic page space and to make spacing, paragraphs, floats, and page headers easy to inspect.¹

Keywords: academic template, LaTeX class, sample paper, placeholder text.

Repository: <https://github.com/NTU-AI4X/AI4XTemplate>

1 Quick Start

The class is designed as a compact academic-paper template for pdf_{La}T_EX. A minimal document needs a class declaration, document metadata, `\maketitle`, and normal article content.

```
\documentclass[singlecolumn]{ModernAcademic-EN}

\title{Your Paper Title}
\author{Author Name}
\shorttitle{Short Title}
\shortauthor{Author}
\affiliation{Institution Name}
\email{author@example.org}
\abstract{A concise abstract.}

\begin{document}
\maketitle
\section{Introduction}
\lipsum[1]
\bibliography{references}
\end{document}
```

Listing 1. Minimal single-column document

¹By default, abstract-box footnotes are promoted to normal page footnotes.

1.1 Class Options

- `singlecolumn`: the default article layout, using an 11 pt base font.
- `twocolumn`: a compact two-column layout, using a 10 pt base font and the class-defined column separation.
- Standard article options not handled by the class are passed through to the base class.

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1.2 Compilation

The English template is configured for pdfL^AT_EX. A bibliography run is needed when references are used.

```
pdflatex ModernAcademic-EN.tex
bibtex ModernAcademic-EN
pdflatex ModernAcademic-EN.tex
pdflatex ModernAcademic-EN.tex
```

Listing 2. Typical compilation sequence

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2 Title, Abstract, and Running Headers

The title area is controlled by metadata commands supplied by the class: `\title`, `\author`, `\affiliation`, `\email`, `\abstract`, `\shorttitle`, and `\shortauthor`. The short title and short author strings appear in the running header after the first page.

2.1 Logo Placement

Logo content is provided once through `\titlelogocontent`. The commands `\showlogocontent` and `\showlogoheader` then independently choose whether the same content appears above the title or in the first-page header. When the first-page header logo is enabled, the class measures the logo and raises the header height from its compact fallback only as needed.

Table 1. Title and logo commands exposed by the class.

Command	Purpose	Current example
<code>\settitlepreskip</code>	Space before title/logo area	1ex
<code>\settitlelogogap</code>	Gap between logo and title	0.8em
<code>\titlelogocontent</code>	Reusable logo content	assets/logo.png at 3em
<code>\showlogocontent</code>	Show logo above title	Enabled
<code>\showlogoheader</code>	Show logo in first-page header	Enabled

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lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

2.2 Abstract Footnotes

Abstract-box footnotes are promoted to normal page footnotes by default. In that mode, a `\footnote` written inside `\abstract` is collected from the `tcolorbox` title block and typeset in the regular page footnote area; the note in this sample abstract demonstrates that behavior.

If the document should keep abstract notes visually inside the abstract box, use the following command in the preamble before `\begin{document}`:

```
\disableabstractfootnotes
```

After disabling promotion, footnotes written in the abstract remain at the bottom of the abstract box. This changes only the abstract box behavior; ordinary body footnotes still use the normal page footnote area.

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3 Theme and Hyperlinks

The class defines a primary color named `academicblue` and functional colors for links, citations, URLs, captions, and section headings. The global accent is set with `\setthemecolor`, while internal links, citations, and URLs can be adjusted separately.

```
\setthemecolor{1a2a6c}      % HTML hex without #
\setthemecolor{185,28,28}   % RGB triplet
\setlinkcolor{1a2a6c}
\setcitecolor{2d5a27}
\seturlcolor{5c3566}
```

Listing 3. Theme color interfaces

The cross-reference system combines `hyperref` and `cleveref`; for example, [section 5](#), [figure 1](#), [table 2](#), and [algorithm 1](#) are generated with `\cref`.

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4 Lists and Paragraph Spacing

The class configures paragraph spacing and list indentation globally. The examples below show compact item spacing from `enumitem`.

1. The first enumerated item introduces a claim and leaves enough text to show line wrapping.
2. The second item contains a cross-reference to [listing 1](#).
3. The third item demonstrates that the list spacing remains compact without additional local options.

Primary color Used for the title, section headings, links, and caption labels.

Abstract box Rendered with `tcolorbox` and class-defined padding.

Running header Built with `fancyhdr` from the short title and short author.

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5 Mathematical Typesetting

The class loads `amsmath`, `amssymb`, and `amsthm`, then configures theorem-like environments. Additional math packages can still be loaded by the document when needed.

5.1 Equations

Inline mathematics such as $E = mc^2$, $\sum_{i=1}^n x_i$, and $\mathbb{E}[X]$ follows the document font choices. Displayed equations are numbered in the usual way:

$$\mathcal{L}(\theta) = \mathbb{E}_{x \sim p_{\text{data}}} [-\log p_{\theta}(x)] . \quad (1)$$

$$H(X) = - \sum_x p(x) \log p(x), \quad (2)$$

$$I(X; Y) = H(X) - H(X | Y). \quad (3)$$

Equations (1) to (3) demonstrate equation references and automatic label names.

