

**San José State University**  
**Computer Science Department**  
**CS 22A: Python Programming for Non-Majors I, Section 03, Spring 2020**

**Course and Contact Information**

Instructor:	Punit Sundar
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Office Hours:	Mon/Wed 4:30pm - 5:30pm
Class Days/Time:	Mon/Wed 3:00pm - 4:15pm
Classroom:	SCI 311
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 Format**

- Class lectures consist of "lecture" mode and "lab" mode (explained in Classroom Protocol)
- You are required to bring your wireless laptop to each class
- Exams will be in-class, hand-written, and closed book
- Course materials such as syllabus, handouts, notes, hands-on exercise, project instructions, etc. can be found on Canvas Learning Management System course login website at <https://sjsu.instructure.com>. You are responsible for regularly checking with the Canvas messaging system to learn of any updates.

**Course Description**

This course is an introduction to Python Programming. Programming in interesting, relevant, and practical contexts. Image and video manipulation, digital music, databases, web pages, data analysis in life sciences, other applications. Fundamental programming constructs: data structures and algorithms, iterations, functions. Prerequisite: 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.

**Note:** This course 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 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 in life and physical science contexts.

## Required Texts/Readings

Python for Biologists by Martin Jones, 2015, ISBN-13: 978-1492346135, ISBN-10: 1492346135.

**Note:** The author is a biologist. This book, as well as Advanced Python for Biologists, were written especially for scientists who are new to programming. The author maintains a website for the books at <https://pythonforbiologists.com/introduction>. An older version of the book can be found online: <http://userpages.fu-berlin.de/digga/p4b.pdf>.

**Note:** We will cover the first eight chapters of the book.

## Other Readings

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

## Course Requirements and Assignments

1. **Hands-On Exercises (20%):** We will have 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 them with (explain them to) the rest of the class. Hands-on exercises will need to be submitted on Canvas, and the due dates will be announced in class. They will be graded as either complete or incomplete.
2. **Problem Sets (20%):** Five problem sets that reinforce lecture and practical 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. Problem sets will be submitted via Canvas for grading. Please note that you will be responsible for knowing/understanding the content in all Problem Set questions. Only a subset of the assigned problems will be graded (per homework). Assignments are due at the beginning of the lecture and must be submitted on Canvas by 2:59 pm on the following dates:
  - a. Homework 1 due on Monday, February 17, 2020. Submit on Canvas by 2:59pm.
  - b. Homework 2 due on Wednesday, March 04, 2020. Submit on Canvas by 2:59pm.
  - c. Homework 3 due on Monday, March 23, 2020. Submit on Canvas by 2:59pm.
  - d. Homework 4 due on Wednesday, April 08, 2020. Submit on Canvas by 2:59pm.
  - e. Homework 5 due on Wednesday, April 29, 2020. Submit on Canvas by 2:59pm.
3. **Term-Project (20%):** There will be a group programming project. Each group will consist of two students. Information on the project including topics and deadlines, will be given later. Each group gives an 8-10 minute in-class presentation (4-5 minutes per student) on May 06 or May 11, 2020. The project paper is due on Wednesday, May 06, 2020.
4. **Term Exams (20%):**

**Exam One:** Wednesday, March 11, 2020.

**Exam Two:** Wednesday, April 15, 2020

Exam One and Exam Two are each one hour and fifteen minutes long (entire class time). All exams are in-class, closed-book, and comprehensive. Make-up exams will be given only at the instructor's discretion. Note: If you fall behind, you will likely do poorly on the exams as well. Plan on attending office hours if falling behind.

5. **Final Exam (20%):** A cumulative final will be given on Wednesday, May 13 12:15pm - 2:30pm

## Grading Information

### Grading calculation will be based on the following:

- Hands-On Exercises (20%)
- Five Assignments/Problem Sets (20%)
- Term Project (20%)
- Two Term Exams (20%)
- Final Examination (20%)

**Incomplete work:** Points will be deducted for incomplete question responses and solutions that are partially functional. Consult individual assignment for details of point allocation for each problem.

**Late assignments:** No late homework will be accepted. However, under exceptional circumstances, one problem set per student might be accepted late. It will need to be handed in prior to the following class meeting and will be graded with 30% off. Such an extension should be requested from the instructor. No late assignments will be accepted at the end of the semester for partial points or to increase grades so do your best to complete all assignments on time.

**Makeup Exams:** You must submit only your own work on exams. Makeup exams will only be given in cases of illness (documented by a doctor) or in cases of documentable, extreme emergency.

