

J233

Advanced Coding

LECTURER
Soo Oh

PROMPTS

- Check in to Poll Everywhere:
<https://pollev.com/soooh>
- Set your phone/laptop to Silent or Do Not Disturb.

start Zoom recording + captions

Agenda

About J233

BREAK (at some point)

Lecture: Variables

J233

Intros

Course overview

Policies

Grades

Office hours

BREAK

```
$ whoami
```

```
soo_oh
```

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BREAK

What you'll learn

Basic programming principles

How to analyze data in Python

How to make a chart in Python

How to document your code

How to write methodologies

How to make your data analysis reproducible

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What you'll learn

Technology standards

Communication (a.k.a. so-called “soft” skills)

The culture of data (governance, open source, stewardship, sovereignty)

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Recommended prerequisites

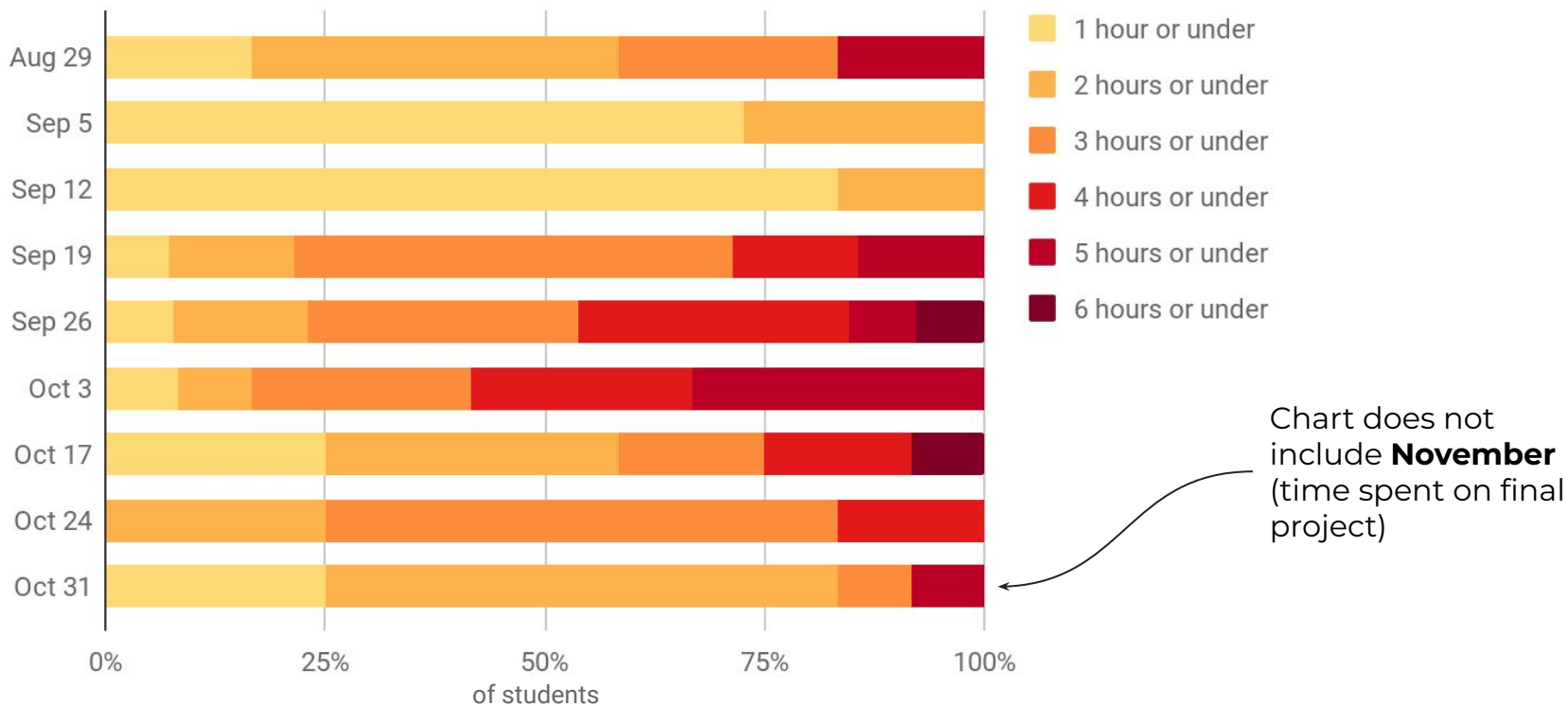
Spring 2023 classes

- J220 Intro to Coding with Yoli Martinez and Soo Oh
- J296 Data Journalism with Dana Amihere

Prior experience in Python, R, or other high-level programming language

elective \neq easy

Time spent on J223 per week (Fall 2022)



What has been most helpful for your learning?

From last year's students

The **presentation** part of the lecture.

I really can't tell. Feeling I'm struggling all the time.

I have begun to love doing **homework** for this class... I find them highly stimulating and Soo makes it easy to understand the basics. I think that **having the material online**, and the very well created **slides** are all helpful.

The **slides** are clear and **shared before the class**, so I can follow it in class and refer back to it when I get lost.

Working through problems and coding exercises **in class** has been very helpful

Learning the for loops and other functions is very helpful.

Doing homework and **taking notes** and **practicing in in-class notebooks**. And Soo's **office hours**.

I'd say this last lecture when **all the notes were in the notebook** versus slides were really helpful for following along.

Homework critique

I think the **assignment** is very helpful. While doing the assignment, we would also go back and see the slides/python notebook again. Soo's also very helpful when we have problems.

What has caused you the most difficulty in terms of learning?

I think the **project work is slightly hard**, but not in a bad way, as it shows that there is some learning that is occurring.

I took a while **understanding the loops**.

I'm always bound to get stuck somewhere when **doing homework**. What we learned in classes doesn't apply to homework. And it took too much time and energy to solve the homework...

