

# COGS 18: Introduction to Python

Spring 2020

MWF 8-8:50 (remote)

---

## A NOTE ABOUT SPRING 2020

This Spring 2020 quarter will be unique in many ways. While students have *always* been under a fair amount of pressure and stress, the struggles students may encounter this quarter go beyond what is typical. I want you all to know that I fully understand this.

My goal in teaching COGS 18 this quarter with remote learning is for you to all be able to focus on the course content materials and learn the material in a flexible learning environment. Attendance will be neither required nor incentivized; however, there will be regular deadlines to help keep you all on track.

While flexibility has been built in at every turn this quarter, that does not ensure this will work for all students. If you find yourself falling behind, please do reach out to Prof. Ellis. She will work as hard as necessary to ensure success for all her students this quarter in COGS 18.

---

## COURSE OVERVIEW

Welcome to COGS 18! The core goal of this class is to teach you introductory, hands-on skills for computer programming, specifically using the Python programming language. We aim to do so in a way that fits well within the cognitive science department, using particularly-relevant use cases. Our approach is to focus on programming as a tool and to get you started with the necessary background and basic skills required to get you reading and writing code. We aim to provide you with a strong foundation so that you can continue programming after you leave this class, applying the skills you learn here to your domain or topic of interest.

---

## COURSE STAFF & INFORMATION

**Instructor:** Shannon Ellis (sellis@ucsd.edu)

**Instructor Office Hours:** Friday, 11AM -1PM (zoom: TBD)

Role	Name	CodingLab	Office Hours
TA	Annie Bhattacharya	1 PM; 2 PM	Mon 12-1 PM
TA	Mudit Jain	9 AM; 10 AM	–
TA	Ashlesha Vaidya	4 PM; 5 PM	Fri 3-4 PM
TA	Paul Ian Cabasag	4 PM; 5 PM	Mon 3-4 PM
IA	Melody Wong	11 AM; 12 PM	Mon 1-2 PM
IA	Jitarth Sheth	12 PM; 3 PM	Fri 3-4 PM
IA	Fidella Wu	3 PM	Fri 1-2 PM
IA	AP Nguyen	11 AM	–
IA	Griffin Goldberg	1PM; 2 PM	Mon 12-1 PM
IA	Geoff Lizar	9 AM; 10 AM	Fri 9-11 AM

Course Website: <https://cogs18.github.io>

Canvas Course: <https://canvas.ucsd.edu/courses/12653> Course Piazza\*: <http://piazza.com/ucsd/spring2020/cogs18>

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

Course Feedback (anonymous): Google Form

\*You will be able to post anonymously on Piazza; however, you will only be anonymous to your classmates. Your Instructor and TAs will be able to see who you are.

---

## COURSE OBJECTIVES

- Program at an introductory level in the Python programming language
- Read basic Python programs, recognizing the structures they use and be able to explain how they work
- Solve basic problems using programmatic solutions
- Write and debug small Python programs
- Execute Python programs on your local computer, using notebooks and the command line
- Describe and implement best practices in Python, keeping in mind that programming is done by and for humans

To achieve these objectives, information will be presented during lecture. You will have the opportunity to program in lecture, during coding lab, and throughout all assignments and your final project. Examples throughout this course will be related to cognitive science, focusing on data analysis, artificial intelligence, human-computer interaction, and programmatic thinking.

---

## COURSE MATERIALS

- All materials will be provided via the [course website](<https://cogs18.github.io>)
- Software: Python  $\geq 3.6$  (Anaconda distribution); Jupyter Notebooks
- iclickers will *NOT* be used this quarter
- No required textbook; optional textbook: <https://shanellis.github.io/pythonbook> (currently under development; feedback welcome)

Detailed instruction for software installations/access will be listed on the course website and provided across week 1 coding labs. All of the software is freely-available for download.

Note: If you do not have consistent access to the technology needed to fully access remote instruction options, please use the form below to request a loaner laptop for the period during which you will be learning remotely due to the COVID-19 pandemic: <https://eforms.ucsd.edu/view.php?id=490887>. (For any issues that you may have, please email [vcsa@ucsd.edu](mailto:vcsa@ucsd.edu) and they will work to assist you.)

