

Welcome to COGS 18:

Introduction to Python

COGS 18

Jason Fleischer, PhD

UC San Diego

Department of Cognitive Science

✉ jfleischer@ucsd.edu

Reminder: This is being recorded



TAs

Shivani Bhakta

Zoe He

Pooja Pathak

IAs

Sharai Barrera

Jose Deleon

Irisa Jin

Shad Reyes

Jeffrey Sun

Wenqian Xu

Note: CodingLabs begin **Week 1**

Remote and (maybe) in-person Learning

1. Lectures will be recorded/podcast and simultaneous Zoom.
2. Attendance will be neither required nor incentivized.
 - a. BUT in-person is a great way to be an active learner!
 - b. Active learning is better learning!
3. Exams will be take-home.

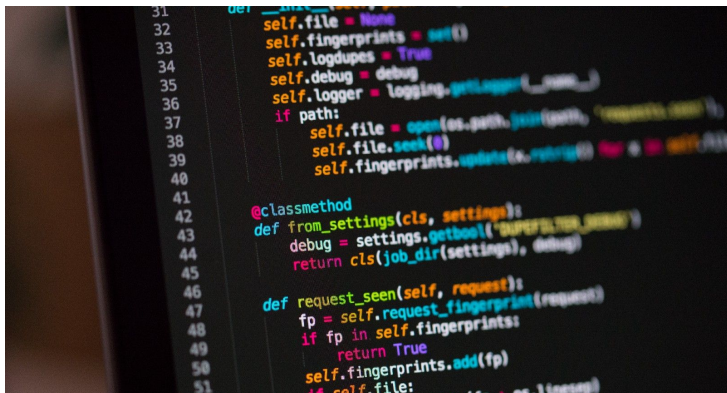
The (dreaded) waitlist

1. I do not handle the waitlist - our staff (cogsadvising@ucsd.edu) do
2. I do not have access to the waitlist nor the system that enrolls students from the waitlist.
3. Typically ~3-5 students from each section are enrolled by our staff
4. The waitlist clears at the end of week 2.

If you email me about the waitlist or your specific circumstance/need to take this course this quarter, I will point you to cogsadvising@ucsd.edu.

Let's chat: Teaching &
Learning Programming

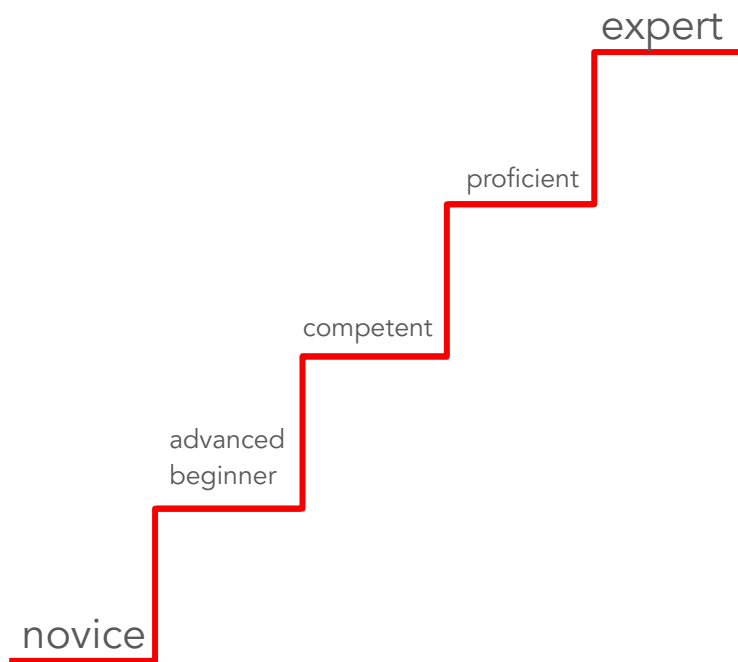
Intro Programming courses
are often **thought of as**
difficult and are courses with
the **highest dropout rates**



....yet, the only thing that is slightly
predictive of success in an intro
programming course is...*how successful*
the student thinks they will be

Things that do NOT predict success:

