

Math 291: Lecture 6

Dr. Fagerstrom

Minnesota State University Moorhead
web.mnstate.edu/fagerstrom
fagerstrom@mnstate.edu

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1 Introduction

2 Dressing Things Up

3 Frame Overlay



Beamer

- Beamer is a document class that allows you to create Presentations using \LaTeX .



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- This presentation was made using beamer.
- Beamer documents must be built using the profile $\text{\LaTeX} \Rightarrow \text{PS} \Rightarrow \text{PDF}$.



Getting Started

Open TeXnicCenter and start a document in the following way:

```
\documentclass{beamer}  
\begin{document}  
\end{document}
```



The Very Basics

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- 4 The `\pause` command allows you to pause midframe.



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- 4 The `\pause` command allows you to pause midframe.

In your example document, input the commands necessary to create the following slide, then build your example file.

Triangle Numbers

For any $n \geq 1$,

$$\sum_{k=1}^n k = \frac{n(n+1)}{2}.$$



Triangle Numbers

- Make sure that you have a comma and a period in the appropriate places.
- Now place a pause between the commands for $n \geq 1$ and those for $\sum_{k=1}^n k = \frac{n(n-1)}{2}$ and rebuild your file.
- Note what happens when you move from frame to frame (including looking at page numbers as measured by the .pdf at the top of the frame).



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- We often will want to customize documents to make them look nicer.
- We may want to divide the document into sections and to have an outline that appears before each section.
- We may want a title page, or color accenting.
- We may want a nice bulleted list like this one.
- We'll spend this section talking about how to accomplish these things.



Title Page

To create a title page you need to put the following commands in the preamble (that is, before the `begin document` command).



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To create a title page you need to put the following commands in the preamble (that is, before the `begin document` command).

- `\title{Triangle Numbers}`
- `\author{Your Name Here}`
- `\institute[abbreviated institute]{University}`

Add these to your example document and rebuild. Then create a frame that includes *only* the command `\titlepage`. Then rebuild.



Table of Contents

If you want the table of contents to show up before each section, use the following command in the preamble (this is normally a single line).

```
\AtBeginSection{\begin{frame}\frametitle{Outline}
\tableofcontents[currentsection]\end{frame}}
```




Table of Contents

If you want the table of contents to show up before each section, use the following command in the preamble (this is normally a single line).

```
\AtBeginSection{\begin{frame}\frametitle{Outline}  
\tableofcontents[currentsection]\end{frame}}
```

- This is telling Beamer to put a frame with title “Outline” and the Table of Contents with the Current Section highlighted.



Table of Contents

If you want the table of contents to show up before each section, use the following command in the preamble (this is normally a single line).

```
\AtBeginSection{\begin{frame}\frametitle{Outline}
\tableofcontents[currentsection]\end{frame}}
```

- This is telling Beamer to put a frame with title “Outline” and the Table of Contents with the Current Section highlighted.
- Add this command to the preamble of your document. We will add section references that will become part of the outline next.



My First Section

After your titlepage frame, add a new frame with the following:



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\begin{frame}
```

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\tableofcontents
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\end{frame}
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\end{frame}
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After this frame (and before the next frame, so between frames) put:



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\section{Triangle Numbers}
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Build your document, and open it. What do you notice about your table of contents?



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\tableofcontents
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\end{frame}
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After this frame (and before the next frame, so between frames) put:

```
\section{Triangle Numbers}
```

Build your document, and open it. What do you notice about your table of contents?

Now Build it a SECOND time and see what changes.



Another Section

Add another section to the end of your talk entitled Inductive Proofs.
Build twice and open your document to make sure it worked.



Using Themes

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- The following link will take you to a website for the Beamer User Manual. Look on pages 146-159.



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- Beamer User Manual
- The webpage is: <http://www.ctan.org/tex-archive/macros/latex/contrib/beamer/doc/beameruserguide.pdf>
- In the preamble of your document type: `\usetheme{<some cool theme from the list>}`.
- Build and see what happens.



More Themes

This talk is not using a prepackaged theme. It was created using the inner, outer and font theme commands.

❶ `\useinnertheme{rounded}`



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Now You See It

We've learned how to use the

`\pause`

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There are two other commands that are very useful for displaying information on slides. They are the commands

`\only` and `\onslide`



The Only Command

The `\only<options>{Content}` command works as follows. Code:

This text is on all slides.

```
\only<1,3>{This text is on slides 1 and 3.}
```

```
\only<2-4>{This text is on slides 2 through 4.}
```

```
\only<1,3->{This text is on slides 1, 3  
and all subsequent slides.}
```

Result:

This text is on all slides. This text is on slides 1 and 3. This text is on slides 1, 3 and all subsequent slides.



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- With the onslide command, it appears as if the text has just been covered up (so it still takes up the same space).



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- With the “only” command, text that doesn’t appear on the slide is treated as if it has been removed from the frame.
- With the onslide command, it appears as if the text has just been covered up (so it still takes up the same space).

On the next frame we do the exact same example from the previous frame except using the onslide command.



An Onslide Example

This text is on all slides.

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\onslide<1,3>{This text is on slides 1 and 3.}
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Covering

In the onslide example we mentioned that the text was covered. We can choose how well Beamer will cover the text. Within a frame, use the command

```
\setbeamercovered{transparent=#}
```

(The number is given as a percent, and the lower the percent the lighter the background text is.)

Using 20%:

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Example: Inductive Proofs consist of three main steps.

The Base Case

The Inductive Hypothesis

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Lists and Covering

To make the previous list into an enumerated list we'll have to do something different with our overlay arguments. To use overlay arguments in lists modify the item command to

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\item <slides> Content
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where “slides” is replaced by the slide numbers, such as “1,3”.

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