

**San José State University**  
**Computer Science Department**  
**CS 22A: Python Programming for Non-Majors I**  
**Section 1, Spring 2019**

**Course and Contact Information**

**Course Number:** 24415  
**Course Dates:** Jan 24, 2019 to May 13, 2018  
**Class Days:** Tuesdays & Thursdays  
**Class Time:** 3:00 - 4:15 pm  
**Classroom:** MacQuarrie Hall (MH) 222  
**Instructor:** Professor Ferguson  
**Email:** nadine.ferguson@sjsu.edu  
**Office Hours:** Thursdays 4:30 - 5:30 pm and by appointment  
**Office Location:** Duncan Hall (DH) Room 282 or MH 229  
**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, and other core concepts are covered. Applications focus on computational techniques to understand, analyze, organize 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/lab. 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) for each class. All assignments are submitted in Canvas. Student laptops must remain closed during lecture.

All course materials 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 and due dates. 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 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.

**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 Assignments (Labs)	5-10 points each
2. Homework Assignments	10- 20 points each
3. Two Exams	100 points each
4. Final (Cumulative)	100 points
5. 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:

**In-class Assignments ( Labs) :** Labs are in-class hands-on exercises designed to develop your understanding of the lecture material. Completed labs are submitted 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 .docx file showing your pasted program code and the screenshot of the program output. Download the .docx Required Assignment Document Template from Canvas. No late or emailed labs are accepted for any reason. Students must be present in class to submit labs.

**Homework Assignments :** The goal of the 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. Two files need to be submitted for each assignment: .py file (your Python program) and a .docx file (contains program source code and output screenshots). Download the .docx Required Assignment Document Template from Canvas. 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 assignments are accepted for any reason. Students should check the course page on Canvas daily for assignments and updates. Students must give attribution for any help they receive on their homework outside the class. Each line of code where help was received must be declared using a comment that includes the source of help. No late or e-mailed assignments will be accepted. No Extra Credit assignments will be given in lieu of homework or labs.

**Exams :** There will be two 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. The format of the exams will be a combination of short answer questions, multiple choice, and essay questions where you would either write code or debug code. Exams are closed book, closed notes, closed neighbor and comprehensive. The final exam is cumulative. Final Exam will be given on May 17, 2018 at 2:45 pm.

**Term-Project :** There will be a final 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 must submit an algorithm flow chart, Python program, and a .docx file containing program source code and the output screenshots (using the assignment document template) by the due date. Term project files must be submitted to the Canvas turnitin link in order to receive credit. Each group gives a 20-minute, in-class presentation including code and algorithm review. Term projects without a presentation will receive a grade of zero. All three required files must be submitted by the due date/time in order to present. No late or emailed term projects are accepted for any reason. All the criteria for assignments apply to the final project. 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.

### **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 addressing the class. 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 to complete the hands-on lab during class.

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 front of the class to go through their programs and share/explain their code with 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. Students are expected to follow the code of conduct for the class and the university including being respectful and not disturb 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. 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

## 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: Python Programming for Non-Majors I, Spring 2019

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

Week	Date	Topics, Readings, Assignments, Deadlines
1	1/24/2019	Introduction, Course Overview, Schedule and Expectations. Overview of Python Development Environment,
2	1/29/2019	Setting up and Using Python Integrated Development Environment, Conventions and Coding Style Guidelines, Python as a calculator, First Program
2	1/31/2019	Algorithms, Computational Problem Solving, Abstraction, flowcharts, Variables, Data Types. Reading Assignment 1, Lab 1
3	2/5/2019	Variables, Assignment , Data Types, Operators. Lab1 Due .
3	2/7/2019	Python I/O (Capturing user input), Lab 2 Reading Assignment 2
4	2/12/2019	Functions, Arguments, Parameters Writing your own functions and built-in functions, Reading Assignment 3
4	2/14/2019	Functions (cont.) Lab 3 Due Homework Assignment 1 Due
5	2/19/2019	Control Structures – Repetition/ <i>while</i> & <i>for</i> Loop, Criteria/Condition. Reading Assignment 4, Lab 4 Due
5	2/21/2019	Control Structures – Repetition/ <i>while</i> & <i>for</i> Loop, Criteria/Condition. State Diagram
6	2/26/2019	Control Structures – Selection/Conditionals -- <i>if</i> Statements
6	2/28/2019	Control Structures – Selection/Conditionals -- <i>if</i> Statements,. Lab 5 Due Homework Assignment 2 Due
		<b>Exam 1</b>
7	3/5/2019	Strings, Text manipulation. Reading Assignment 5 .
7	3/7/2019	Strings, Lab 6 Due.
8	3/12/2019	Data Structures: Lists, Reading Assignment 6
8	3/14/2019	Data Structures: Lists, Lab 6 Due, Homework Assignment 3 Due
9	3/19/2019	Fruitful Functions, Returns, Call stack, Scope Reading Assignment 7

Week	Date	Topics, Readings, Assignments, Deadlines
9	3/21/2019	Fruitful Functions, Returns, Call stack, Scope Lab 7 Due
10	3/26/2019	Dictionaries, Reading Assignment 8
10	3/28/2019	Dictionaries, Lab 8 Due
11	4/2/2019	No Class -- Break
11	4/4/2019	No Class – Break
		<b>Exam 2</b>
12	4/9/2019	Exception Handling, Random number generation, Lab 9 Due, Homework Assignment 4 Due
12	4/11/2019	Search Algorithms
13	4/16/2019	Search Algorithms, Lab 10 Due.
13	4/18/2019	Sorting Algorithms, Lab 11.
14	4/23/2019	File I/O, Reading Assignment 9
14	4/25/2019	File I/O, Lab12 Due. Homework Assignment 5 Due
15	4/30/2019	Data Visualization: plots, graphs, charts, Excel Functions, creating graphics in Python.
15	5/2/2019	Term Project Due, General Review
16	5/7/2019	Term Project Presentations
16	5/9/2019	Term Project Presentations
<b>Final Exam</b>	05/21/2019	Cumulative Final, Tuesday, May 21, 2019 at 2:45 pm, MH 222

Students are required to complete the **Syllabus agreement** and bring to class on **January 29, 2019**.

..... **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 CS22A Syllabus in its entirety. My signature indicates my agreement and  
understanding of the syllabus and my responsibility to adhere to it.

Signature: \_\_\_\_\_

Date Signed: \_\_\_\_\_

**\*\*Note\*\*** Return this form no later than the second week of class.