CS 22B - Python for Nonmjrs II

Course and Contact Information:

Instructor:	Rashi Raghulan
Email:	rashi.raghulan@sjsu.edu
Class Day and Time:	Monday and Wednesday 9:00 AM -10:15 AM PST
Prerequisites:	CS22A with a grade of C- or better, or consent of the instructor. This course is intended for students pursuing a Minor in Bioinformatics.

Class and Office Hour Links:

	Days and Times:	Link:
Classroom	Monday and Wednesday 9:00 AM - 10:15 AM PST	Live session via Zoom https://sjsu.zoom.us/j/89378463424?pwd=TWgxa3V5WG1ERjVBSUFQUE1pK0lVdz09 Meeting ID: 893 7846 3424 Password: Fall2021
Group Office Hours	Monday 2:00 PM – 3:00 PM PST	Live session via Zoom https://sjsu.zoom.us/j/87396220758?pwd=cVU5QWpRdzhNcWV5ZWllN0kyS3VxQT09 Meeting ID: 873 9622 0758 Password: CS22B
Individual Office Hours (20 min slots)	Friday 10:00 AM – 11:00 AM PST	Live session via Zoom Booked with Calendly: https://calendly.com/rashi-raghulan/office-hours - Earliest: 2 weeks beforehand - Latest: 1 hour beforehand

*Passwords are subject to change.

** September 9th

Course Description:

Learning hands-on Python programming skills.

Skills include:

- casting a problem as an algorithm
- translating an algorithm to executable code
- debugging and testing code

Applications focus on computational techniques to understand, analyze, and visualize data.

Course Format:

- Synchronously
- Zoom lectures will be recorded and posted.
- Canvas Learning Management System is your main source for information: https://sjsu.instructure.com
    - All course material will be posted on Canvas.
    - You are responsible to check Canvas regularly for any updates.
- Class will be mostly spent in lecture mode with participation.
- Written AND oral assessments will be used to measure student learning

Course Learning Outcome (CLO)

Upon successful completion of this course, you will be able to

1. Write programs using various data types, and using basic techniques such as assignment, function calls, loops, and conditionals.
2. Write recursive functions.
3. Use and manipulate several built-in data structures such as lists, arrays, and dictionaries, including nested data structures.
4. Break a medium sized problem down into smaller parts and solve each sub-problem individually.
5. Test and debug programs.
6. Use objects and associated methods provided by the programming language.
7. Implement objects and associated methods.

Recommended Texts/readings - Not required:

Advanced Python for Biologists by Martin Jones, 2017,

ISBN-13: 978-1495244377, ISBN-10: 1495244377.

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

Python Programming Environment:

We will be using Google Colab (https://collab.research.google.com/) with Chrome or any supported web browser: and program in Python within Jupyter notebook. There is no additional software installation is required.

If students want local software, Jupyter notebook is recommended.

Grading Information:

Grading calculation will be based on the following:

- Participation - 15%
- Hands-on Lab Reports - 35%
- Midterm I & II – 20%
- Final Exam - 20%
- Oral Assessment – 10%

Late Submission: No late submission of lab report or exams will be accepted.

However, under certain circumstances, two lab report per student might be accepted late. It will need to be handed in within a week and will be graded with 10% off for each day extension.

Exams: You must submit only your own work only. Copying and any other forms of cheating will not be tolerated and will result in a failing grade (F) for the course. If copying and any other forms of cheating are done on any type of assessment (midterm, final, or oral), this will be combined with other disciplinary actions from the university.

Grading Scale:

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

1. **Participation – 15%:**
    - **I-Clicker** for participation. Not graded on accuracy.
    - Need only 15 points for 100% (1 point for 1 class)
    - Quizzes available for students who cannot make it to the sections.

2. **Hands-on Lab Report – 35%:**
    - Help you understand the material and increase your skills
    - You are welcome to work with each other, but do not copy the code.
    - Only accepted through Canvas

3. **Midterm 1 and 2 – 20%:**
    - Contact me if you cannot make it to the midterm atleast a week beforehand.
        - If you cannot make it, **Proctorio** will be used.
    - Videos will be on during midterms.