- gender
- age
- personality
- math ability



My goal is to have you all be able to **program at an introductory level**

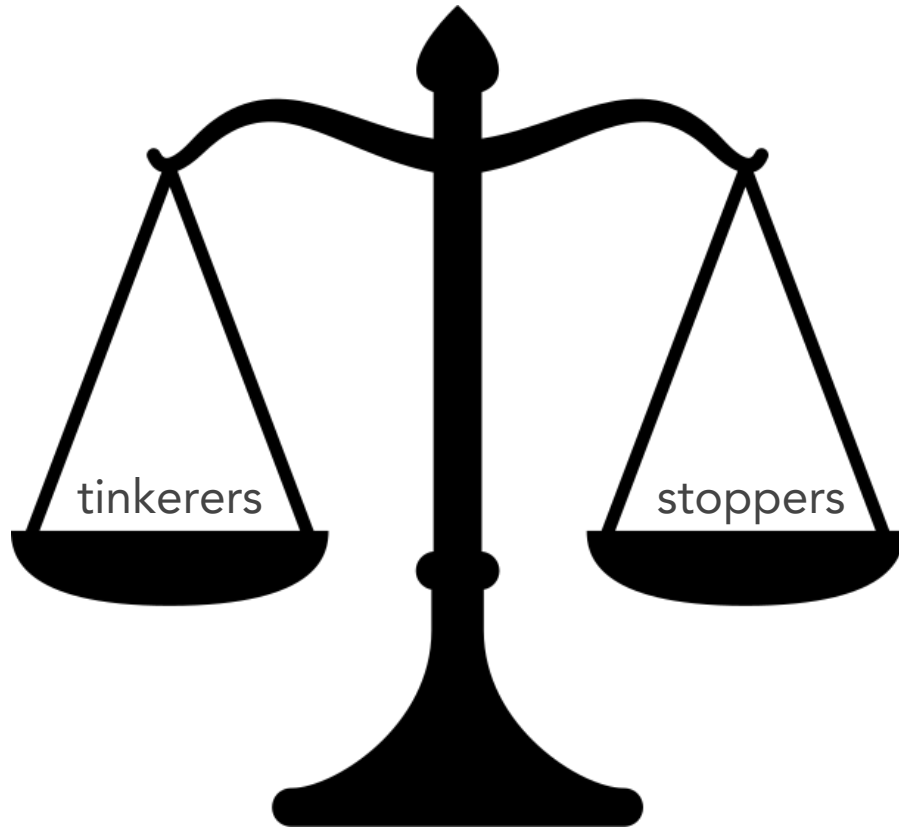
It's generally accepted that it takes people **10 years to move from novice to expert programmer**. But, there are lots of steps in between! We're working to move you further away from novice (& in the direction of expert) than you are right now.



Mixed Messages: We tell people learning to program will be tough and frustrating but that if you're not having fun, you're doing it wrong.



Building Blocks: Too often, we also tell people to “just try things out” without explaining basic concepts. Other courses aren’t taught this way...



Be a mover: Make forward progress. Strike a balance between just stopping and tinkering forever.

If you're not moving forward, consider the **2-hour rule**.

If you're trying to figure something out and struggling to move forward at all, consider the 2-hour rule. If you're stuck, **work on the problem for an hour**. If you're still stuck, walk away & **take a 30 min break**. Then, **try again for another 30 minutes** or so. If you're **still completely stuck, stop and contact us** (come to office hours, post on Piazza). If you're not even sure what your question is, include what information that you do have - what you're stuck on, what you've tried, error messages you've received, etc.

Why Python?

simple(r) syntax


widely-used

Jupyter Notebooks

*"It's not the best language for anything, but
it's the second best for everything"*

-Brad Voytek





COGS 18: How this course is going to work

To avoid the common pitfalls of intro programming courses, we're going to take the following approach:

1. First 2/3 of course: basic concepts
2. In-class practice (no stakes)
 - a. Zoom poll questions for comprehension
 - b. time to apply what was just explained
3. Coding Labs (low stakes)
 - a. Notebooks provided
 - b. Staff/classmates there to help
 - c. Checked for effort, not correctness
4. Assignments (mid stakes)
 - a. Completed individually (*can* work together)
 - b. Programmatically graded
5. Midterms (high stakes)
 - a. Completed totally individually

COGS 18: How You'll Be Evaluated

	% of Grade	Requirement
Coding Labs	16%	Participate In 8 Coding Labs
Assignments	40%	Complete 5 assignments
Midterms	25%	2 midterms
Final	19%	Complete final project or final exam

CodingLabs:
apply concepts
discussed in
lecture using
coding labs
(16%). Practice
makes progress.