---

## GRADING & ATTENDANCE

Grading:

	% of Grade	Requirement
Assignments	35%	Complete 5 Assignments

	% of Grade	Requirement
Exams	40%	Complete 2 online exams
Final Project	15%	Submit final project
Coding Lab	10%	Participate in 5 Coding Labs

**Final exam date:** No final exam, only final project deadline (Friday, 6/12 at 11:59 PM). You do not have to show up anywhere on the date of the final exam.

## Grades

All grades will be released on Canvas. It is your responsibility to check that your assignment was submitted, that your grade is accurate, and to get in touch if any are missing and/or you think there is a problem.

## Assignment Regrades

We will work hard to grade everyone fairly and return assignments quickly. And, we know you also work hard and want you to receive the grade you've earned. Occasionally, grading mistakes do happen, and it's important to us to correct them. If you think there is a mistake in your grade on an assignment, post *privately* on Piazza to "Instructors" using the "regrades" tag within 72 hours. This post should include evidence of why you think your answer was correct and should point to the specific part of the assignment in question.

## Attendance

Attendance will be neither required nor incentivized for any part of the course this quarter. This policy is in place because we do not want to disadvantage students working in different time zones.

While lectures and coding labs will take place during their scheduled PST times, there will be options for students to complete all work asynchronously.

## Lecture

Lectures will take place at their scheduled time for those who are able to attend. As typically occurs in COGS 18, students will be encouraged to follow along with the notes, will be given time to complete small coding challenges during lecture on their own, and will have the opportunity to see their classmates thoughts (via zoom polls, rather than with iclickers) during lecture.

However, every lecture will also be recorded and shared so that students who are not able to or choose not to watch during the scheduled class time are still able to receive and digest all class materials. If a lecture recording ever fails during class, Prof Ellis will re-record a lecture, ensuring all students have access to the material. Lecture recordings will be available on Canvas in the Media Gallery by noon the day each MWF after the live lecture is delivered.

## Coding Labs (10%)

Lab times will be used to get hands-on practice with the course material in a smaller group setting. As such, you will be provided with specific tutorials or activities each week that are focused on preparing you for the assignments and final project. Across the quarter there will be 7 different coding labs (week 1 through week 7).

Coding labs will be submitted in the same place as assignments using the same process; however, they will not be autograded for correctness. They will instead be spot-checked by instructional staff for concerted

student effort. This means that if you make a concerted effort to complete at least 5 of these coding labs, you will receive full credit for coding labs. If you attempt 4 of these, you'll receive 5% of the possible credit. If you attempt 3 or fewer, you will not receive coding lab credit.

While you're encouraged to work on these during your assigned lab time in the zoom session with instructional staff present (particularly if you're struggling with the material!), you are not required to do so. To receive credit for a coding lab, you have to submit your attempted coding lab for that week by Wednesday at 11:59 PM each week.

Weeks 8-10 of Coding Lab are completely *optional*. That said, these are really great times to work on your final project and to discuss your final project with instructional staff. Nothing will be submitted the final three weeks of coding lab, but you are *strongly* encouraged to login to zoom during your discussion time to brainstorm, work on, and get project-related questions answered.

Note: You should be signed up for a CodingLab for which you can attend. However, if you are unable to attend the CodingLab for which you are signed up, you are free to attend a different CodingLab any given week than the one in which you're assigned. Note that this policy could change if too many people are attending one CodingLab each week. We intentionally have CodingLab capped at 35 people so that students can get help from their TAs and IAs during this time, especially now that we'll be remote this quarter.

### Assignments (35%)

There will be five assignments, each worth ~7% of your final grade. Assignments will be hands-on coding assignments. Assignments are to be completed individually and submitted on Datahub. You will typically have about 1 week after release to complete each assignment. Assignments will be due on Mondays by 11:59 PM.

Late assignments will be accepted at 75% credit for the first week after the due date. One week after the due date, feedback will be sent via e-mail and assignments will no longer be able to be submitted for credit.

### Exams (40%)

There will be two "in-class" (read: online) exams. Each is worth 20% of your grade. There will be a flexible time window during which students will be able to start the exam. Once started, however, the exam will be timed and you must finish the exam within the allotted time.