4. **Final Exam – 20%:**
    - Contact me if you cannot make it atleast 3 weeks beforehand.

5. **Oral Assessment – 10%:**

- Done in the Month of November
- Individual 10-minute slot.
- You will be asked to explain a piece of code or logic that you wrote in any of the hands-on or midterms.

(Virtual) Classroom Protocols and Etiquettes:

- **Attendance:** Strongly recommended and encouraged
  - **Be Punctual**
  - **Mute:** Unless your speaking, keep you microphone on mute. *Mute upon entry.*
  - Video does not need to be on. Strongly recommend and encourage videos on during individual office hours.
    - If your video is on, be **mindful of background distractions**
    - If there are distractions, use an appropriate and professional virtual background that is NOT objectively offensive or demeaning.
- **Stay on top of coursework:** Students are responsible for their knowledge and any course-related work.
- **Follow the rules of netiquette:** Be respectful. Be dressed appropriately if you want to turn your camera on.
- **Zoom recordings of the lectures:** Posted within the end of the day. Email me if they are not.
  - You are only allowed to view. You do not have permission to share the records or ANY course materials with someone who is not in this class.
  - These are protected by the instructor's copyright
- **Accessibility:** Any student that needs accommodations or assistive technology due to a disability should work with the Accessible Education Center (AEC), and the instructor.

Technology Requirements

Students are required to have an electronic device (laptop, desktop or tablet) with a camera and built-in microphone. SJSU has a free equipment loan program available for students. Students are responsible for ensuring that they have access to reliable Wi-Fi during tests. If students are unable to have reliable Wi-Fi, they must inform the instructor, as soon as possible or at the latest one week before the test date to determine an alternative. See Learn Anywhere website for current Wi-Fi options on campus.

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/

Course Schedule – Tentative and Subject to Change:

Week	Date	Topic	Assignment Due
1	8/23	Syllabus. Introductions. Course Expectations. Google Collab	
1	8/25	Complex Data Structures. *Hands-On #1*	
2	8/30	Complex Data Structures. *Hands-On #1*	
2	9/1	Iterators, Comprehensions, and Generators. *Hands-On #2*	Hands-On #1
3	9/6	Labor Day: No Class	
3	9/8	Iterators, Comprehensions, and Generators. *Hands-On #2*	
4	9/13	Iterators, Comprehensions, and Generators. *Hands-On #2*	
4	9/15	Functional Programming. *Hands-On #3*	Hands-On #2
5	9/20	Functional Programming. *Hands-On #4*	Hands-On #3
5	9/22	Functional Programming. *Hands-On #5*	Hands-On #4
6	9/27	Midterm Review.	
6	9/29	Midterm #1	
7	10/4	Functional Programming. *Hands-On #5*	
7	10/6	Object-Oriented Programming. *Hands-On #6*	Hands-On #5

8	10/11	Object-Oriented Programming. *Hands-On #7*	Hands-On #6
8	10/13	Object-Oriented Programming. *Hands-On #8*	Hands-On #7
9	10/18	Object-Oriented Programming. *Hands-On #8*	
9	10/20	Tree. *Hands-On #9*	Hands-On #8
10	10/25	Midterm Review.	
10	10/27	Midterm #2	
11	11/1	Tree. *Hands-On #9*	
11	11/3	Recursion. *Hands-On #10*	Hands-On #9
12	11/8	Recursion. *Hands-On #10*	
12	11/10	Exception Handling. *Hands-On #11*	Hands-On #10
13	11/15	Exception Handling. *Hands-On #11*	
13	11/17	Introduction to pandas. *Hands-On #12.*	Hands-On #11
14	11/22	Introduction to pandas. Data visualization. *Hands-On #12.*	
14	11/24	Thanksgiving Break: No Class	
15	11/29	Data visualization. *Hands-On #13.*	
15	12/1	Catch-up on Oral Assessments	Hands-on #12

16	12/6	Final Review	Hands-on #13
16	12/8	Final	

*Assignment that are shaded are due on a Monday instead of a Wednesday