Attempt for full credit (2% each)

- Have to make a concerted effort to complete labs
- Coding Labs will be submitted on datahub
- Answers will be sent out the following week
- Can work with others

You should attend the section to which you're assigned. You can attend a different section. However, if one section becomes too crowded each week, we'll revisit this policy.

Labs will always be due Wednesdays @ 11:59PM.

(5) Assignments
(40%) : Jupyter
notebooks that are
completed
individually &
graded
programmatically.

Assignments always be due Fridays @ 11:59PM.

Assignment	Week	Median Time Spent (hours)
A1	wk3	2
A2	wk5	4
A3	wk6	4
A4	wk8	5
A5	wk10	5

Assignment Submission @ Datahub: <https://datahub.ucsd.edu>

DATA SCIENCE / MACHINE LEARNING PLATFORM

UC San Diego

Information Technology Services - Educational Technology Services

Help Options ▾



Log In

Registered Users
"username@ucsd.edu"

UC San Diego Jupyterhub (Data Science) Platform

In technical
classes, **Piazza** is
a particularly
helpful resource

There are **rules**:

1. No duplicates.
2. Please tag with Assignment. Include Assignment & Question numbers in Summary line.
3. **Posts must include your question, what you've tried so far, and resources used.**
4. Public posts are best.
5. Helping one another is encouraged.
6. No assignment code in public posts.
7. We're not robots.

<https://piazza.com/class/l84mqraemi03p0>

(2) Midterms (25%): Exams are open-book/open Google but **completed on your own**. Each will include a **combination of types of questions**. There will be a **flexible time window** when these exams can be taken/submitted.

(1) Final Project or
Exam (19%): will be
completed
individually and
submitted
electronically on the
day of the final.

It will be up to you which you do. The **project** will help you learn more and has the opportunity for EC and an A+ in the course, but takes longer. The **exam** takes less time, but the highest grade you can earn in the course is an A and must be completed on your own. You do not have to show up anywhere on the day of the actual final.

Platform	URL
Daily Lecture Notes	Click to get updated lecture notes in datahub
Daily Participation Survey	Link to Daily Lecture Participation Survey
Course website	LINK SOON
Piazza	https://piazza.com/class/l84mqraemi03p0
datahub	https://datahub.ucsd.edu/
Lecture Videos	Media Gallery (on Canvas; link at left)
Coding Lab Slides	https://drive.google.com/drive/folders/1f-iNk4MOq3_xB6tsjJSFX4waWrgxhEAN?usp=sharing (must use UCSD gmail account)

Schedule

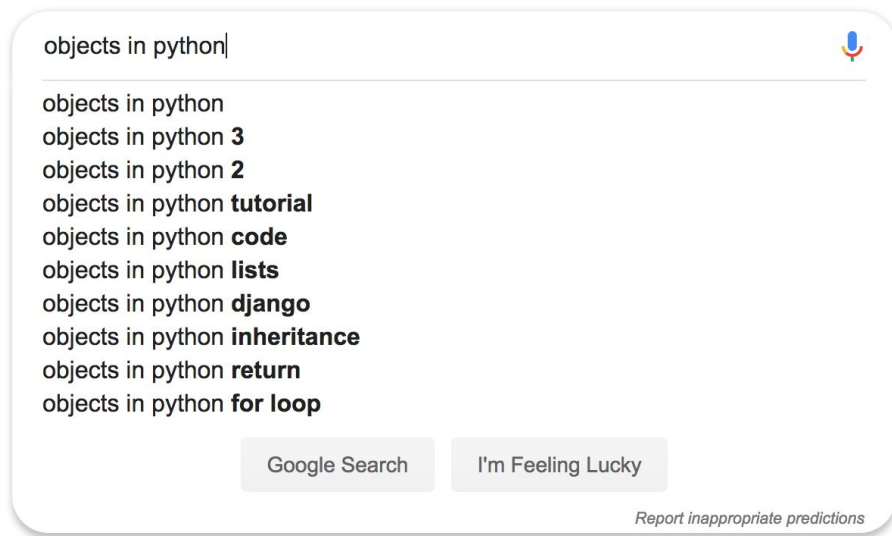
All exam
and due
dates are
all listed
on the
course
syllabus
and are in
Canvas

