

CMPS 5P Introduction to Programming in Python

Lectures: Mon,Wed,Fri 10:00-11:45am, Engineering 2, Room 192

Instructor: [Christopher Schuster](#) (Office Hours: Mon, 3:00-4:00pm, Engineering 2, 397)

Teaching Assistant: Marcelo Siero (siero@soe.ucsc.edu)

Lab Sections:

Mon,Wed,Fri 12:00 – 2:00pm (subject to change), Social Sciences Building 1, Room 135

Attendance in lab sections is optional and based on demand

Assignments, Quizzes and Learning Materials: [Canvas](#) (<https://canvas.ucsc.edu/courses/15134>)

Online Forum: [Piazza](#) (<https://piazza.com/ucsc/summer2018/cmps5p>)

Text book: [How to Think Like a Computer Scientist: Interactive Edition](#) (<https://levijj.github.io/thinkcspy/>)

Additional Recommended Reading:

[Start Programming with Python](#) (3rd edition), [Learning to Program Using Python](#) (3rd Edition), [Think Python](#) (2nd Edition)

Advanced Reading:

[Automate the Boring Stuff with Python](#), [Structure and Interpretation of Computer Programs in Python](#)

Description

Introduces programming in Python, a high-level programming language used in the physical and social sciences and for Internet scripting. Students learn programming and documentation skills, as well as algorithmic problem-solving, coding, and debugging methodologies. Students write programs to solve sample problems drawn from a wide range of disciplines, primarily in the sciences. No prior programming experience is required, but a mathematics background at the pre-calculus level is assumed. This course and courses 5C and 5J cover similar concepts, but use different programming languages. Students may not receive credit for course 5P after receiving credit for course 11, 12A, or Computer Engineering 13.

Learning Objectives

- Programming Skills
 - Expressions, Variables, Branching, Loops, Functions, Recursion, Strings, Lists, Dictionaries, Input/Output, Files
- Documentation
 - Comments, Informal Specifications
- Algorithmic Problem-Solving
 - Base cases, Edge cases, Data Structures
- Debugging
 - Testing, Problem Localization, Logging, Step-through Debugging
- Solving Problems in Science
 - Datasets (CSV, XML, JSON), Aggregation, Basic Statistics, Visualization

Grading

- Programming Assignments: 30% (6x 5%)
- Final Project: 20%
- Online Reading Quizzes: 5%
- Class Problems: 5%
- Midterm Exam: 20%
- Final Exam: 20%

To pass the class, you must at least:

- Have more than 50% average on both your exams. A low grade on one exam can be countered by a good grade on the other exam.
- Have more than 50% average on your programming assignments.
- Work on and submit a final project.

Missing any of these requirements causes you to automatically fail the class. However, fulfilling all three requirements does not guarantee a passing grade. Instead, your grade is calculated based on the key above.

Programming Assignments

One assignment per week for the first 6 weeks (due Sundays 11:59pm)

Late penalty: 20% per day late (the maximum score is capped at 80% one day after due date, 60% after two days, etc.)

Pair Programming is allowed and encouraged. You can pick your own pair programming partner or find a partner on [Piazza](#). If you decide to do pair programming, any files you submit should start with the names of both pair programming partners.

If you need help with the programming assignments, please use the lab sections to get hands-on feedback, ask questions on the [Piazza forums](#), contact the TAs, or visit the instructor during the office hours. All assignments will be submitted on [Canvas](#).

Final Project

There will be no programming assignments for the last two weeks of the class. Instead, you will work in small group of 2-5 on a medium-sized programming project. You are encouraged to define your own project as long as it is a Python programming project that involves concepts you learned in class and is feasible in two weeks. Details T.B.A.

Reading Assignments

All lectures will cover material from the interactive online [textbook](#). You are required to read the assigned chapter or section in advance and answer questions as part of a short online quiz on Canvas. The quizzes consist mostly of multiple choice and fill-in-the-blank questions. The deadline is the start of the lecture. Late submissions will not be accepted.

Classroom Problems

Instead of in-class quizzes or required attendance, there will be small programming problems at the start of almost every lecture with limited time to solve these. A correct submission is worth 1% of the grade, so it is sufficient to correctly solve and submit 5 different class problems in order to receive full credit for classroom problems.

Midterm

There will be a midterm exam on Wednesday, July 18, 10-11:45am in Engineering 2, Room 192. Details T.B.A.

Final Exam

There will be a final exam on Friday, Aug 17, 10-11:45am in Engineering 2, Room 192. Details T.B.A.

Academic Integrity

Any confirmed academic dishonesty including but not limited to copying programs or homeworks or cheating on exams, will result in a failing grade. Presenting work as your own when you did not actually do it is dishonest (academically, professionally and socially) and is called plagiarism. Always attribute (give credit for) anything done by someone else; then you cannot be guilty of plagiarism. However, it is not necessary to attribute materials provided by the instructor for the class, or contained in assigned reading for the class. Permitting another student to copy your work is also academic dishonesty, except as part of a group project. Students are expected to exercise reasonable caution that their own work is not copied improperly by another student. Please go to https://www.ue.ucsc.edu/academic_misconduct to see the full text of the University's policy on Academic Integrity.

Disability Accommodations

UC Santa Cruz is committed to creating an academic environment that supports its diverse student body. If you are a student with a disability who requires accommodations to achieve equal access in this course, please submit your Accommodation Authorization Letter from the [Disability Resource Center \(DRC\)](#) to me privately during my office hours or by appointment, preferably within the first two weeks of the quarter. At this time, I would also like us to discuss ways we can ensure your full participation in the course. I encourage all students who may benefit from learning more about DRC services to contact DRC by phone at 831-459-2089, or by email at drc@ucsc.edu.