The exams will include varied question types and taken virtually. The first exam will cover topics covered through the Encodings lecture. The second exam is cumulative – in programming, you can't forget the basics when learning the more advanced topics – but will focus heavily on the material taught from Functions I through Command Line lectures.

During exams this quarter, you *will* be allowed to consult outside resources (your notes, Google, etc.); however, you ***must complete the exam on your own without any type of communication with other humans***. For example, while you're allowed to look something up on Google or look over your class notes, you may not ask anyone about a question or their thoughts regarding your answer. You may not text/communicate on any messaging apps about the exam with anyone. You may not take the exam while looking at someone else's exam/computer.

As former students know, I take academic integrity seriously, but I also trust most students to do the right thing. I would rather spend more time teaching and less time ensuring that there is no way for students to cheat because let's be honest...there's *always* a way to cheat. I trust and am confident that the vast majority of students care about their education enough to take this seriously and am unwilling to spend all my energy focused on those students who do not. ::steps off soapbox::

## Final Project (15%)

Successful completion of this class will require you to complete an independent coding project worth 15% of your final grade. We will discuss the details elsewhere; however, briefly, you will either (1) expand upon one of the class assignments adding original elements or (2) write original code for a project topic of your choosing. The goal of this project is to demonstrate that you can write good, well-documented code that solves the problem you've set out to solve.

---

## COURSE SCHEDULE

Date	Week	Lecture	Day	Topic	Assignment	CodingLab
3/30	1	0	M	Why Program?		
4/1	1	1	W	Demo + Tools		CL1: Tech Setup + Tools
4/3	1	2	F	Notebook		
4/6	2	3	M	Variables		
4/8	2	4	W	Operators		CL2: Programming I
4/10	2	5	F	Conditionals		
4/13	3	6	M	Collections	A1: Getting Started	
4/15	3	7	W	Loops		CL3: Programming II
4/17	3	8	F	Encodings [*]		
4/20	4	9	M	Functions I	A2: Ciphers	
4/22	4	10	W	Review		CL4: Algorithms & Functions
4/24	4	–	F	<b>Exam I</b>		
4/27	5	11	M	Algorithms		
4/29	5	12	W	Functions II		CL5: Debugging
5/1	5	13	F	Errors + Debugging		
5/4	6	14	M	Objects	A3: Chatbots	
5/6	6	15	W	Classes		CL6: Classes
5/8	6	16	F	Namespaces		
5/11	7	17	M	Command Line [**]		
5/13	7	18	W	Review		CL7: Command Line
5/15	7	–	F	<b>Exam II</b>		
5/18	8	19	M	Python Party	A4: Artificial Agents	
5/20	8	20	W	Open Source		CL8: Project I (opt.)
5/22	8	21	F	Documentation		
5/25	9	–	M	<b>No Class</b>		
5/27	9	22	W	Code Style		CL9: Project II (opt.)
5/29	9	23	F	Code Testing		
6/1	10	24	M	Code Projects	A5: Experimentation	
6/3	10	25	W	Advanced Python		CL10: Code Review (opt.)
6/5	10	26	F	Wrap Up		

Notes:

[\*] denotes the last day of material covered on Exam 1.

[\*\*] the last day for material on Exam 2.

---

## OTHER GOOD STUFF

### Piazza Rules

Piazza is an incredible resource for technical classes. It gives you a place to post questions and an opportunity to answer others' questions. We do our very best as an instructional staff to answer each and every question in a timely manner. We also want to make sure this platform is being used to learn and not thwarting anyone's education. To make all of this possible, there are a few rules we ask you all to follow:

1. Before posting your question, look at questions that have already been posted to avoid duplicates.
2. If posting about an assignment, include the question number in the Summary line.
3. Never post an answer to or code for an assignment on a public post. Pseudocode is encouraged for public posts. If you must include code for an assignment, make this post private (to "Instructors" only) on Piazza.

### Class Conduct

In all interactions in this class, you are expected to be respectful. This includes following the UC San Diego principles of community.

This class will be a welcoming, inclusive, and harassment-free experience for everyone, regardless of gender, gender identity and expression, age, sexual orientation, disability, physical appearance, body size, race, ethnicity, religion (or lack thereof), political beliefs/leanings, or technology choices.

At all times, you should be considerate and respectful. Always refrain from demeaning, discriminatory, or harassing behavior and speech. Last of all, take care of each other.

