# LING 194/297: Programming for Linguists — Fall 2020

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| LOGISTICS | **Instructor:** | Prof. Simon Todd (sjtodd@ucsb.edu)<br>*pronunciation: SIGH-min TODD; pronouns: he/him/his* |
| | **TA:** | Chadi Ben Youssef (chadi@ucsb.edu)<br>*pronunciation: SHED-ee BEN YOU-sef; pronouns: he/him/his* |
| | **Classes:** | MW 11:00am-12:15pm on Zoom. Recordings will be made available via GauchoSpace for those who are unable to attend synchronously. |
| | **Sections:** | There are no sections for this course. |
| | **Help:** | Request help via GauchoSpace. Use the forum any time, or get live help MTW 2-4pm, M 9-10am, W 6-7pm, Th 1-2pm, & F 3-4pm. |
| | **Interface:** | All course materials can be retrieved, completed, and submitted via the course JupyterLab site. There is a tutorial on GauchoSpace. |
| | **Website:** | This course has a GauchoSpace site, which is a hub for all course information. Please check it regularly for important announcements. |
| REQUIREMENTS | **Prerequisites:** | None |
| | **Textbook:** | None |
| | **Computer:** | You must have access to a computer to participate in this course. A tablet is not recommended, and a phone is not sufficient. |
| | **Internet:** | This course requires access to a stable internet connection. |
| | **GitHub:** | You must create a free GitHub account in order to retrieve and submit materials for this course. There is a tutorial on GauchoSpace. |

## DESCRIPTION

This course is for absolute beginners, with no prior programming experience. It will teach you how to program in the Python language, as well as best practices for programming more generally. The emphasis is on ways to manage and interact with textual data, with applications drawn from areas of broad interest within linguistics.

## OBJECTIVES

This course has objectives for **F**unctionality, **Q**uality, **C**oncepts, and **E**mpowerment. By the end of this course, you should be able to:

- F1. write functioning code in Python to accomplish simple tasks;
- F2. use computational tools for linguistic purposes;
- Q1. write code that others can easily understand, by following best practices in structuring code and documenting what it does;
- Q2. identify when code isn't working and fix it, using unit testing and debugging;
- C1. understand the building-blocks of programming in general, including variables, data types, control structures, and functions;
- C2. solve large problems by decomposing them into small, abstract pieces;
- E1. feel capable and confident as a programmer.

## Policies

**Units:** 4 (expected workload: 12 hours per week, including class time)

**Pandemic:** The physical, mental, and emotional health of you and those around you is of utmost importance. If you are unable to meet deadlines due to factors related to the COVID-19 pandemic, you will not be penalized. Please seek appropriate care, then contact the instructor/TA to discuss alternative arrangements as soon as you are able.

**Late work:** This course has regular assignments, to maximize your opportunities to practice the skills you're learning. To make sure we can grade and provide feedback in a timely manner, all deadlines are hard deadlines. **Late assignments will have their maximum grade capped by 10% for each day they are late, up to a maximum of 5 days. Assignments submitted more than 5 days late will receive no credit.** If you anticipate an issue with the assessment schedule, you should discuss it with the instructor/TA as early as possible (ideally a week or more in advance). Exceptional and last-minute circumstances will be considered on a case-by-case basis.

**Attendance:** Attendance at synchronous class meetings is strongly encouraged, to participate in hands-on exercises with live help available. The demonstration components of classes will be recorded and posted to GauchoSpace for those who cannot attend synchronously.

**Conduct Code:** We follow UCSB's Student Conduct Code. You may discuss your assignments with other students, but **all submitted work must be your own**. You are free to look at code posted on the internet, but you cannot copy this code directly into your assignments. **Any other students or sources you consulted for an assignment should be documented in a comment at the top of the file.**

**Accommodations:** The course is designed to be maximally equitable and inclusive of students with learning disabilities; there are no timed quizzes or exams. If you require additional accommodations, please place a request online through the Disabled Students Program (DSP). Please make your requests as early as possible to ensure proper arrangement.

**Zoom etiquette:** **Please disable your video and microphone during the demonstration components of each class**, to prevent overloading other students' connections. You may ask questions during the demonstrations in the chat or by unmuting your microphone. If possible, **please re-enable your video and/or microphone for the exercise components of the class**, to facilitate group communication.

**Consent to record:** A recording of the demonstrations from each class will be posted to GauchoSpace for access by approved students. This recording will only be able to be streamed, not downloaded. **By participating in class, you give consent for any video and/or audio captured from you to be included in the recording.** If you do not consent to being recorded, please leave your video and microphone off during demonstrations and only ask questions using the chat.

