EECS16A Lab

Welcome! We'll be starting at 8:10 PM.
Please open the lab notebook using
http://tiny.cc/bootcamp-fa21

Today's Agenda

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

Survey Time!
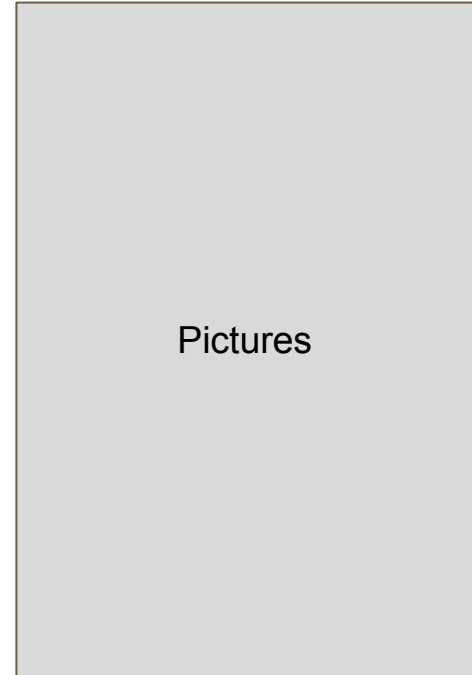
About Us!

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 Lab 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

- Some lab sections are "buffer labs." These occur during several-day periods in which no new labs begin and are offered during all regular lab times.
- If you have already completed all labs for a particular lab module, you do not need to attend the buffer lab for that module.

Buffer Labs

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

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
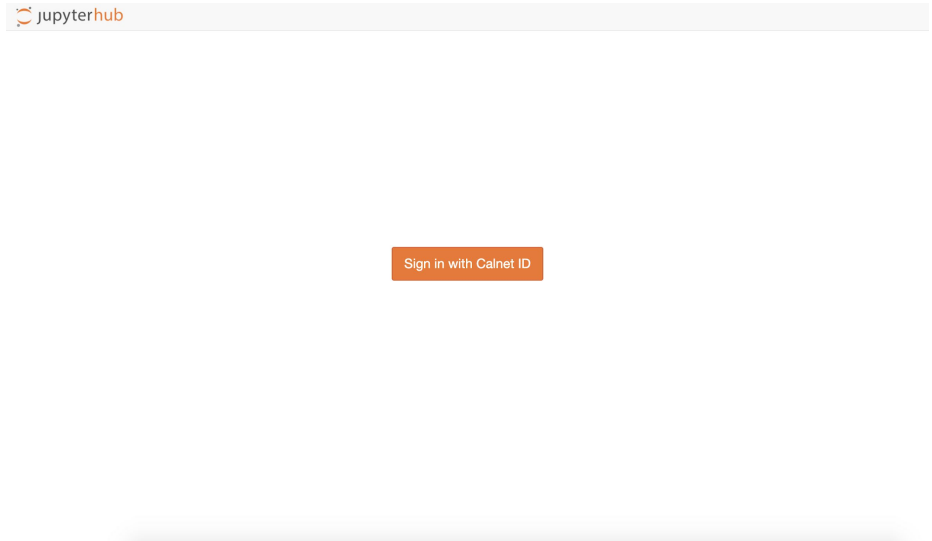
Jupyter Notebook

- Text/Markdown

- Control/Command + Enter to format current block

- Shift + Enter to format current block and move forward


```
# Table of Contents
* [Overview](#overview)
* [Python](#python)
    * [Control Flow](#ctrl)
    * [List Comprehension](#lst)
* [NumPy](#numpy)
    * [Arrays](#arrays)
    * [Slicing](#slice)
    * [Useful Functions](#funcs)
* [Miscellaneous Functions](#misc)
* [Questions](#qs)
```

Running Jupyter Online

- You can run Jupyter notebooks online using DataHub, without needing to install anything locally
- The DataHub link for each lab is on the course website
- Login with your CalNet credentials (berkeley.edu email)
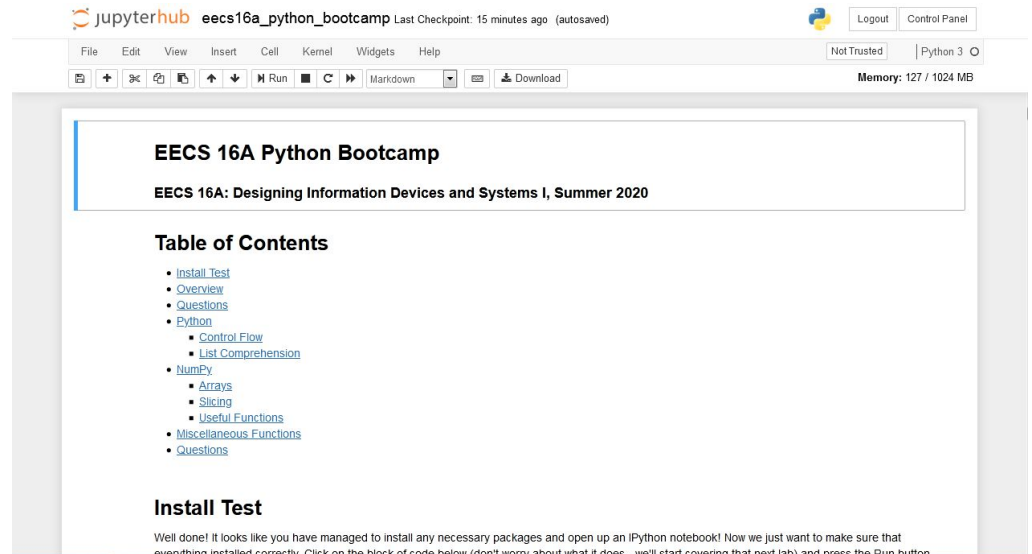
Running Jupyter Online

- Select the corresponding lab folder in the directory
- Click on the .ipynb file to launch the notebook in another tab
- P.S. Remember to hit logout to make sure your work is saved to the cloud

Running Jupyter Online

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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
  - Submit checkoff request on Lab Queue (one per group)
- 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
- Lab Group Request form: ***LINK HERE***
- Lab Queue: lab.eecs16a.org