

# Title

*Subtitle*



Name



email@colostate.edu

Colorado State University – Department of Systems Engineering  
Preliminary Examination

## → Outline

1. General
2. Environments
3. Commands
4. Math
5. Figures
6. Animations
- 7.

1   
2   
3

1

# General

## → Bulleted List Slide Example

- Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis.
- Curabitur dictum gravida mauris.
- Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque.
- Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.

## → Side-by-Side Bulleted List + Figure Slide Example

- Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis.
- Curabitur dictum gravida mauris.
- Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque.
- Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.



## → Top-Bottom Figure + Bulleted List Slide Example



- Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis.
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- Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque.
- Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.

## → Side-by-Side Figures Slide Example



## → Side-by-Side Bulleted List + Multiple Figures with Stacked Logos

- Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis.
- Curabitur dictum gravida mauris.
- Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque.



## → Colors

- General colors: niceblue nicered nicegreen nicepink nicepurple nicegray
- Grays: lightgray mediumgray darkergray
- CSU colors: csugreen csugold csugreendarker
- Beamer theme colors (global): fixedbgcolor primary-color graycolor
- Beamer theme colors (light/dark): textcolor textcolorlight textcoloremph bgcolorlight edgecolor
- Change the colors in `.config/2-colors.tex`

## → Nested itemize and enumerate Environments

- Apples
    - Apples
      - Apples
      - Apples
    - Apples
    - Apples
  - Apples
1. Oranges
    - 1.1 Oranges
    - 1.2 Oranges
      - 1.2.1 Oranges
      - 1.2.2 Oranges
    - 1.3 Oranges
  2. Oranges
  3. Oranges

# 2

## Environments

## → Quote

*Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.*

## → Theorem, Definition, and Algorithm

### Theorem (Some Text)

*Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque.*

### Definition (Some Text)

*Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris.*

### Algorithm (Some Text)

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## → Special Call-Out Boxes (1)

- These are intended to be in an itemize/enumerate environment

Remark  


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Important  


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  | vestibulum ut, placerat ac, adipiscing vitae, felis.

Upcoming  


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  | tesque habitant morbi tristique senectus et netus et malesuada fames ac  
  | turpis egestas.

Question  


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  | tum gravida mauris.

## → Special Call-Out Boxes (2)

Remark



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- Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.

Important



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vestibulum ut, placerat ac, adipiscing vitae, felis.

Upcoming



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- Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.

- Note use of \unskip for better spacing with boxes after nested lists

Question



  | Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dic-tum gravida mauris.

### → Special Call-Out Boxes (3)

### Optional



## Review



[Review Context] Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus.

## Review



[Review Context] Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus.

## Review



[Review Context] Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus.

## → Code Listing

Some Matlab code:

```
1 % This program prints Hello, world!
2
3 disp("Hello, world!")
```

Some Python code:

```
1 # This program prints Hello, world!
2
3 print('Hello, world!')
```

Be sure to use the `myslidefragile` environment!

# 3

## Commands

## → Footnote Commands

Use<sup>1</sup> `\parnote` and<sup>2</sup> `\parnotefull` for<sup>3</sup> footnotes<sup>4,5</sup>

Use the `b` slide option when you have footnotes

<sup>1</sup> This is the first one <sup>2</sup> This is the second one <sup>3</sup> This is the third one that takes up the rest of the line

<sup>4</sup> This is the forth one that takes up the rest of the line

<sup>5</sup> This is the fifth one

## → URL Commands

\urlfull with an example  <https://www.engr.colostate.edu/~drherber> and in a footnote<sup>1</sup>

\urlhttps with an example  [www.engr.colostate.edu/~drherber](https://www.engr.colostate.edu/~drherber) and in a footnote<sup>2</sup>

\urlvideo with an example  [www.youtube.com/watch?v=N17Od3rY0bA](https://www.youtube.com/watch?v=N17Od3rY0bA) and in a footnote<sup>3</sup>

\urlyoutube with an example  N17Od3rY0bA

<sup>1</sup>  <https://www.engr.colostate.edu/~drherber> <sup>2</sup>  [www.engr.colostate.edu/~drherber](https://www.engr.colostate.edu/~drherber)

<sup>3</sup>  [www.youtube.com/watch?v=N17Od3rY0bA](https://www.youtube.com/watch?v=N17Od3rY0bA)

## → Other Commands

Use `\qedsymbol` for  $\square$

Use `\myterm` for terms like `#Term` (see next slide and `\mytermslides`)