### Grading Scale:

Point Range	Letter Grade	Point Range	Letter Grade
97.0 - 100	A+	72.0 - 76.99	C
93.0 - 96.99	A	70.0 - 71.99	C-
90.0 - 92.99	A-	67.0 - 69.99	D+
87.0 - 89.99	B+	62.0 - 66.99	D
82.0 - 86.99	B	60.0 - 61.99	D-
80.0 - 81.99	B-	<60.0	F
77.0 - 79.99	C+		

**NO extra credit assignments will be given.**

### Classroom Protocol

- **Lecture Mode:** This is when class is used as a regular lecture room. Students are expected to listen and follow the lecture. Be considerate to your classmates and follow the lecture. Do not use the computer and/or talk to your neighbor.
- **Lab Mode:** This is when class is used as a computer lab. Use your laptop computers. Work collaboratively on problems of the Hands-On and share your ideas and solutions with your classmates.

- We alternate between the two modes. A typical class will begin with a lecture (Lecture Mode) followed by a hands-on (Lab Mode).

### **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 the Office of Graduate and Undergraduate Programs' Syllabus Information web page at <http://www.sjsu.edu/gup/syllabusinfo/>. The full descriptions and consequences of academic dishonesty can be found at <http://info.sjsu.edu/static/catalog/integrity.html>. Cheating will be taken seriously and can result in a zero for the coursework/exams.

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## Course Schedule

The course schedule is subject to change with fair notice. Changes will be announced on Canvas.

Week	Date	Topics
2	01/27	Syllabus, Introductions, Course Expectations, Python Interpreter and Python Coding Style Hands-On One and Book (MJ) Chapter One
2	01/29	MJ Chapter Two, Printing and Manipulating Text, pages 14 - 28 Hands-On Two
3	02/03	MJ Chapter Two, Printing and Manipulating Text, pages 28 - 36 Hands-On Three
3	02/05	MJ Chapter Two, Printing and Manipulating Text, pages 28 - 36 [Continuation] Hands-On Three
4	02/10	MJ Chapter Three, Reading and Writing Files, pages 54 - 66 Hands-On Four
4	02/12	MJ Chapter Three, Reading and Writing Files, pages 54 – 66 [Continuation] Hands-On Four
5	02/17	Homework #1 due MJ Chapter Four, Lists and Loops, pages 77 - 86 Hands-On Five
5	02/19	Homework #1 answers. MJ Chapter Four, Lists and Loops, pages 86 – 92 Hands-On Six
6	02/24	MJ Chapter Four, Lists and Loops, pages 86 – 92 [Continuation] Hands-On Six
6	02/26	MJ Chapter Five, Writing our own Function, pages 105 - 119 Hands-On Seven
7	03/02	MJ Chapter Five, Writing our own Function, pages 105 – 119 [Continuation] Hands-On Seven
7	03/04	Homework #2 due MJ Chapter Five, Writing our own Function, pages 121 – 122. Hands-On Eight
8	03/09	Exam review
8	03/11	<b>Term Exam 1</b>
9	03/16	Term Exam 1 answers. Hands-On Nine

<b>Week</b>	<b>Date</b>	<b>Topics</b>
9	03/18	Project Team Formation MJ Chapter Six, Conditional Tests, pages 129 – 139. Hands-On Ten
10	03/23	Homework #3 due MJ Chapter Six, Conditional Tests, pages 139 – 141 Hands-On Eleven
10	03/25	Project Proposal Due Homework #3 answers. MJ Chapter Seven, Conditional Tests, pages 142 – 143 Hands-On Twelve, Hands-On Thirteen
11	03/30	<b>Spring Recess - no classes</b>
11	04/01	<b>Spring Recess - no classes</b>
12	04/06	MJ Chapter Seven, Regular Expressions, pages 151 – 167 Hands-On Fourteen
12	04/08	Homework #4 due MJ Chapter Seven, Regular Expressions, pages 151 – 167 [Continuation] Hands-On Fourteen
13	04/13	Exam review
13	04/15	<b>Term Exam 2</b>
14	04/20	MJ Chapter Eight, Dictionaries, pages 179 – 193 Hands-On Fifteen
14	04/22	Term Exam 2 answers.
15	04/27	MJ Chapter Eight, Dictionaries, pages 179 – 193 [Continuation]. Hands-On Fifteen
15	04/29	Homework #5 due MJ Chapter Eight, Dictionaries, page 194 Hands-On Sixteen
16	05/04	Exam Review
16	05/06	<b>Projects Due.</b> In-Class Presentations
17	05/11	In-Class Presentations [Continuation]
18	05/13	<b>Final Exam</b> – Wednesday, May 13 12:15pm - 2:30pm

### **Important dates:**

Tuesday, February 4: Last day to drop courses without a “W” grade

Wednesday, February 5: Late drop (petition required)

Tuesday, February 11: Last day to add a course for Spring 2020

Thursday, April 23: Last day to withdraw from semester