It feels **difficult to ask for help** sometimes - especially as someone new to the coding world.

Not sure. Certain methods are more difficult to learn anyway.

Nothing I can think of yet.

Sometimes I **spend too much time on the work** (or searching on the internet for more information) I feel like I need to shorten the time and learn more efficiently.

Sometimes the **lecture is a bit too fast for me** to catch up, and the **screen in the lecture room is not very clear to see**, bringing some friction for me to process information.

Sometimes **we go a little too fast**, but I understand it's a lot to teach.

What suggestion(s) can you make that would enhance your learning experience?

Have some story ideas in mind before the school starts to get myself more prepared.

I think this will be done later, but I would like to **work on project work examples in class** too to help with understanding the processes.

If the **difficulty level can be distributed more broadly**.

If we could **slow down sometimes** in class that would be helpful. Also perhaps **sharing the lecture notebook**/having the notes be embedded in the notebook.

It will be better to **slow down** and give students more time to ask questions more often.

More guidance on the final project?

More **in-class practice**, like little quiz/poll questions.

More opportunities to work through problems and assignments **in class**

That Soo can **explain things a little slower**.

Why is there always something in the homework that is not covered in classes?

What advice would you give to another student who is considering taking this course?

Definitely take it if you want to learn some practical skills.

Don't change your final project too often through the course of this class, you'll run out of time to do a full analysis of your data.

I'd highly recommend this class to anyone interested in coding or data journalism!

It just introduce you to the tools, but what we learned in the class isn't very helpful in real work.

Very good practice for data analysis! But better have basic knowledge of the process of data analysis (e.g. identify questions, clean dataset...etc)

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Our agreements with each other

I will post slides ahead of lecture.

I will be available by office hours.

You will keep up with assignments.

You will come to office hours if you're having trouble.

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Sept. 25: There will be an **online lecture** to accommodate travel I have for my full-time job.

There will be no lectures on **Labor Day (Sept. 3)** and **Indigenous Peoples' Day (Oct. 9)**. So we only have **13 classes** together.

