

San José State University
Computer Science Department
CS 22A: Python Programming for Non-Majors I
Spring 2020

Course and Contact Information

Course Number:	23423
Course Dates:	Jan 23, 2020 to May11, 2020
Class Days:	Tuesdays & Thursdays
Class Time:	3:00 - 4:15 pm
Classroom:	Boccardo Business Center 004
Instructor:	Nadine Ferguson
Email:	nadine.ferguson@sjsu.edu
Office Hours:	Thursdays 4:30 - 5:30 pm and by appointment
Office Location:	Duncan Hall (DH) Room 282
Office Phone:	408-924-7171 (email is the preferred method to contact the instructor)
Prerequisites:	This course is intended for students who have no prior programming experience. This course is not open to computer science majors or minors or software engineering majors.

Course Description

This course is designed to teach computer programming to non-Computer Science majors. It is an introduction to Python Programming in interesting, relevant, and practical contexts. The course focus is on hands-on Python programming skills, problem solving using algorithms and abstraction, implementing an algorithm to executable code, and debugging and testing software programs. Fundamental programming constructs such as variables, selection, iterations, functions, data structures, file I/O, sorting and searching algorithms, matrix manipulation, and other topics are covered. Applications focus on computational techniques to understand, organize, and automate data analysis.

Course Format:

CS 22A is a hands-on programming course. Lectures are followed by in-class programming labs. Class time will be spent either in lecture mode or combination lecture-lab mode. There is a significant hands-on component in this class and student participation during class is key to successful completion of the course. A typical class will begin with a lecture (Lecture Mode) followed by a hands-on (Lab Mode). Students are required to bring their wireless laptop to each class and complete the hands-on assignment(s) during class. Student laptops must remain closed during lecture.

All assignments are submitted to Canvas. All course materials are posted on [Canvas Learning Management System course login website](#) at <http://sjsu.instructure.com>. Students need an active SJSU email in order to access Canvas. Students are responsible for regularly checking the Canvas course for updates and due dates.

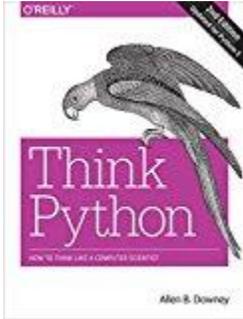
Course Learning Outcomes (CLO):

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

1. CLO 1: Explain fundamental programming constructs such as assignments, sequential operations, iterations, conditionals, defining functions, and abstraction.
2. CLO 2: Analyze and explain the behavior of Python programs.

3. CLO 3: Apply fundamental programming constructs to solve computational problems.

Textbook:



Think Python, Think like a Computer Scientist, 2nd Edition by Allen B. Downey
ISBN-13: 978-1491939369, ISBN-10: 1491939362

Textbook is available on Amazon. The pdf version of the text can be download from: <http://greenteapress.com/thinkpython2/thinkpython2.pdf>

Other Readings:

Additional course readings, code examples, etc. will be assigned and will be provided by the instructor.

Technology requirements: Wireless Laptop (not Chromebook or tablet), Python IDE

Grading Information:

Grade Scale: A (90 – 100), B (80 – 89), C (70 – 79), D (60 – 69), F (0-59)

Final grade is calculated based on the percentage of the total points for all the Course Requirement and Assignments listed below:

1. In-class Assignments (Labs)	3-10 points each
2. Homework Assignments	10- 20 points each
3. Two Midterm Exams	50 points each
4. Final Exam (Cumulative)	100 points
5. Term Project	100 points

Course Requirements and Assignments:

Course requirements, reading materials, hands-on programming labs, assignments, and term project contribute to and are aligned with course learning outcomes. Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to labs, reading, assignments, and term project.. Details of each requirement category is listed below:

Labs and Homework Assignments: Labs are in-class hands-on programming exercises designed to help students develop understanding of the lecture material. Approximately two labs will be assigned each week. Students are expected to complete the lab during class and submit to Canvas for grading. Students must be present in class in order to get credit for labs. Labs are not group projects; they are for individual work only. When working as a team on labs, each team member is expected to contribute equally and document their portion of the code contributed to the solution.

The goal of the homework assignments is to reinforce lecture material and programming skills. Assignments are posted and submitted via Canvas for grading. Students are required to check Canvas for due dates. Approximately one homework will be assigned every other week, Students should check the course page on Canvas daily for assignments and updates. All homework assignment are for individual work only. No group activity is allowed on homework assignments. Students may not copy code from online sources.

