

# Advanced Programming with Python Section 01

## CS 122

Fall 2023 3 Unit(s) 08/21/2023 to 12/06/2023 Modified 08/03/2023

### Contact Information

My name is Mike Wood and I look forward to working with you as we learn programming techniques in Python in CS 122!

#### Instructor: Dr. Mike Wood

Email: [mike.wood@sjsu.edu](mailto:mike.wood@sjsu.edu)

Office: 239 Duncan Hall

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

Monday, Wednesday, 12:00 PM to 1:00 PM, 239 Duncan Hall & Virtual

Monday office hours are in person in 239 Duncan Hall while Wednesday office hours are virtually on Zoom.

### 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

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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)

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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

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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

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Category	Percent of Total Grade
Reading Quizzes	10
Homework	30
Midterm	20
Project	40

## University Policies

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Per [University Policy S16-9 \(PDF\)](http://www.sjsu.edu/senate/docs/S16-9.pdf) (<http://www.sjsu.edu/senate/docs/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](https://www.sjsu.edu/curriculum/courses/syllabus-info.php) (<https://www.sjsu.edu/curriculum/courses/syllabus-info.php>) 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 Fall semester as follows:

- Monday, in-person in Science Building 311, 1:45-2:30 pm
- Wednesday, virtual on Zoom, 1:45-2:30 pm

Week	Day	Date	Lecture	Pre-Class Reading	Homework
1	Mon	8/21/23	1-1: Course Logistics & Installation	Ch. 1	
1	Wed	8/23/23	1-2: Python Basics	Ch. 4	HW 1 Due 8/27
2	Mon	8/28/23	2-1: Sequence Data Types (Lists, Tuples, and Sets); Strings Part 1	Ch. 5, 6	
2	Wed	8/30/23	2-2: Strings Part 2; Dictionaries	Ch 7	HW 2 Due 9/3
3	Mon	9/4/23	Labor Day		
3	Wed	9/6/23	3-1: Control Flow	Ch. 8	
4	Mon	9/11/23	4-1: Functions	Ch 9	HW 3 Due 9/12
4	Wed	9/13/23	4-2: Modules, Scoping, Programs	Ch. 10, 11	
5	Mon	9/18/23	5-1: Using the Filesystem	Ch. 12	HW 4 Due 9/12
5	Wed	9/20/23	5-2: Files I/O	Ch. 13	
6	Mon	9/25/23	6-1: Exceptions	Ch. 14	HW 5 Due 9/26
6	Wed	9/27/23	6-2: Python Classes	Ch. 15	
7	Mon	10/2/23	7-1: Objects	Ch. 17	HW 6 Due 10/6
7	Wed	10/4/23	7-2: Packages, Libraries	Ch. 18, 19	
8	Mon	10/9/23	8-1: File Wrangling	Ch. 20	HW 7 Due 10/10
8	Wed	10/11/23	8-2: Processing Data Files	Ch. 21	
9	Mon	10/16/23	Midterm		
9	Wed	10/18/23	9-1: Github Final Project Formulation		Project Idea Due 10/22
10	Mon	10/23/25	10-1: Scraping the Web (Pt. 1)	Ch. 22	
10	Wed	10/25/25	10-2: Scraping the Web (Pt. 2)		HW 8 Due 10/29
11	Mon	10/30/23	11-1: GUI programming (tkinter, Pt. 1)	See Canvas	
11	Wed	11/1/23	11-2: GUI programming (tkinter, Pt. 2)		HW 9 Due 11/5
12	Mon	11/6/23	12-1: Web Development (flask, Pt. 1)	See Canvas	
12	Wed	11/8/23	12-2: Web Development (flask, Pt. 2)		HW 10 Due 11/12
13	Mon	11/13/25	13-1: Final Project Meetings		
13	Wed	11/15/23	13-2: Data Analysis with numpy	See Canvas	

14	Mon	11/20/23	14-1: Data Analysis with pandas	Ch. 24	HW 11 Due 11/21
14	Wed	11/22/23	Day Before Thanksgiving (no class)		
15	Mon	11/27/23	15-1: Visualization with matplotlib (Pt. 1)	See Canvas	
15	Wed	11/29/23	15-2: Visualization with matplotlib (Pt. 2)		HW 12 Due 12/3
16	Mon	12/4/23	16-1: Final Project Work Time		
16	Wed	12/6/23	16-2: Final Project Work Time		Final Projects Due 12/8
Finals	Wed	12/13/23	Project Presentations		