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We'll adhere to Berkeley time and start lecture promptly at **6:10 pm**. We will have a **15-minute break** in the middle of lecture.

I don't care if you're late, but please give me a heads up if you can, and do not be disruptive when coming into class.

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Set your phone to **silent** or **Do Not Disturb** mode before class begins. Do not text or answer calls during class. If it's an emergency, quietly step outside to take the call.

Bring your laptop to class.

Don't check email, social media, notifications, or the news (!!!) during the lecture portions of the class. Be respectful of both my time and other students'.

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BREAK

Try your hardest to receive feedback constructively. Your work will be subject to intensive and substantial editing in the future.

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BREAK

I'm **recording** all lectures and posting them to bCourses, but sometimes I make mistakes, sometimes the audio quality isn't great, etc.

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A lecture may be remote for COVID-19 related quarantines, poor air quality due to fires, power outages, instructor illness or exposure, changing public health guidance, etc.

If a class needs to be shifted to Zoom, I will send an announcement by **email** and **Slack**. I will also send a Calendar invite with the Zoom link.

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Participation

Participation is worth 5 points.

If you miss class, you won't get participation points. That goes for any reason, including reporting trips, illness, family emergency, etc.

If you Zoom from home for lecture, you will still be required to participate to receive points.

You will have extra credit opportunities.

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Assignments

All assignments must be submitted **on time** in bCourses.

Homework is typically assigned at Monday lecture, then due the coming **Saturday at 11:59 pm**. I'll do grades on Sunday. We'll review homework at the beginning of the following Monday lecture.

I've made changes to this policy before, with feedback and participation of the class. We'll see how things go!

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Assignments

An assignment will be dropped a full letter grade for every 24 hours that pass after the deadline, starting the minute after deadline. I'll dock points for late assignments, except for excused medical and family emergencies.

For example, an assignment with no mistakes will be graded as 90% one minute after deadline, 80% one minute and 24 hours after deadline, etc.

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Final Project, Presentation, and Note-taking

Your final project will be a set of extensively documented, reproducible data notebooks.

One week before submission of the notebooks, you will present your project to the class.

You will also take notes for a classmate on their presentation.

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BREAK

	Points
Participation	60
Assignments	270
Final Project, Presentation, and Note-taking	160
One Zoom 1:1	10
Total	500

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BREAK

Office hours

Book Zoom office hours with me here:

<https://calendly.com/soooh/j233>

I'm on the J-school Slack.

Join the **#j233** channel!

You can also email me at soo@berkeley.edu.

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Office hours

I'll wait **10 minutes** for you to arrive. If you're going to miss office hours after booking, please cancel it **before 9 am that day** by **emailing soo@berkeley.edu** OR **Slacking me on the J-School Slack.**

Extra credit: +1 point for coming to office hours (max 1 point a week)

Extra debit: -1 point for missing office hours without notification

Lecture

Variables

What is a variable?

Naming conventions

Reserved keywords

What is a variable?

It's a name that stores a value.

Variables

What is a variable?

Naming conventions

Reserved keywords

All-capped variables denote constants, or variables that don't change (it's a style across programming languages).

Variables that start with an uppercase letter denote a class — don't use them for now.

For now, start each variable with a lowercase letter.

Variables

What is a variable?

Naming conventions

Reserved keywords




```
# Python
```

```
x = 7
```



```
# R
```

```
x <- 7
```



```
// JavaScript
```

```
var x = 7
```



```
// JavaScript/ES6
```

```
let x = 7
```

```
const x = 7
```

Variables

What is a variable?

