

San José State University
Computer Science Department
CS 22A: Python Programming for Non-Majors I
Section 02, Fall 2018

Course and Contact Information

Course Number: 44725
Course Dates: August 21, 2018 to December 10, 2018
Class Days: Tuesdays & Thursdays
Class Time: 3:00 - 4:15 pm
Classroom: MacQuarrie Hall (MH) 225
Instructor: Professor N. Ferguson
Email: nadine.ferguson@sjsu.edu
Office Hours: Thursdays 1:30 - 2:30 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. Programming in interesting, relevant, and practical contexts. The course focus is on hands-on Python programming skills, problem solving using algorithmic thinking and abstraction, flowcharts, implementing an algorithm to executable code, debugging and testing software programs. Fundamental programming constructs such as selection, iterations, functions, data structures, I/O, and other core concepts are covered. Applications focus on computational techniques to understand, analyze, organize, and visualize data; automate data analysis, lists, matrices, sorting and searching algorithms, basic game design, and more.

Course Format:

CS 22A is a hands-on programming course. Most of the lectures will follow programming exercises and an in-class programming assignment. 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 your wireless laptop to each class and complete the hands-on exercises and assignment(s) which will submit in Canvas. Student laptops must remain closed during lecture.

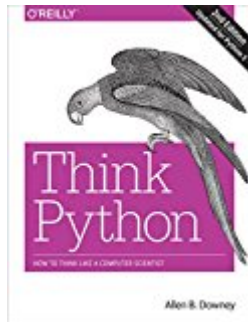
Course materials such as syllabus, handouts, notes, assignment instructions, reading assignments, etc. are posted on [Canvas Learning Management System course login website](http://sjsu.instructure.com) at <http://sjsu.instructure.com>. Students are responsible for regularly checking with the messaging system through [MySJSU](http://my.sjsu.edu) at <http://my.sjsu.edu> to learn of any updates. Students need an active SJSU email in order to access Canvas.

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 *at*:
<http://greenteapress.com/thinkpython2/thinkpython2.pdf>

Other Readings:

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

Other technology requirements /material : Wireless Laptop, Python Development Environment

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 Programming Assignments (Labs)	5-10 points each
2. Homework Assignments	20 points each
3. Quizzes (2-3)	25 Points each
4. Midterm Exam	100 Points
5. Final Exam (Cumulative)	100 Points
6. Term Project	100 Points

Course Requirements and Assignments:

Course requirements, reading materials, hands-on coding activities, and assignments 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, and assignments. Final grade is calculated based on the percentage of the total points for all the Course Requirement and Assignments listed below:

1. In-class Programming Assignments (Labs) : There will be a number of hands-on exercises. The purpose of the hands-on exercises is to develop your understanding of the material and your skills in problem-solving and in programming. Occasionally, you will be asked to come to the front of the class to go through your solutions (programs) and share/explain your code with the rest of the class. Students are

required to submit completed hands-on exercises to Canvas at the end of each class for grading. Two files need to be submitted for each lab: .py file (your Python program) and a PDF file showing your pasted program code and the screenshot of the program output/results.

2. Homework Assignments : Assignments that reinforce lecture and programming skills will be assigned. The purpose of the assignments is to develop your understanding of the material and your skills in problem solving and in programming. Assignments are submitted via Canvas for grading. Students must submit only their own work. Students are responsible for knowing/understanding the content of assignment they submit and may be asked to demonstrate their work to the class. Assignment due dates are posted on Canvas. All Assignment (in class and homework) are posted and submitted on Canvas by the posted due date. Two files need to be submitted for each assignment: .py file (your Python program) and a PDF file showing your pasted program code and the screenshot of the program output/results. 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. Students should check the course page on Canvas daily for assignments and updates. Your work must be submitted online via Canvas in order to receive credit. No late or e-mailed assignments will be accepted. No Extra Credit assignments will be given in lieu of homework or labs.

3, 4, 5: Quizzes and Exams (Midterm and Final): The quizzes and exams have fixed dates and can only be taken in the classroom during class time. Quizzes and Exams will be in-class, hand-written or on Canvas. Students will be allowed to use their hand-written notes from lectures on the quizzes. There are no make-up exams or quizzes. Makeup exams will only be given in cases of illness (with signed documentation from a medical facility – original copy). Exams are closed book, closed notes, closed neighbor and comprehensive. The final exam is cumulative. Final Exam will be given on December 17, 2018 from 2:45 to 5:00pm.

6. Term-Project :

There will be a programming group project. Each group consists of two students. Information on the project, including topics and deadlines, will be given later in the course. Each group gives a 20-minute, in-class presentation including code and algorithm review.