If you have a concern, please speak with Dr. Ellis, your TAs, or IAs. If you are uncomfortable doing so, that's OK! The OPHD (Office for the Prevention of Sexual Harassment and Discrimination) and CARE (confidential advocacy and education office for sexual violence and gender-based violence) are wonderful resources on campus.

### Academic Integrity

Don't cheat.

You are encouraged to work together and help one another. However, you are personally responsible for the work you submit. For assignments, it is your responsibility to ensure you understand everything you've submitted and to make sure the correct file has been submitted and that the submission is uncorrupted. Projects may include ideas and code from other sources, but these other sources must be documented with clear attribution. Please review academic integrity policies [here](#).

Cheating and plagiarism have been and will be strongly penalized. If, for whatever reason, Canvas or DataHub is down or something else prohibits you from being able to turn in an assignment on time, immediately contact Professor Ellis by emailing your assignment ([sellis@ucsd.edu](mailto:sellis@ucsd.edu)), or else it will be graded as late.

### Disability Access

Students requesting accommodations due to a disability must provide a current Authorization for Accommodation (AFA) letter. These letters are issued by the Office for Students with Disabilities (OSD), which is located in University Center 202 behind Center Hall. Please make arrangements to contact Professor Ellis privately to arrange accommodations.

Contacting the OSD can help you further:  
858.534.4382 (phone)

## How to Get Your Question(s) Answered and/or Provide Feedback

It's great that we have so many ways to communicate, but it can get tricky to figure out who to contact or where your question belongs or when to expect a response. These guidelines are to help you get your question answered as quickly as possible and to ensure that we're able to get to everyone's questions.

That said, to ensure that we're respecting their time, TAs and IAs have been instructed they're only obligated to answer questions between normal working hours (M-F 9am-5pm). Professor Ellis is also going to do her best to stick to these working hours. However, I know that's not when you may be doing your work. So, please feel free to post whenever is best for you while knowing that if you post late at night or on a weekend, you may not get a response until the next weekday. As such, do your best not to wait until the last minute to ask a question.

If you have:

- **questions about course content** - these are awesome! We want everyone to see them and have their questions answered too, so post these to Piazza!
- **a technical assignment question** - come to office hours (or post to Piazza). Answering technical questions is often best accomplished in person where we can discuss the question and talk through ideas. However, if that is not possible, post your question to Piazza. Be as specific as you can in the question you ask. And, for those answering, help your classmates as much as you can without just giving the answer. Help guide them, point them in a direction, provide pseudo code, but do not provide code that answers assignment questions.
- **been stuck on something for a while (>30min) and aren't even really sure where to start** - Programming can be frustrating and it may not always be obvious what is going wrong or why something isn't working. That's OK - we've all been there! IF you are stuck, you can and should reach out for help, even if you aren't exactly sure what your specific question is. To determine when to reach out, consider the 2-hour rule. This rule states that if you are stuck, work on that problem for an hour. Then, take a 30 minute break and do something else. When you come back after your break, try for another 30 minutes or so to solve your problem. If you are still completely stuck, stop and contact us (office hours, post on Piazza). If you don't have a specific question, include the information you have (what you're stuck on, the code you've been trying that hasn't been happening, and/or the error messages you've been getting).
- **questions about course logistics** - first, check the syllabus. If you can't find the answer there, first ask a classmate. If still unsure, post on Piazza.
- **questions about a grade** - If for an assignment, reply to email sent with grade feedback. If for an exam, post as a question on Piazza, address it to 'Instructors,' and select the folder 'regrades'.
- **a specific CodingLab-related question** - send a direct message on Piazza to your TA/IA
- **something super cool to share related to class or want to talk about a topic in further depth** - feel free to email Professor Ellis ([sellis@ucsd.edu](mailto:sellis@ucsd.edu)) or come to office hours. Be sure to include COGS18 in the email subject line and your full name in your message.
- **some feedback about the course you want to share anonymously** - If you've been offended by an example in class, really liked or disliked a lesson, or wish there were something covered in class that wasn't but would rather not share this publicly, etc., please fill out the anonymous Google Form\*

\*This form can be taken down at any time if it's not being used for its intended purpose; however, you all will be notified should that happen.