Naming conventions

Reserved keywords

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```
const x = 7
```

Variables

What is a variable?

Naming conventions

Reserved keywords

Naming conventions

Python

```
ucb_age = 153
```

R

```
ucb.age = 153
```

```
ucb_age = 153
```

JavaScript

```
ucbAge = 153
```

Variables

What is a variable?

Naming conventions

Reserved keywords

Naming conventions

Python

```
ucb_age = 153 # snake_case
```

R

```
ucb.age = 153 # historic, risk of confusion
```

```
ucb_age = 153
```

JavaScript

```
ucbAge = 153 # camelCase
```

Variables

What is a variable?

Naming conventions

Reserved keywords

Formatting is arbitrary! **ucbAge** will work in Python and R, and **ucb_age** will work in JavaScript. (EXCEPTION: **ucb.age** will break in Python and JavaScript.)

It's like AP style or Chicago style — you have your preferences, but you follow whatever the person in charge wants you to use.

You should follow the code style of the organization.

Variables

What is a variable?

Naming conventions

Reserved keywords

Python reserved keywords

you can't use these words for variables

```
False None True __peg_parser__ and as assert async  
await break class continue def del elif else except  
finally for from global if import in is lambda  
nonlocal not or pass raise return try while with  
yield
```

1. Download Jupyter Desktop