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 your neighbor. During lab, students are expected to use their wireless laptop computers to complete the hands-on exercises and lab assignment during class.

There may be collaboration for some of the labs, but each students collaborating is expected to understand and contribute to the solution. To ensure this, students are expected to share your ideas and solutions with the class. The final submitted solution should have comments showing each students contribution.

Attendance is not optional and is an essential part of the learning process. Students are expected to arrive to class on time and turn off their cell phones during the class. Students are expected to follow the code of conduct for the class and the university including Be respectful and do not disturb classmates and the instructor while class is in session. Please do not use cell phones, messaging apps, headphones, music players or any other devices other than you laptops during class time. Laptops should only be used for course-related purposes during lab. No photography or audio or video recording of any part of this class

permitted without express written permission from the instructor. See University policies for more detail on student code of conduct on SJSU.edu

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.

Tentative Course Schedule: CS 22A-02: Python Programming for Non-Majors I, Fall 2018

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

Week	Date	Topics, Readings, Assignments, Deadlines
1	8/21/2018	Introduction, Python Development Environment, Conventions and Coding Style Guidelines, Python as a calculator, Basic I/O .
1	8/23/2018	Algorithms, Computational Problem Solving, Abstraction, flowcharts, Variables, Data Types. Reading Assignment 1
2	8/28/2018	Variables, Assignment , Data Types, Operators (cont.). In-Class Programming Assignment 1 Due .
2	8/30/2018	Strings, Text manipulation. Reading Assignment 2 .
3	9/4/2018	Strings, In-Class Programming Assignment 2 Due. Homework Assignment 1 Due
3	9/6/2018	Data Structures: Lists, Reading Assignment 3
4	9/11/2018	Data Structures: Lists, In-Class Programming Assignment 3 Due
4	9/13/2018	Control Structures – Repetition/ <i>while</i> & <i>for</i> Loop, Criteria/Condition. , In-Class Reading Assignment 4, Programming Assignment 4 Due Homework Assignment 2 Due
5	9/18/2018	Control Structures – Selection/Conditionals -- <i>if</i> Statements
5	9/20/2018	Control Structures – Selection/Conditionals -- <i>if</i> Statements, In-Class Programming Assignment 4 Due Homework Assignment 3 Due
6	9/25/2018	Quiz 1
6	9/27/2018	Functions, Arguments, Parameters Writing your own functions and built-in functions, Reading Assignment 5
7	10/2/2018	Functions (cont.) In-Class Programming Assignment 5 Due
7	10/4/2018	Functions, call stacks, scope, Homework Assignment 4 Due
8	10/9/2018	Midterm
8	10/11/2018	Dictionaries, Reading Assignment 6
9	10/16/2018	Dictionaries, In-Class Programming Assignment 6 Due
9	10/18/2018	Random number generation, Reading Assignment 7

Week	Date	Topics, Readings, Assignments, Deadlines
		Error handling, , In-Class Programming Assignment 7 Due
10	10/23/2018	Search Algorithms, Reading Assignment 8
10	10/25/2018	Search Algorithms, In-Class Programming Assignment 8 due.
11	10/30/2018	Sorting Algorithms
11	11/1/2018	Sorting Algorithms, In-Class Programming Assignment 9 due. Homework Assignment 5 Due
12	11/6/2018	Quiz 2
12	11/8/2018	File I/O, Reading Assignment 9
13	11/13/2018	File I/O, In-Class Programming Assignment 10 due. Homework Assignment 6 Due
13	11/15/2018	Data Visualization: plots, graphs, charts, Excel Functions, creating graphics in Python. Reading Assignment 10
14	11/20/2018	Data Visualization: plots, graphs, charts, Excel Functions, creating graphics in Python. In-Class Programming Assignment 11 due. Homework Assignment 7 Due
14	11/22/2018	No Class, Thanksgiving Holiday
15	11/27/2018	Quiz 3
15	11/29/2018	Term/Final Project Due
16	12/4/2018	Term/Final Project Presentations
16	12/6/2018	Term/Final Project Presentations and General Review
Final Exam	12/17/2018	Cumulative Final, Monday, 2:45 – 5:00 pm, MH 225

Students are required to complete the **Syllabus agreement** and bring to class on **Aug 28, 2018**.

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

Syllabus Agreement Form

I, _____ (*Please Print Name Clearly*),
 SJSU ID# _____ have received the syllabus for CS 22A-02 course. I have read
 and understood the CS 22A-02 Syllabus in its entirety. My signature indicates my agreement and
 understanding of the syllabus and my responsibility to adhere to it.

Signature: _____

Date Signed: _____