EECS16A Lab

Welcome! We'll be starting at 8:10 PM.

Today's Agenda

- Quick Poll
- About Us
- About Lab: Policies & Overview
- Jupyter Notebook
- Python Bootcamp

Survey Time!

Survey!

- (fill in questions regarding experience, interest, or anything fun)

About Us!

TA Name - Lab TA
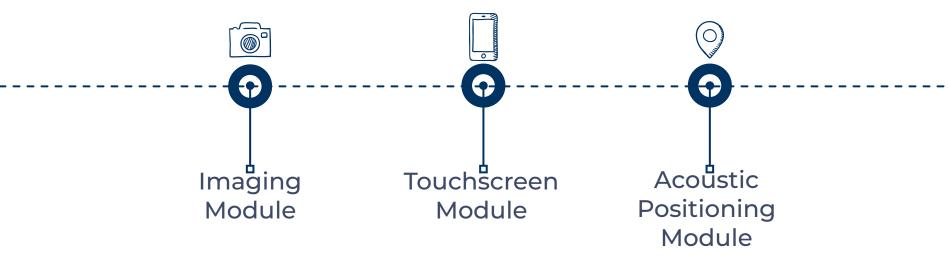
- Year, major
- Fun
- Facts
- Interests

Pictures

ASE Name - Lab ASE

- Year, major
- Fun
- Facts
- Interests

Pictures

About Lab!

Semester Outline

Imaging
Module

Touchscreen
Module

Acoustic
Positioning
Module

Policies

- Labs for this class are not open section, **you must go to your assigned lab section** .
- Credit for each lab is based on completion and checkoff with a lab TA/ASE during your assigned lab section.
- In a checkoff, you will demonstrate your work from portions of the lab and answer conceptual questions related to the lab. You should aim to get checked off by the end of your lab section.

Policies

- If (and only if) you attend your lab section for the whole duration but do not finish in time, you may get checked off at the beginning of your next lab section before starting the following lab.

Lab Grade

Number of Labs Missed	What happens?
0	You get full lab credit - 45/45
1	You get almost full lab credit - 44/45
2	You get most lab credit - 42/45
3	You get half lab credit - 23/45
4	You Fail the class - final letter grade: F

Buffer Labs

- During buffer lab periods, you may get checked off for only one missed lab that occurred during that lab module.
- No other labs can be checked off.
- The eligible labs for makeup for each buffer lab period are indicated on the course schedule.

Action Item: Instructional Accounts

- To use the computers at the lab stations, you will need to login using your instructional account
- Create an EE16A account by logging into acropolis with your CalNet ID.

- Click "Create an Account" for EE16A and wait for the page to create an account.

- You will be presented with an ee16a account and a password and prompted with an option to send the account information to an email. Please email this account information to yourself.

Action Item: Instructional Accounts

- On a Windows computer, you can change your password by hitting Control + Alt + Delete and selecting "Change Password". Follow the prompt to permanently change your password.
- If you ever forget the password that you set, you can reset it by going to acropolis and resetting the password associated with that account.

Bootcamp Time!

Jupyter Notebook

A web-based interactive computational environment

- Document containing an **ordered list** of input/output cells
- Can contain code, text, mathematics, plots and rich media
- .ipynb file extension
- But what does this look like?

Jupyter Notebook

- **Ordered** list of **input & output**

Condit

```
In [ ]:   # Examp

          x = 16

          if x >
                pri
          else:
                pri
```

```
In [ ]:   # Examp

          x = 16

          if x >
                pri
          elif x
                pri
          else:
                pri
```

Jupyter Notebook

- **Ordered** list of **input & output**
- Control/Command + Enter to run current block
- Shift + Enter to run and move forward

Conditional

```
In [1]:  # Example 1:

         x = 16

         if x > 20: #
             print('i
         else:
             print('i

         if condition
```

```
In [2]:  # Example 2:

         x = 16

         if x > 20: #
             print('f
         elif x > 10
             print('f
         else:
             print('N

         first if con
```

Loop-Contr

```
In [3]:  # Example 3:

         i = 0
         while i < 5:
             print('i
             i += 1 #

         i: 0
         i: 1
         i: 2
         i: 3
         i: 4
```

Jupyter Notebook

- **Ordered** list of **input & output**

- *Order matters!*

```
In [ ]: a = True
```

```
In [ ]: if a:
            print("hello")
        else:
            print("goodbye")
```

```
In [ ]: a = False
```

Jupyter Notebook

- **Ordered** list of **input & output**

- *Order matters!*

```
In [1]: a = True

In [2]: if a:
            print("hello")
        else:
            print("goodbye")

        hello

In [3]: a = False
```

Jupyter Notebook

- **Ordered** list of **input & output**

- *Order matters!*

```
In [1]: a = True

In [4]: if a:
            print("hello")
        else:
            print("goodbye")
goodbye

In [3]: a = False
```

Jupyter Notebook

- **Ordered** list of **input & output**

- Asterisk means it's still running or it is queued up to run

Loop-(

In [*]: `# Exam`

`i = 0`
`while`
`    i`

Unlike w

Jupyter Notebook

- Text/Markdown

- Control/Command + Enter to format current block

- Shift + Enter to format current block and move forward


```markdown
# Table of Contents
* [Overview](#overview)
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    * [Useful Functions](#funcs)
* [Miscellaneous Functions](#misc)
* [Questions](#qs)
```

Running Jupyter

- Download the ZIP file from the course website
- Extract the files
- Right-click in the window and click 'Anaconda Prompt Here'
- Enter 'jupyter notebook' in the command line

Python Bootcamp

- Review Python

  - List comprehension

- Introduction to NumPy - scientific computing in Python
  - NumPy functions: np.linspace, np.eye, np.transpose, np.linalg.inv, np.dot

  - NumPy objects: arrays, matrices

  - NumPy array slicing, array reshaping

  - All the tools you will need for future labs

Checking-off Today

- No graded check-off for Python Bootcamp
- Work on Python Bootcamp
- Follow the directions linked at bottom of the lab
  - Fill out Google form
- During checkoff:
  - Introduce yourself: **name, major, year, hobbies**
  - Open the Python Bootcamp
  - Demonstrate how to run a code block
  - Find this presentation on the website