<https://github.com/jupyterlab/jupyterlab-desktop>

2. Download 0828notebook.ipynb from class website

<https://journ233.github.io> (scroll to today)

Download Jupyter Desktop

<https://github.com/jupyterlab/jupyterlab-desktop>

Installation

If you have an existing JupyterLab Desktop installation, please uninstall it first by following the [uninstall instructions](#).

- [Debian, Ubuntu Linux Installer](#)
- [Red Hat, Fedora, SUSE Linux Installer](#)
- [macOS Intel Installer](#) [macOS Apple silicon Installer](#)
- [Windows Installer](#)

Additionally, JupyterLab Desktop can be installed on Windows via winget: `winget install jupyterlab`.

Please check out the [Python Environment Customization Guide](#) if you plan to customize the Python environment to add new packages.

There are 2 different installers for Mac — choose the right one!

Break

Meet back in 15 minutes.

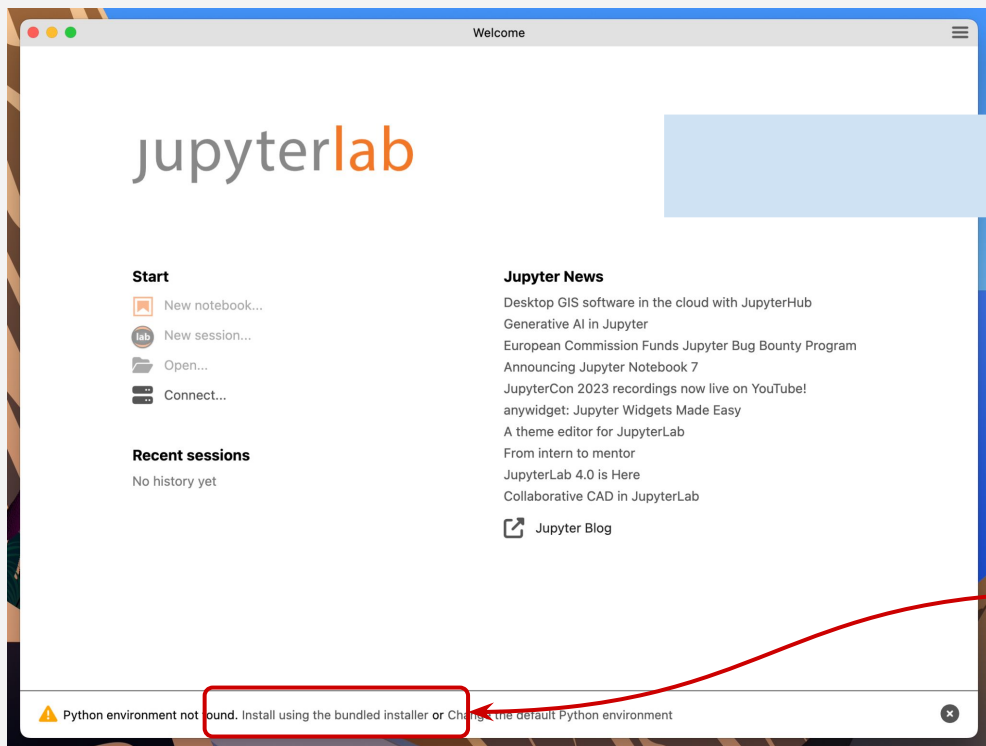
**Soo note to
self: Uninstall
Jupyter
Desktop**

Let's install JupyterLab



Screenshare

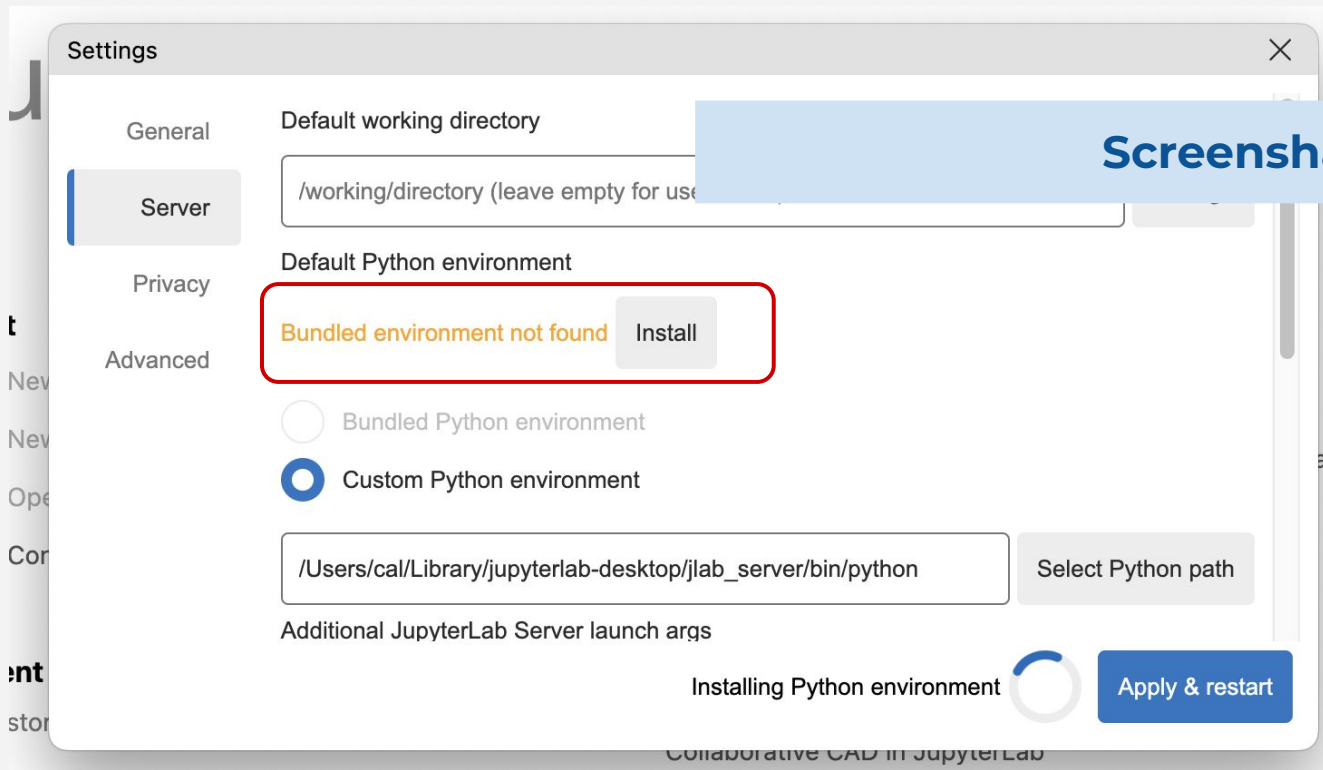
JupyterLab



Screenshare

Install

JupyterLab



Screenshare

JupyterLab

Markdown

Python

`print()`

Commenting out
code

Variables

`input()`

Clearing kernel

Download **0828notebook.ipynb** from the class website and open it in **Jupyter Desktop**.



Screenshare

Homework

<https://journ233.github.io>