San José State University
Computer Science Department
CS 22A: Python Programming for Non-Majors I
Section 2 Fall 2019

Course and Contact Information

Course Number: 43461
Course Dates: Aug 22, 2019 to December 9, 2019
Class Days: Tuesdays & Thursdays
Class Time: 4:30 - 5:45 pm
Classroom: MacQuarrie Hall (MH) 222
Instructor: Nadine Ferguson
Email: nadine.ferguson@sjsu.edu
Office Hours: Thursdays 6:00 - 7:00 pm and by appointment
Office Location: Room MH 222
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. **Note**: Section 1 is mainly for life science students interested in pursuing a Minor in Bioinformatics. In other words, we will cover Python with a bias towards examples drawn from Biology.

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 at http://sjsu.instructure.com. Students are responsible for regularly checking with the messaging system through MySJSU 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 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. Final grade is calculated based on the percentage of the total points for all the Course Requirement and Assignments. Details of each requirement category is listed below:

Labs(In-class Assignments) and Homework Assignments : Labs are in-class hands-on exercises designed to develop understanding of the lecture material. Approximately two labs will be assigned each week. Students are expected to complete each lab prior to the end of each class and submit to Canvas for grading. Students must be present for lecture in order to compete the labs. Labs are not group projects, they are for individual work only. Each student is expected to

do their own work individually. In the event that group activity is allowed on a lab, each student must label and document the lines of code they contributed to the assignment 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.

Two files need to be submitted for each lab and homework assignment: A .py file (Python program) and a .docx file showing documentation including solution algorithm, program source code and output screenshot of testing the program. Students can use the .docx template created by the instructor for their convenience. The .docx Required Assignment Document Template can be downloaded from course Canvas page. 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. 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. Students will apply the programming skills and constructs learned to complete the term project 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 10-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. Each group is required to attend progress checkpoint meetings scheduled at various intervals with the instructor as part of their grade. Each team member must deliver 50% of the design, coding, documentation and testing for the project in order to get credit. Sections must be labeled with the team member's name. Students should plan on submitting their final project files at least 3 days prior to the due date to avoid network or Canvas submission issues. All term projects will be checked with plagiarism checking software. The team members should complete the project without assistance from outside or online sources, as this project is an application of the culmination of concepts learned in this course. If outside help is required, it must be approved by the instructor in advance. Each team must sign up for a time slot on one of the presentation dates listed at the top of this spec to present their flowchart, game play and code review. Zero credit is given to term projects without presentation and code review on their presentation date! All students are required

to attend each group presentation and provide written feedback for each team as part of their grade. 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. Plagiarism includes:
- knowingly or unknowingly incorporating the ideas, work, parts of work, or the specific substance of another's work without giving appropriate credit, and representing the product as one's own work;
- representing another's artistic or scholarly works, such as computer programs, instrument printouts, inventions, musical compositions, photographs, paintings, drawings, sculptures, novels, short stories, poems, screen plays, or television scripts, as one's own.

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 test or other evaluation instrument, including homework assignments, worksheets, labs, essays, summaries, and quizzes;
- submitting work previously graded in another course without prior approval by the course instructor or by departmental policy;
- submitting work simultaneously presented in two or more courses without prior approval of all course instructors or by the departmental policies of all departments;
- using or consulting sources, tools, or materials prohibited by the instructor prior to or during an examination;
- altering or interfering with the grading process; 1.1.6 sitting for an examination by a surrogate or as a surrogate;
- any other act committed by a student in the course of his or her academic work that defrauds or misrepresents, including aiding others in any of the actions defined above

To further clarify, here are some examples of cheating:
-Copying code from friends, classmates, tutors
-Copying code out of books
-Cutting and pasting program, or lines of code from the Internet
-Downloading or purchasing programs off of the Internet

Students are not allowed to use someone's code or copy from internet. Students must submit only their own original work and not the work of someone else! Students must declare and give attribution for any help their receive on their assignments. 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. You may be asked to demo and explain your code to the instructor or to the class. If you got help from /anywhere on any assignment/lab, you must be able to explain the code in detail when called to the board, otherwise a grade of zero is given on the assignment/lab. Use of outside or online help sources for assignments must be approved by the instructor in advance. Plagiarism-detection services will be used for assignments, labs, term project and exams. Code plagiarism checker tools will be used to check the similarity of codes. **Cheating will not be tolerated** and will be reported to University.