	Week	Day	Topic	Section covers	Lab due	Assignment due	Exam
9/23/2022	0	F	Welcome!				
9/26/2022	1	M	Introduction				
9/28/2022	1	W	Tooling	CL1	CL1		
9/30/2022	1	F	Variables				
10/3/2022	2	M	Operators I				
10/5/2022	2	W	Operators II	CL2	CL2		
10/7/2022	2	F	Functions				
10/10/2022	3	M	Conditionals I				
10/12/2022	3	W	Conditionals II	CL3	CL3	Checkpoint	
10/14/2022	3	F	Collections			A1	
10/17/2022	4	M	Debugging *				
10/19/2022	4	W	Review	CL4	CL4		
10/21/2022	4	F	Loops				E1
10/24/2022	5	M	Loops II				
10/26/2022	5	W	Algorithms (possible to add ii?)	CL5	CL5	Checkpoint	
10/28/2022	5	F	Methods			A2	
10/31/2022	6	M	Classes I				
11/2/2022	6	W	Classes II	CL6	CL6	Checkpoint	
11/4/2022	6	F	Classes III **			A3	
11/7/2022	7	M	Python Party				
11/9/2022	7	W	Review	CL7	CL7		
11/11/2022	7	F	No class - Veterans day				E2

Any questions about
course logistics?

Where to turn for **help**
and practice when
learning to program?

Including “in python” in your
Google search can be magic

A mockup of a Google search interface. At the top, a search bar contains the text "objects in python|". To the right of the search bar is a microphone icon. Below the search bar, a list of search suggestions is displayed: "objects in python", "objects in python 3", "objects in python 2", "objects in python **tutorial**", "objects in python **code**", "objects in python **lists**", "objects in python **django**", "objects in python **inheritance**", "objects in python **return**", and "objects in python **for loop**". At the bottom of the suggestions list are two buttons: "Google Search" and "I'm Feeling Lucky". Below these buttons is a link that says "Report inappropriate predictions".

objects in python|

objects in python
objects in python 3
objects in python 2
objects in python **tutorial**
objects in python **code**
objects in python **lists**
objects in python **django**
objects in python **inheritance**
objects in python **return**
objects in python **for loop**

Google Search I'm Feeling Lucky

[Report inappropriate predictions](#)

StackOverflow probably has the answer to your question

[Home](#)[PUBLIC](#)[Stack Overflow](#)[Tags](#)[Users](#)[Jobs](#)

Teams
Q&A for work

[Learn More](#)

Tags

A tag is a keyword or label that categorizes your question with other, similar questions. Using the right tags makes it easier for others to find and answer your question.

[Popular](#) [Name](#) [New](#)[python](#) × 1137913

a multi-paradigm, dynamically typed, multipurpose programming language, designed to be quick (to learn, to use, and to

1085 asked today, 6241 this week

[python-3.x](#) × 151128

For questions about Python programming that are specific to version 3+ of the language. Use the more generic [python] tag

273 asked today, 1641 this week

[python-2.7](#) × 89413

the last major version in the 2.x series. Do not use this tag simply to convey the version of Python you're using, unless the question

40 asked today, 219 this week

[python-requests](#) × 9229

a full-featured Python HTTP library with an easy-to-use, logical API.

8 asked today, 81 this week

[wxpython](#) × 6191

a Python wrapper for the cross-platform C++ GUI API wxWidgets.

20 asked this week, 52 this month

[ipython](#) × 6036

a feature-rich interactive shell for Python, and provides a kernel for frontends such as IPython Notebook and Jupyter Notebook.

15 asked this week, 65 this month

[python-imaging-library](#) × 4495

The Python Imaging Library (PIL) provides the Python language with a de-facto standard foundation for image work. PIL's

23 asked this week, 113 this month

[python-3.6](#) × 3882

Version of the Python programming language released in December 2016. For issues specific to Python 3.6. Use more

10 asked today, 43 this week

[python-3.5](#) × 3260

The version of the Python programming language released on September 13, 2015. For issues that are specific to Python 3.5.