Two files need to be submitted for each lab and homework assignment: A .py file (Python program) and a .docx file showing documentation including algorithm, program source code and output screenshot of testing the program. A .docx Required Assignment template is provided on Canvas. Both files must be submitted using the proper assignment submission page on Canvas, not attaching files to the comments section of Canvas. Attached files will not be graded and receive no credit. Students are responsible for checking the validity of their submissions (file format error, blank files, corrupted files, etc.) and re-submit within deadline if needed. There will be no consideration for resubmission past the due date. Invalid files submitted will be graded as zero. No late or emailed assignments or labs are accepted for any reason.

Exams : There will be two midterm exams and one cumulative final examination. All 3 exams have fixed dates and can only be taken in the classroom during class time. Exams will either be hand-written or on Canvas. There are no make-up exams for any reason. The final exam is cumulative.

Term-Project : There will be a final programming group project. Each group consists of 2-3 students. Information on the project, required files and deadlines, will be given later in the course. Each group gives a 10-minute, in-class presentation including code and algorithm review. Term projects without a presentation will receive a grade of zero. Each team member must contribute equally to the design, coding, documentation and testing of the term project. Each group is required to attend progress checkpoint meetings scheduled at various intervals with the instructor as part of their grade. Each team should complete the project without assistance from outside or online sources. If outside help is required, it must be approved by the instructor in advance. All term projects will be checked with plagiarism checking software. Teams are required to present on the assigned dates. Zero credit is given to term projects without presentation and code review on their presentation date! No late or emailed term projects are accepted for any reason. Students are responsible for checking the validity of their submissions (file format error, blank files, corrupted files, etc.) and re-submit within deadline if needed. Invalid files submitted will be graded as zero.

Plagiarism and Cheating Policy:

ACADEMIC DISHONESTY: San José State University defines plagiarism as the act of representing the work of another as one's own without giving appropriate credit, regardless of how that work was obtained, and submitting it to fulfill academic requirements. San José State University defines cheating as the act of obtaining credit, attempting to obtain credit, or assisting others to obtain credit for academic work through the use of any dishonest, deceptive, or fraudulent means. Cheating includes:

- copying, in part or as a whole, from another's program code or test or other evaluation instrument, including homework assignments, labs, project and quizzes;
- submitting work previously graded in another course without prior approval by the course instructor or by departmental policy;
- using or consulting sources, tools, or materials prohibited by the instructor prior to or during an examination; This also applies to assignments.

- sitting for an examination by a surrogate or as a surrogate;
- Copying code from friends, relatives, classmates, or tutors, textbooks or online sources
- Purchasing programs for assignment/lab solutions from the Internet sources

Academic dishonesty will not be tolerated. Under no circumstances should you pass off someone else's work as your own. This also applies to code or other material that you might find on the Internet. Students must submit only their own original work. Any help outside of class must be discussed with the instructor for approval in advance. Students must declare and give attribution for help they receive on their assignments by including full citation on the source. Each line of code where help was received must be fully declared by marking the section/line(s) of code with comment that includes information (name, date, URL) on the source or help. Plagiarism-detection services is used for assignments, labs, term project and exams. A grade of zero is given for any assignment, lab, term project or exam where cheating or plagiarism is involved. If you get help outside the class, in addition to providing citation, you must be able to understand and explain the code in order to receive any credit. Should a student be caught cheating during an examination or be involved in plagiarism, an F will be assigned for the exam in addition to being reported. If a student is caught cheating more than once in a semester, they will get an F in the class with the potential of being removal from the class. Academic integrity offenses will be reported to the administration, who may elect to take further measures. Download and read the SJSU University policy: <http://www.sjsu.edu/studentconduct/docs/Academic%20Integrity%20Policy%20F15-7.pdf>

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>. Make sure to review these policies and resources.

Classroom Protocol:

CS 22A is a lecture-lab combination course. A typical class will begin with a lecture followed by a hands-on lab. During lecture, students are expected to listen, follow the lecture, and take notes and not use the computer or any electronic devices or talk to their neighbor. No chatter or side conversations during lecture or when the instructor is talking. Raise your hand to speak. The instructor will randomly call on students during lecture in an effort to promote participation and student engagement. During lab, students are expected to use their wireless laptop computers in class to complete the hands-on lab.

Students are expected to submit their own work, not the work of someone else. Students may be asked to explain and demonstrate their work to the class. Occasionally, students will be asked to come to the and explain their program code to the class.