Your assignments, labs and term project should be original pieces of written code. Should a student be caught cheating during an examination or be involved in plagiarism, an F will be assigned for the exam, lab , term project or assignment. If you turn in an assignment or lab that is identical or nearly identical to someone else's (unless it is a group assignment) both people will receive a zero on the assignment/lab. If, during the semester, you turn in an assignment, **any portion of which** is copied without citation from the Internet, a book, another student, a tutor , etc. you will receive zero for the assignment. If you do this more than once in a semester, I will fail you in the class. In addition, plagiarizers may also be eligible for a number of other unpleasant punishments, such as removal from the class and possibly the college. I will report academic integrity offenses to the administration, who may elect to take further measures. Please 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 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 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 may be dropped for the class after 4 absences. You may not leave the class early without the instructor's permission. 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. No side conversations or chatter when the instructor is talking or you 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 CIS 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 not part of the course material for CS22A is permitted for upload to any online site other than Canvas. Students are not permitted to upload assignments to online sources for hele. Students may not post online or email their class programming questions or solutions for any reasons with the express written permission form the instructor. All course materials, assignments, labs, exam and term project documents are considered proprietary and in 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	8/22/2019	Introduction, Course Overview, Schedule and Expectations.
2	8/27/2019	Overview of Python Development Environment, Setting up and Using Python Integrated Development Environment, Conventions and Coding Style Guidelines, Lab 1 - First Program, Python as a calculator
2	8/29/2019	Algorithms, Computational Problem Solving, Abstraction, flowcharts, Variables, Data Types. Reading Assignment 1, Lab 2
3	9/3/2019	Variables, Assignment , Data Types, Operators. Lab1 Due .
3	9/5/2019	Python standard I/O, Lab 3 (Capturing user input), Reading Assignment 2
4	9/10/2019	Functions, Arguments, Parameters Writing your own functions and built-in functions, Reading Assignment 3
`4	9/12/2019	Functions (cont.) Lab 4 Due Homework Assignment 1 Due
5	9/17/2019	Control Structures – Selection/Conditionals -- Criteria/Condition *if* Statements
5	9/19/2019	Control Structures – Selection/Conditionals -- if Statements,. Lab 6 Due
6	9/24/19	Control Structures – Repetition/ *while* Loop, Criteria/Condition. State Diagram, Reading Assignment 4, Lab 5 Due Homework Assignment 2 Due
6	9/26/19	Strings, Text manipulation. Reading Assignment 5, Strings, Lab 7 Due.
7	10/1/19	Control Structures – Repetition/ *for* Loop, Criteria/Condition. State Diagram
	10/3/19	**Exam 1**
8	10/8/2019	Data Structures: Lists, Reading Assignment 6
8	10/10/2019	Data Structures: Lists, Lab 8 Due, Homework Assignment 3 Due
9	10/15/2019	Fruitful Functions, Returns, Call stack, Scope Reading Assignment 7
9	10/17/2019	Fruitful Functions, Returns, Call stack, Scope Lab 9 Due
10	10/22/2019	Dictionaries, Reading Assignment 8
10	10/24/2019	Dictionaries, Lab 10 Due
11	10/29/2010	File I/O, Reading Assignment 9
11	10/31/2019	File I/O, Lab13 Due. Homework Assignment 5 Due
		Exam 2
12	11/5/2019	Exception Handling, Random number generation, Lab 9 Due, Homework Assignment 4 Due

Week	Date	Topics, Readings, Assignments, Deadlines
12	11/7/2019	Search Algorithms
13	11/12/2019	Search Algorithms, Lab 11 Due.
13	11/14/2019	Sorting Algorithms, Lab 12.
14	11/29/2019	Data Analysis
14	11/21/2019	Creating graphics in Python (Time permitting)
15	11/26/2019	Term Project Presentation
15	11/28/2019	No Class – Thanksgiving Holiday
16	12/3/2019	Term Project Presentations
16	12/5/2019	Term Project Presentations
Final Exam	12/17/2019	Cumulative Final, Tuesday, December 17, 2019 at 2:45 pm, MH 222

Students are required to complete the **Syllabus agreement** and bring to class no later than the second week of class.

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

Syllabus Agreement Form

I, _____ (*Please Print 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 policies.

Signature: _____

Date Signed: _____

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