Use `\myline` for a horizontal dividing line

---

Use `\eqrepeat` to repeat the last equation number (good when you want to repeat an equation on the next slide):

$$A = \frac{\pi r^2}{2} \tag{1}$$

$$A = \frac{\pi r^2}{2} \tag{1}$$

## → Examples of Terms #Term Title

#Term Text 1 Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. #Term Text 2 Curabitur dictum gravida mauris.<sup>1</sup>

### Theorem (Great Theorem)

*Curabitur dictum gravida mauris. #Term Theorem Text*

1. #Term List 1

2. #Term List 2

Remark



#Term Box

Doesn't work in equation environments, but you can use inline math such as #Term  $x - \mathcal{L} - x$

<sup>1</sup> They work in a footnote #Term Footnote

## → MATLAB Example

Use `\matlabfunction` for the hyperlinked MATLAB example below



`ex_matlab_basics.m`

# 4



# Math

## → subequations and Tags

Multi-line aligned equation with some custom tags:

$$y = x^2 \tag{2a}$$

$$z = \sin(x)$$

$$p = \log(x) \tag{2b}$$

$$q = e^x \tag{A}$$

## → eqbox Command

This is an equation:  $A = \frac{\pi r^2}{2}$ . Here it is again:

$$A = \frac{\pi r^2}{2} \tag{3}$$

Another a symbol is  $\alpha$

## → bNiceMatrix and pNiceMatrix Environments

$$\begin{array}{c} \textcolor{violet}{r}_1 \quad \textcolor{violet}{r}_2 \\ \begin{matrix} \textcolor{violet}{c}_1 & \textcolor{violet}{c}_2 & \textcolor{violet}{c}_3 \\ \left[ \begin{matrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{matrix} \right] \end{matrix} \end{array} \quad (4)$$

$$\begin{array}{c} C_1 \dots C_4 \\ L_1 \begin{pmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \\ a_{41} & a_{42} & a_{43} & a_{44} \end{pmatrix} L_1 \\ \vdots \qquad \vdots \\ L_4 \end{array} \quad (5)$$

# 5

## Figures

## → myfig Command



## → myfigcol Command

Nunc sed pede. Praesent vitae lectus. Praesent neque justo, vehicula eget, interdum id, facilisis et, nibh. Phasellus at purus et libero lacinia dictum. Fusce aliquet. Nulla eu ante placerat leo semper dictum. Mauris metus. Curabitur lobortis. Curabitur sollicitudin hendrerit nunc. Donec ultrices lacus id ipsum.



## → myoverpic Environment



Above Centered Text

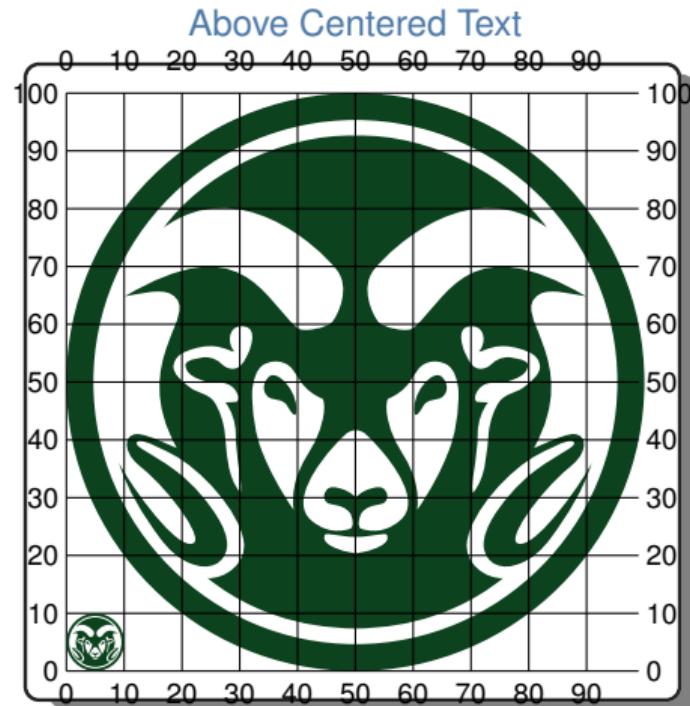


## → myoverpic Environment

Above Centered Text



## → myoverpiccolgrid Environment with a Grid



## → Sizes

Slide width \paperwidth 5.5129 in 139.99835 mm 398.33858pt

Slide height \paperheight 3.54399 in 89.99893 mm 256.0748pt

Text width \textwidth 4.72533 in 119.9986 mm 341.43309pt

Text height \textheight 3.30107 in 83.82994 mm 238.52208pt

New line height \baselineskip 0.15154 in 3.84843 mm 10.95pt

Item separation \myitemsep 0.04152 in 1.05437 mm 3.0pt

## → Side-by-Side Recommended Figure Sizes

Recommended figure width 2 in (below)

