College of Science · Computer Science

Advanced Programming with PythonCS 122

- Spring 2026
- Section 02
- In Person
- 3 Unit(s)
- 01/22/2026 to 05/11/2026
- Modified 01/17/2026

Contact Information

Instructor: Mr. Frank Luo

- **Email:** zhiqiang.luo@sjsu.edu

I welcome you to contact me outside of class either by email or by joining me in one of my in-person or virtual office hours. If your schedule prevents you from joining one of my scheduled office hours, please get in touch and I will be happy to schedule a time slot to meet with you.

Office Hours

- Tuesday, Thursday, 4:30 PM to 5:30 PM DH282

Course Description and Requisites

Advanced features of the Python programming language with emphasis on programming practice. Course involves substantial programming projects in Python.

Prerequisite(s): CS 146 (with a grade of "C-" or better). Computer Science, Applied and Computational Math, or Software Engineering majors only.

Letter Graded

Classroom Protocols

Classroom Learning Environment:

This course will follow a hands-on learning approach where we will work through coding exercises together in class. Please come to class with a charged laptop ready to dive into some code!

Code of conduct:
Short version: In this course, I aim to foster a positive learning environment - no form of harassment will be tolerated, including verbal comments and images that exclude people based on gender, socio-economic status, or appearance.

The full code of conduct is provided on the Canvas course space for this course.

Plagiarism and cheating

Just like a written essay, using somebody's computer code without proper acknowledgement is considered plagiarism. Homework problems should be based entirely on students' own work. Students can (and are encouraged to) discuss general coding techniques and problem solving strategies for homework problems but this should never include copying (whether by typing, file transfer or cutting and pasting), looking at somebody else's code on their computer to get help, or allowing copying to occur. Students found violating this policy once will receive zero credit for those problems. Continued violations will result in disciplinary action. If you have any questions about this policy, please don't hesitate to ask for clarification.

Program Information

Diversity Statement - At SJSU, it is important to create a safe learning environment where we can explore, learn, and grow together. We strive to build a diverse, equitable, inclusive culture that values, encourages, and supports students from all backgrounds and experiences.

Course Learning Outcomes (CLOs)

Upon successful completion of this course, students will be able to:

1. Design, implement and test readable, efficient programs that take advantage of Python built-in capabilities and follow Python best practices.
2. Understand implementation differences and performance tradeoffs associated with various Python data structures.
3. Develop Python applications using the modules and packages available in the Python standard library.
4. Develop Python applications using third party libraries.
5. Design, implement and test Python programs that include a graphical user interface, data analysis and visualization, web data extraction and web applications.

Course Materials

This course will utilize The Quick Python Book by Naomi Cedar (3rd Edition, ISBN 9781617294037).

The Quick Python Book

- **Author:** Naomi Cedar
- **Edition:** 3rd
- **ISBN:** 9781617294037

The Quick Python Book is also available at the MLK Library, including electronic access options.

Grading Information

Category	Percent of Total Grade
Quizzes	20
Homework	30
Midterm	20
Project	30

University Policies

Per University Policy S16-9 (PDF), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on the Syllabus Information web page. Make sure to visit this page to review and be aware of these university policies and resources.

Course Schedule

This course will meet twice per week during the Spring semester as follows:

- Tuesdays, Thursdays in-person in 241 Sweeney Hall, 3:00-4:15 pm
- Sometime Thursdays, virtually on Zoom, 3:00-4:15 pm announce early

Week	Day	Date	Lecture	Pre-Class Reading	Homework
1	Thurs	1/22	Course Logistics & Installation	Ch. 1	
2	Tues	1/27	Python Basics	Ch. 4	HW 1 Due 1/26
2	Thurs	1/29	Sequence Data Types (Lists, Tuples, and Sets); Strings Part 1	Ch. 5, 6	
3	Tues	2/3	Strings Part 2; Dictionaries	Ch 7	HW 2 Due 2/2
3	Thurs	2/5	Control Flow	Ch. 8	
4	Tues	2/10	Functions	Ch 9	HW 3 Due 2/9
4	Thurs	2/12	Modules, Scoping, Programs	Ch. 10, 11	
5	Tues	2/17	Using the Filesystem	Ch. 12	HW 4 Due 2/16
5	Thurs	2/19	Files I/O	Ch. 13	
6	Tues	2/24	Exceptions	Ch. 14	HW 5 Due 2/23
6	Thurs	2/26	Python Classes	Ch. 15	
7	Tues	3/3	Objects	Ch. 17	HW 6 Due 3/9
7	Thurs	3/5	Packages, Libraries	Ch. 18, 19	
8	Tues	3/10	File Wrangling		
8	Thurs	3/12	Processing Data Files	Ch. 21	
9	Tues	3/17	Github Final Project Formulation		
9	Thurs	3/19	Midterm		
10	Tues	3/24	Scraping the Web (Pt. 1)	Ch. 22	HW 7 Due 3/23
10	Thurs	3/26	Scraping the Web (Pt. 2)		
			Spring Break		
11	Tues	4/7	GUI programming (tkinter, Pt. 1)	See Canvas	
11	Thurs	4/9	GUI programming (tkinter, Pt. 2)		
12	Tues	4/14	Web Development (flask, Pt. 1)	See Canvas	HW 8 Due 4/13
12	Thurs	4/16	Web Development (flask, Pt. 2)		
13	Tues	4/21	Data Analysis with numpy	See Canvas	HW 9 Due 4/20
13	Thurs	4/23	Data Analysis with pandas	Ch. 24	

14	Tues	4/28	Visualization with matplotlib		HW 10 Due 4/27
14	Thurs	4/30	Final Project Meetings		
15	Tues	5/5	Final Project Presentations		
15	Thurs	5/7	Final Project Presentations	See Canvas	HW 11 Due 4/27
		5/14	**Final Projects**		Final Projects Due 5/14 at 3:15 pm