9 asked this week, 34 this month

[python-import](#) × 3150

For questions about importing modules in Python

18 asked this week, 58 this month

[python-3.4](#) × 2594

The version of the Python programming language released on March 16, 2014. For issues that are specific to Python 3.4. Use

6 asked this month, 126 this year

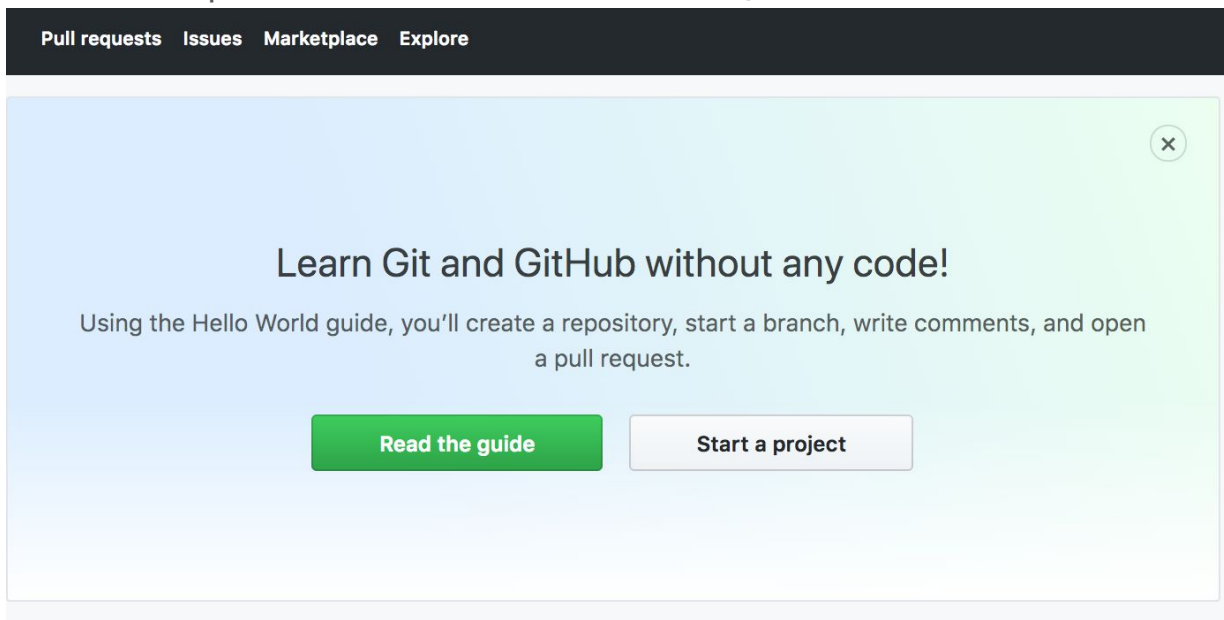
[python-sphinx](#) × 2365

a tool that makes it easy to create intelligent and beautiful documentation. Sphinx is especially suitable for Python

9 asked this week, 34 this month

GitHub: programmers' social media platform

Code is shared on GitHub. In the beginning, it may be intimidating, but I encourage you to familiarize yourself with the platform and share code you write on GitHub.



There are also
**COGS18-specific
avenues** when
looking for help

Questions in **CodingLabs**, coming to
office hours, talking to your **classmates**,
or reaching out for help on **Piazza** are
all options for you. You're encouraged
to help one another on Campuswire!

A message for
first-gen students,
transfer students,
and those who
don't have older
siblings/friends who
have attended
UCSD/university

If you are struggling, come to office hours. Ask questions on Piazza. Reach out to me to ask for better approaches. Your classmates ARE doing this. And, you're not alone.

If you need a bit longer on something b/c you fell sick, a family thing came up, work called you in for an extra shift, etc., ask for an extension. Your classmates ARE doing this.



Today I used a PDF slideshow,
but every other day of class,
lecture notes will be presented
in a **Jupyter notebook**



I'm excited to have you all in
COGS 18 this quarter & I'd love
to learn more about you: [Link to
Survey](#) (link also on Canvas)

...and reminder for [daily lecture survey](#)