Recommended figure height 1.5 in (below)



Matlab recommended figure width 2.25 in

Matlab recommended figure height 1.6875 in

# 6

## Animations

## → Automatic Itemize Animations with [ $<+>$ ]

- To see the animations, ensure that `handout` in `slides.tex` is removed from the `documentclass` options
- Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis.
- Curabitur dictum gravida mauris.
- Here we have a **#Term in an animated slide**
  - Curabitur dictum gravida mauris.
  - Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque.
- Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque.
- Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.

## → Animations Custom Ordering

- Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis.
- Curabitur dictum gravida mauris.
- Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque.
- Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.



## → Special Call-Out Boxes (2) — Animated

Remark



  | Lorem ipsum dolor sit amet, consectetuer adipiscing elit.

- Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.

Important



  | Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit,  
vestibulum ut, placerat ac, adipiscing vitae, felis.

Upcoming



  | Lorem ipsum dolor sit amet, consectetuer adipiscing elit.

- Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.

- Note use of \unskip for better spacing with boxes after nested lists

Question



  | Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dic-tum gravida mauris.

## → myfigcol Command — Animated

Nunc sed pede. Praesent vitae lectus. Praesent neque justo, vehicula eget, interdum id, facilisis et, nibh. Phasellus at purus et libero lacinia dictum. Fusce aliquet. Nulla eu ante placerat leo semper dictum. Mauris metus. Curabitur lobortis. Curabitur sollicitudin hendrerit nunc. Donec ultrices lacus id ipsum.



7



## → References with BibLATEX

\cite with an example: [1]

\textcite with an example: Shampine [1]

\parencite with an example: [1]

\fullcite with an example: L. F. Shampine. “Accurate numerical derivatives in MATLAB”. *ACM Transactions on Mathematical Software* 33.4 (Aug. 2007), p. 26. DOI: 10.1145/1268776.1268781

\citetitle with an example: “Accurate numerical derivatives in MATLAB”

\citetitle with an example: *Engineering Design Optimization*

\citeauthor with an example: Shampine

\citeurl with an example: <https://textbooks.math.gatech.edu/ila/ila.pdf>

Multiple citations work like this example [2, 4, 5] and in a footnote<sup>1</sup>

See command \refslides for printing the references

<sup>1</sup> [2, 4, 5]

## → References

- [1] L. F. Shampine. "Accurate numerical derivatives in MATLAB". *ACM Transactions on Mathematical Software* 33.4 (2007). DOI: 10.1145/1268776.1268781
- [2] Joaquim R. R. A. Martins and Andrew Ning. *Engineering Design Optimization*. October 5th, 2021 edition. Cambridge University Press, 2021. DOI: 10.1017/9781108980647
- [3] Dan Margalit and Joseph Rabinoff. *Interactive Linear Algebra*. Georgia Institute of Technology, 2017. URL: <https://textbooks.math.gatech.edu/ila/ila.pdf>
- [4] Stephen Boyd and Lieven Vandenberghe. *Convex Optimization*. 7th ed. Cambridge University Press, 2009
- [5] Barry A. Cipra. "The Best of the 20th Century: Editors Name Top 10 Algorithms". *SIAM News* 33.4 (2000). URL: <https://archive.siam.org/pdf/news/637.pdf>

## → Terms

- # *Term* is on Slide 18
- # *Term Text 1* is on Slide 19
- # *Term Text 2* is on Slide 19
- # *Term Theorem Text* is on Slide 19
- # *Term List 1* is on Slide 19
- # *Term List 2* is on Slide 19
- # *Term Box* is on Slide 19
- # *Term  $x - \mathcal{L} - x$*  is on Slide 19
- # *Term Footnote* is on Slide 19
- # *Term Title* is on Slide 19
- # *Term in an animated slide* is on Slide 31

# Questions?



Link1

Link2

Title  
Number

Author 1  
Author 2  
Author 3

8





## → Appendix Slide



## → Additional Appendix Content

- This is a second appendix slide showing additional backup material
- Appendix slides can contain detailed explanations, extended proofs, or supplementary data
- These slides are useful for Q&A sessions where additional context may be needed
- The appendix section appears after the main presentation content