Attendance in CS22A is not optional. Students are expected to arrive to class on time and turn off their cell phones during the class. Periodically, short pop quizzes may be given at the start or end of class without notice. Students may be dropped for the class after 4 absences. Students may not leave the class early without notifying the instructor at the beginning of class. Students are expected to follow the class/university code of conduct. This means being respectful and not disturbing classmates and the instructor while class is in session. No cell phones, messaging apps, headphones, music players or any other devices other than laptops can be used during class. Disruptive students will be asked to leave the classroom. Laptops should only be used for course-related purposes during lab. No photography, audio or video recording of any part of the class is permitted without express written permission from the instructor. See University policies for more detail on student code of conduct on SJSU.edu

No unauthorized sharing or distribution and/or public webposting of any part of CS 22A course materials including but not limited to lectures, labs, assignments, solutions, exams or projects is permitted without express written permission from the instructor. Absolutely no part of the course material for CS22A is permitted for upload to any online site other than Canvas. Students may not post online or email their class programming questions or solutions for any reasons without the express written permission from the instructor. All course materials, assignments, labs, exam and term project documents are considered proprietary and are the property of San Jose State University and the instructor.

Tentative Course Schedule: CS 22A: Python Programming for Non-Majors, Fall 2019

This schedule is subject to change with fair notice. Updates available on the Canvas course page.

Week	Date	Topics, Readings, Assignments, Deadlines
1	1/23/2020	Introduction, Course Overview, Expectations
2	1/28/2020	Python Development Environment Overview and Set up, Conventions and Coding Style Guidelines, First Program, Python as calculator. Lab 1 - Debugging
2	1/30/2020	Algorithms, Abstraction, Flowcharts, Variables, Assignment, Data Types, Reading Assignment 1
3	2/4/2020	Variables, Assignment, Data Types, Lab 2 Reading Assignment 2
3	2/6/2020	Python standard I/O
4	2/11/2020	Functions, Arguments, Parameters Writing your own functions. Reading Assignment 3, Lab 3
4	2/13/2020	Functions (cont.), Fruitful Functions, Returns, Call stack, Scope Lab 4 , Reading Assignment 4
5	2/18/2020	Control Structures – Conditionals, Criteria/Condition, Lab 5, Reading Assignment 5
5	2/20/2020	Control Structures – Conditionals. Lab 6 , Homework Assignment 1
6	2/25/2020	Control Structures – Repetition/ <i>while</i> Loop, Tracing/State Diagram, Reading Assignment 6, Lab 7
6	2/27/2020	Strings, Text manipulation. Reading Assignment 7, Strings, Lab 8.
7	3/3/2020	Control Structures – Repetition/ <i>for</i> Loop, Reading Assignment 8, Lab 9
		Exam 1
8	3/5/2020	Data Structures: Lists, Reading Assignment 9
8	3/10/2020	Data Structures: Lists, Lab 10, Homework Assignment 2
9	3/12/2020	Data Structures: Multi-Dimensional Lists, Lab 11
9	3/17/2020	Dictionaries, Lab 12, Reading Assignment 10
10	3/19/2020	Dictionaries (cont.)
10	3/24/2019	Dictionaries, Lab 13
11	3/26/2020	File I/O, Reading Assignment 11

Week	Date	Topics, Readings, Assignments, Deadlines
11	3/31/2020	File I/O, Lab14, Homework Assignment 3
		Exam 2
12	4/2/2020	Exception Handling, Random number generation, Lab 15,
12	4/7/2020	Search Algorithms
13	4/9/2020	Search Algorithms, Lab 16.
13	4/14/2020	Sorting Algorithms, Lab 17
14	4/16/2020	Data Analysis/visualization (Time Permitting)
14	4/21/2020	Creating graphics in Python (Time permitting)
15	4/23/2020	Term Project Presentations
15	4/28/2020	Term Project Presentations
16	4/30/2020	Term Project Presentations
16	5/5/2020	Term Project Presentations
17	5/7/2020	Exam Review
Final Exam	5/14/2020	Cumulative Final, Thursday, May 14 at 2:45-5:00

These dates are tentative – the instructor reserves the right to modify as needed. Unanticipated circumstances, including discovery of the need to spend more time mastering particular content, may require changes to the syllabus. In such situations, instructor will notify students.

Students are required to complete the **Syllabus Agreement Form** and submit no later than the second week of class.

..... **SIGN and RETURN**

Syllabus Agreement Form

I, _____ (*Please Print Your Full Name Clearly*),
SJSU ID# _____ have received the syllabus for CS 22A course. I have read and
understood the CS22A Syllabus in its entirety. My signature indicates my agreement and
understanding of the syllabus and my responsibility to adhere to it. My signature also indicates
that I have downloaded, read and understand the SJSU Academic Integrity and other SJSU
policies.

Signature: _____

Date Signed: _____

Return signed form no later than the second week of class.