## Grading

Letter grades will be assigned according to the following:

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| excellent | 99–100% | A+ | 93–98% | A | 90–92% | A– |
| good | 87–89% | B+ | 83–86% | B | 80–82% | B– |
| adequate | 77–79% | C+ | 73–76% | C | 70–72% | C– |
| barely passing | 67–69% | D+ | 63–66% | D | 60–62% | D– |
| not passing | | | <60% | F | | |

For undergraduate students taking the course on a P/NP basis, the minimum score for P is 73% (the equivalent of a C). For graduate students taking the course on an S/U basis, the minimum score for S is 83% (the equivalent of a B).

## Assessment

The week before the first class, all students will follow setup tutorials on GauchoSpace and complete a survey (**S1**). Course credit will be awarded for doing these on time.

Core assessment for this course consists of 4 programming assignments (**PA1–4**), distributed approximately biweekly. **All assignments count toward the grade.** Graduate students will also complete a research outline (**RO**) or tool demonstration (**TD**) that showcases how programming could be useful in your research.

| Assessment | Undergrad weight | Grad weight |
|---|---|---|
| **S1** | 4% | 4% |
| **PA1–4** | 4 × 24% | 4 × 20% |
| **RO/TD** | – | 16% |

**Setup tutorials and the pre-quarter survey** will be distributed on Monday, 9/28, and will be **due by end-of-day (11:59pm) on Sunday, 10/4**. The setup and survey ensure that you will be able to retrieve course materials in the first class, so **completing them on time is very important**. You will receive course credit for the setup and survey (if applicable) only if you complete them **both** before the deadline.

**Assignments** will give you regular opportunities to address learning objectives by practicing the skills from class. Grading of assignments will not contain any surprises: you should always be able to predict the grade you'll receive. Each assignment will allocate 60 points for functionality (what the code *does*) and 40 points for style (how the code is *presented*). For functionality points, we'll provide tools that let you test your code. For style points, you can check the rubric in the course style guide on GauchoSpace.

**Graduate student research outlines** will put together a high-level plan for a codebase that would be useful for your research. You do not need to actually develop the codebase, but it should be something that you feasibly *could* do with the programming skills you have at the end of the course. **Alternatively, you may complete a tool demonstration**, where you use links on GauchoSpace to teach yourself to use a *web-scraping* or *NLP* tool and then demonstrate usage of it in a way that is helpful to your research.

## Schedule

**Detailed notes** for each topic will be released on the Wednesday before the first day of the topic. **You will be expected to read the notes for each class before that class**.

**Classes** will consist of a mixture of demonstrations by the instructor and hands-on exercises in small-group breakout rooms. There will usually be **two mini-topics per class**, each with its own recap and question-answering period of 10 minutes, exercises of 15-20 minutes, and an exercise solution demonstration of 5 minutes. **Solutions** will be released for in-class exercises the day after the corresponding class.

**Assignments** will be released before class and are **due before class (11am)** on the dates noted in the schedule. You will be reminded of key dates in class and on GauchoSpace.

**Graduate student research outlines / tool demonstrations** are **due by 3pm on Thurs, 12/17**. **Late submissions will not be accepted for these.**

| Week | Dates | Topic | Assessment |
|---|---|---|---|
| | M 09/28 | *(Setup tutorials and pre-quarter survey posted)* | **S1** out |
| | Su 10/04 | | **S1** due |
| 1 | M 10/05, | Introduction, course logistics | **PA1** out |
| | W 10/07 | Programming basics with Karel the robot | |
| 2 | M 10/12, | More practice with Karel, if-else | |
| | W 10/14 | Problem-solving with programming | |
| 3 | M 10/19, | Numbers, printing, functions | **PA2** out |
| | W 10/21 | Strings, tuples | **PA1** due |
| 4 | M 10/26, | Indexing and slicing, lists | |
| | W 10/28 | Sets, dictionaries | **PA3** out |
| 5 | M 11/02, | Combining data types, keyword arguments | **PA2** due |
| | W 11/04 | Custom sorting, imports, collections | |
| 6 | M 11/09 | Open review session | |
| | *W 11/11* | *(No class: Veterans' Day)* | |
| 7 | M 11/16, | Debugging, unit testing | **PA3** due |
| | W 11/18 | | |
| 8 | M 11/23, | Working with text files | **PA4** out |
| | W 11/25 | CSV and JSON | |
| 9 | M 11/30, | Regular expressions | |
| | W 12/02 | | |
| 10 | M 12/07, | Modules and the terminal | |
| | W 12/09 | Conveniences | **PA4** due |
| | Th 12/17 | | Grad: **RO/TD** due |