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5.2 Theorem Environments

Definition 5.1 (Convex function). A function $f : \mathbb{R}^n \rightarrow \mathbb{R}$ is convex if, for all $x, y \in \mathbb{R}^n$ and $\lambda \in [0, 1]$,

$$f(\lambda x + (1 - \lambda)y) \leq \lambda f(x) + (1 - \lambda)f(y).$$

Theorem 5.2 (Jensen's inequality). Let f be convex and let X be an integrable random variable. Then

$$f(\mathbb{E}X) \leq \mathbb{E}f(X).$$

Proof. The statement follows by applying the supporting-hyperplane characterization of convex functions to [definition 5.1](#) and then taking expectations. Morbi luctus, wisi viverra faucibus pretium, nibh est placerat odio, nec commodo wisi enim eget quam. Quisque libero justo, consectetur a, feugiat vitae, porttitor eu, libero. $\square$

Lemma 5.3. *If a sequence (a_n) is nonnegative and summable, then $a_n \rightarrow 0$.*

Proposition 5.4. *The cross-reference names for [theorem 5.2](#) and [lemma 5.3](#) are produced by `cleveref`.*

Corollary 5.5. *Any finite nonnegative sequence satisfies the conclusion of [lemma 5.3](#) after extension by zeros.*

Example 5.6. The quadratic function $f(x) = x^\top x$ is a standard convex function.

Remark. The class provides numbered theorem, lemma, corollary, proposition, definition, and example environments, plus an unnumbered remark environment.

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6 Figures and Captions

Figures use the class caption setup: bold colored labels, period separators, and compact spacing. Subfigures are supported through subcaption.

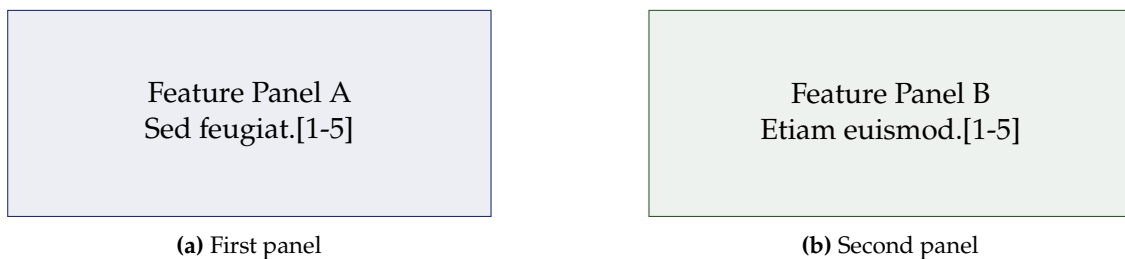


Figure 1. A subfigure example using only standard boxes and class colors.

[Figures 1a](#) and [1b](#) are subfigure references, while [figure 1](#) refers to the whole figure.

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7 Tables

The class loads booktabs, longtable, array, and multirow. This section shows both a compact floating table and a multipage-capable long table.

Table 2. A compact table using booktabs.

Method	Precision	Recall	F1 Score
Baseline	0.82	0.78	0.80
Calibrated	0.87	0.84	0.85
Proposed	0.91	0.88	0.89

Table 3. A long table using packages loaded by the class.

Feature	Demonstration purpose
Geometry	Shows class-managed margins, header height, and footer spacing.
Typography	Shows paragraph spacing, zero indentation, and microtypographic improvements.
Captions	Shows colored labels and consistent caption spacing.
Bibliography	Shows compact natbib references with sorted numeric citations.
Header	Shows the short title and short author on later pages.

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8 Algorithms and Code Listings

The class does not force an algorithm or code package. This example loads algorithm, algpseudocode, and listings in the document preamble so authors can choose their preferred tools.

```
def summarize(scores):
    total = sum(scores)
    mean = total / len(scores)
    return {"count": len(scores), "mean": mean}
```

Listing 4. Small Python listing with the class color theme

The algorithm in [algorithm 1](#) and the code in [listing 4](#) are ordinary floats/listings placed inside the class layout.

Algorithm 1 Template-aware experiment loop

```

1: procedure RUNSTUDY( $\mathcal{D}, \Theta, K$ )
2:   for  $k \leftarrow 1$  to  $K$  do
3:      $\theta_k \leftarrow \text{INITIALIZE}(\Theta)$ 
4:      $\ell_k \leftarrow \text{TRAINANDEVALUATE}(\mathcal{D}, \theta_k)$ 
5:   end for
6:   return  $\arg \min_k \ell_k$ 
7: end procedure

```

This short paragraph leaves enough text to inspect the vertical spacing between the listing and the next section heading without forcing an overloaded page.

9 Citations and Bibliography

The class loads natbib with numeric, sorted, and compressed citations, and uses the unsrtnat bibliography style. Examples include a single citation [1], a compressed group [2–4], and learned compression references [5–7]. Rate-distortion theory is represented by Berger [8].

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10 Conclusion

This document is intended to be a living visual test for ModernAcademic-EN.cls. It keeps the example content close to the class file’s actual public interface while using lipsum text to expose spacing, page breaks, float behavior, headers, captions, and bibliography formatting across several pages.

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