COGS 18: Introduction to Python

Fall 2019, MWF 9-9:50
Center Hall 101

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: Wednesdays, 4-6 PM (CSB 243)

Role	Name	Section	Office Hours
TA	Devendra	W 1PM & 2PM	F 1-2 PM (Location TBD)
TA	Shreenivas	TBD	TBD
IA	Andrew	TBD	–
IA	Chau	TBD	–
IA	Duolan	TBD	–
IA	Byungkwon	TBD	–
IA	Sarah	TBD	Mon 11AM-1PM (CSB 114)
IA	Titan	TBD	–
IA	Zijian	TBD	–
IA	Severine	–	Th 1:15-2:55 PM (Middle of Muir Coffee Shop)
IA	Stephen	–	Th 1:15-2:55 PM (Middle of Muir Coffee Shop)

Course Website: https://cogs18.github.io
Course Piazza*: http://piazza.com/ucsd/fall2019/cogs18
Assignment Submission: https://datahub.ucsd.edu
Course podcast/screencast: https://podcast.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 section, 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 students will need access to an iClicker*
- There is no textbook
- All materials will be provided via the course website
- Software: Python 3.6 (Anaconda distribution); Jupyter Notebooks

Detailed instruction for software installations will be listed on the course website and provided across week 1 coding labs. All of the software is freely-available for download. If you do not have a computer available, you *will* be able to complete the course requirements on UCSD computers.

*You will need a clicker, of this brand, as no other brand will work with the system we are using. You must register your clicker on Canvas & bring it to lecture. If you previously registered one on Canvas & are using the same clicker in this class, you do not have to register it again. If you would rather use the REEF app, you are free to do so; however, note that if the Wi-Fi is down, the app will not work and you will not get credit for those responses.

GRADING & ATTENDANCE

Grading:

	% of Grade	Requirement
Assignments	30%	Complete 4 Assignments
Exams	30%	Written in-class exams
Final Project	15%	Submit final project
Coding Lab	15%	Attend & Participate in 6 Coding Labs
Lecture Attendance	10%	Attend 75% of all lectures

Final exam date: No final exam, only final project deadline (Wednesday, 12/11 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 accurage, 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, reply to the email sent with your assignment's feedback within 72 hours. This email should include evidence of why you think your answer was correct and should point to the specific part of the assignment in question.

Lecture Attendance (10%)

Our goal is to make lecture worth your while to attend; however, lecture attendance is not technically required. If you attend 75% of lectures (excluding the first day and exam days), you will receive 10% of credit to your grade. To receive credit for attendance, you must respond to at least 75% of the clicker questions from that day.

However, if you prefer *not* to attend lecture or do not attend 75% of lectures, that proportion of your grade will automatically be dedicated to your exam score, so each exam will be worth 20% of your grade, rather than 15%.

Coding Labs (15%)

Discussion section will be used as a coding lab. 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 8 different coding labs (week 1 through week 9). If you attend at least 6 of these, you will receive full credit for coding labs. For each lab under 6 that you attend, 5% credit will be deducted. (For example, if you attend 5 of 8 coding labs, you'll earn 10% of the possible credit. If you attend 4, 5%. If you attend 3 or fewer, you will not receive coding lab credit.) Note that to receive credit for a coding lab, you have to actually attend a section. These cannot be completed outside of section time. Week 10 is completely *optional*; attendance will *not* be taken that week.

You should be signed up for a section for which you can attend. However, if you are unable to attend the section for which you are signed up, you are free to attend a different section any given week than the one in which you're assigned. You will receive attendance credit regardless of which section you attend. Note that this policy could change if too many people are attending one section each week. We intentionally have section capped at 35 people so that students can get help from their TAs and IAs.

Assignments (30%)

There will be four assignments, each worth ~8% 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 Fridays by 11:59PM. 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 (30%)

There will be two in-class and closed notes exams. Each is worth 15% of your grade. You may *not* use any outside resources. The exams will be include varied question types and taken on paper. All you need to bring on exam days is a writing utensil. 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.

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	Section
9/26	0	0	F	Why Program?		
9/30	1	1	M	Demo + Tools		
10/2	1	2	W	Notebook		CL1: Tech Setup + Tools
10/4	1	3	F	Variables		
10/7	2	4	M	Operators		
10/9	2	5	W	Conditionals		CL2: Programming I
10/11	2	6	F	Collections	A1: Getting Started	
10/14	3	7	M	Loops		
10/16	3	8	W	Encodings [*]		CL3: Programming II
10/18	3	9	F	Functions I	A2: Ciphers	
10/21	4	10	M	**Exam I**		
10/23	4	11	W	Algorithms		CL4: Algorithms & Functions
10/25	4	12	F	Functions II		
10/28	5	13	M	Errors + Debugging		
10/30	5	14	W	Objects		CL5: Debugging
11/1	5	15	F	Classes	A3: Chatbots	
11/4	6	16	M	Namespaces		
11/6	6	17	W	Command Line [**]		CL6: Classes
11/8	6	18	F	Review		
11/11	7	–	M	**No Class**		
11/13	7	19	W	**Exam II**		CL7: Command Line
11/15	7	20	F	Python Party	A4: Artificial Agents	
11/18	8	21	M	Open Source		
11/20	8	22	W	Documentation		CL8: Project
11/22	8	23	F	Code Style		
11/25	9	24	M	Code Testing		
11/27	9	25	W	Code Projects		CL8: Project
11/29	9	–	F	**No Class**		
12/2	10	26	M	Advanced Python		
12/4	10	27	W	Wrap Up		Optional: Code Review
12/6	10	–	F	**No Class**		

Notes:

- Sept 30th onward, all lectures (except exam days) will use iclickers.
- [*] 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 sumitted 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), 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)

osd@ucsd.edu (email)
http://disabilities.ucsd.edu

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) 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.