

Final Lab: Using Beamer

We'll start our final lab this week. The final lab in this course is to construct and give a short mathematics presentation using the “Beamer” package in LaTeX (Beamer produces a presentation much like PowerPoint).

Here are some guidelines for the lab:

- The topic should utilize either Matlab or Maple.
- The oral presentations will be 5 minutes each (split it between you), and we'll spend the last day of class doing them.
- You'll write up your presentation in Beamer (we'll start this next week).
- You'll upload the PDF file (and any other material, like animations, etc) to your CLEo folder.

Topic Ideas

Here are some topics- The material from *Applications of Calculus* are more like a prepared text, while the other two problems are more open ended. If you would like to do something else, you may- It should be a topic that you can illustrate in Maple, and summarize within several minutes.

1. Portfolio Theory (from *Applications of Calculus*, copy on CLEo)
2. Newton's Method and Fractal Patterns (from *Applications of Calculus*, copy on CLEo).
3. Modeling the AIDS Epidemic (from *Applications of Calculus*, copy on CLEo)
4. How to Tune a Radio (from *Applications of Calculus*, copy on CLEo).
5. Gradient Method Optimization (from *Problems for Student Investigation*, copy on CLEo)
6. Quadratic approximations (from *Calculus* (Stewart), Copy on CLEo)
7. Other: Please clear with me first.

Timeline

- This week: Form groups, think about topics, start to look at Beamer files.
- Next week: Start putting together your Beamer presentations.
- Third week (Last week of class): Presentations.

Common Issues:

How can I insert images from the Web?

SOLUTION: We need images that are JPG files for PDF Latex to work. We will use the “convert” command. Image files are typically either GIF, PNG or JPG (if it is a JPG file, you’re done).

- It is probably easiest to save the image to your home directory for the next steps to work. In the example, suppose I saved the file `Uranus.png` to my home directory.
- You should have the Terminal window on the tool bar from the first day of class. If you missed it, go to the upper left button (Dash) and type **Terminal**.
- In the terminal window, type the command “convert”, then the file you want to convert, then what you want to convert it to. In this example, I want my file to become a JPG file:

```
convert Uranus.png Uranus.jpg
```

- Use the file browser to move the JPG file to where you want it.

Using verbatim in the frames

It is helpful to be able to include some Maple commands in the slides.

Here is an example frame for Beamer- Note the command `[fragile]` (that’s what you need to make it work).

```
\begin{frame}[fragile]
```

Here is an example of using the `\verb+verbatim+` command:

```
\begin{verbatim}
```

```
plot(sin(x),x=-Pi..Pi);  
int(sin(x)*cos(2*x),x=0..Pi);
```

```
\end{verbatim}
```

```
\end{frame}
```