San José State University
Department of Computer Science
CS 122, Advanced Programming with Python, Section 1, Fall 2022

Course and Contact Information

Instructor:	Rula Khayrallah
Office Location:	MH 218
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Office Hours:	Online via Zoom: Tuesday 1:30-2:30 PM, Wednesday 4-5 PM
Class Days/Time:	Tuesday/Thursday 10:30-11:45AM
Classroom:	MH 233
Prerequisites:	CS 146 with a grade of C- or better

Course Description

Advanced features of the Python programming language with emphasis on programming practice. Course involves substantial programming projects in Python.

Course Format

Class time will be spent in interactive lecture. You are required to bring your wireless laptop to class.
We'll use iClicker to gather your feedback and check understanding during the lecture. iClicker helps me understand what you know, gives everyone a chance to participate, and allows you to review the material after class. You must be in the classroom to participate in the iClicker activity.
Most lectures will include a hands-on lab: you'll be given a link to a Jupyter notebook and you'll follow along on JupyterHub. You will export your work and submit it at the end of the lecture.

Canvas Course Site

Course materials such as syllabus, lecture notes, assignments and exams can be found on the Canvas Leaning Management System course website at http://sjsu.instructure.com. You are responsible for regularly checking with Canvas to learn of any updates.

Course Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Design, implement and test readable, efficient programs that take advantage of Python built-in capabilities and follow Python best practices.
2. Understand implementation differences and performance tradeoffs associated with various Python data structures.
3. Develop Python applications using the modules and packages available in the Python standard library.
4. Develop Python applications using third party libraries.
5. Design, implement and test substantial Python applications that include a graphical user interface, data analysis, web data extraction and web applications.

Software

Python 3
PyCharm Professional or Community Edition - recommended IDE

Course Requirements and Assignments

Homework Assignments:

Homework assignments will be posted and submitted on Canvas. For full credit, they must be submitted by the posted due date and time. A detailed grading rubric is provided for all programming assignments. Please make sure you read and follow the grading rubric to ensure full credit.

Some assignments will be individual work. Others will be team assignments. I will make it clear whether the assignment is an individual assignment or a team assignment.

All work submitted on individual assignments must be your own. You may not share or copy code or answers from fellow students or from the web. Infractions will be detected and will lead to an automatic 0. If someone else copies your work, with or without your permission, you will be held responsible.

For team assignments, teams will consist of two students. The work must be done by both team members and both team members will receive the same grade. Teams may not share or copy code from other teams or from the web. Both team members will receive a zero if that happens regardless of who copied or shared the work. Both team members will also be reported to the Student Conduct and Ethical Development office.

Questions of the Week

We will have a single question every week to check your understanding of the previous week's material. I will count the 10 best scores out of the 13 total questions in the semester. You must be in the classroom and must use the LockDown browser to access and answer the question on Canvas. Missed questions cannot be made up.

Hands-on Labs

Most lectures will include a hands-on lab: you'll be given a link to a Jupyter notebook and you'll follow along on JupyterHub. You will export your work and submit it at the end of the lecture. Your submission will be graded for completion.

Midterm Exam

The midterm exam will take place in the classroom during class time on Thursday, October 13.

Final Exam

The final exam is scheduled according to the SJSU Final Exam Schedule, on Tuesday December 13, 9:45 AM-12:00 PM.

Academic Dishonesty

Students who are suspected of cheating will be referred to the Student Conduct and Ethical Development office and depending on the severity of the conduct, will receive a zero on the assignment or a grade of F in the course. Grade Forgiveness does not apply to courses for which the original grade was the result of a finding of academic dishonesty.

Class Participation:

You are expected to attend all class meetings as you are responsible for all the material discussed. Since active participation is essential to ensure maximum benefit, we'll use iClicker to give everyone a chance to participate. The iClicker participation points may be used to give your final grade in the course a slight boost.
Most lectures will include a hands-on lab that you will submit at the end of the lecture. Your submissions will be graded for completion.

Workload:

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 internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

Grading Information

Determination of Grades

The final grade in the course will be calculated based on the following percentages:
Homework Assignments: 30%
Questions of the Week: 10%
Hands-on Labs: 10%
Midterm: 20%
Final Exam: 30%

The iClicker points may be used to give your final grade a slight boost. Students with the highest iClicker scores will get up to 1 bonus point. Students who violate the academic integrity policy are not eligible.
No extra credit options will be given.

Late Work

Late assignments will be accepted with a 1-point penalty for each day or partial day late. Late days include weekend days. For example, an assignment due on Tuesday by 5 PM will incur a penalty of 1 point if submitted at 8 AM on Wednesday. Everyone gets two free 'late days' for the semester. No submissions will be accepted more than 2 days late.

Grade Scale

The letter grade will be determined based on the following scale:

Grade	*Percentage*
A plus	*98 to 100%*
A	*93 to 97%*
A minus	*90 to 92%*
B plus	*87 to 89 %*
B	*83 to 86%*
B minus	*80 to 82%*
C plus	*77 to 79%*
C	*73 to 76%*
C minus	*70 to 72%*
D	*60 to 69%*
F	*below 60*

Classroom Protocol

Regular attendance is an integral part of the learning process. Please arrive to class on time and make sure your cell phones are silent during the lecture. Your laptop must remain closed except for designated activities.

COVID-19 and Monkeypox Safety

Students registered for a College of Science (CoS) class with an in-person component should view the CoS COVID-19 and Monkeypox Training slides for updated CoS, SJSU, county, state and federal information and guidelines, and more information can be found on the SJSU Health Advisories website. By working together to follow these safety practices, we can keep our college safer. Failure to follow safety practice(s) outlined in the training, the SJSU Health Advisories website, or instructions from instructors, TAs or CoS Safety Staff may result in dismissal from CoS buildings, facilities or field sites. Updates will be implemented as changes occur (and posted to the same links).

Students are not allowed to record without instructor permission

Students are prohibited from recording class activities, distributing class recordings, or posting class recordings. Materials created by the instructor for the course (syllabi, lectures and lecture notes, presentations, etc.) are copyrighted by the instructor. This university policy (S12-7) is in place to protect the privacy of students in the course, as well as to maintain academic integrity through reducing the instances of cheating. Students who record, distribute, or post these materials will be referred to the Student Conduct and Ethical Development office. Unauthorized recording may violate university and state law. It is the responsibility of students that require special accommodations or assistive technology due to a disability to notify the instructor.

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.

CS 122 Advanced Programming with Python, Fall 2022, Course Schedule

Please note that this schedule is subject to change with fair notice. Any changes will be announced in class and posted on the Canvas course site.

Course Schedule

Week	Date	Topics	QoW	HW Due
1	Aug 23	Course Logistics – Why Python?		HW1 Aug 25
1	Aug 25	Python Basics		
2	Aug 30	Control Flow, Functions	Q1	HW2 Sep 6
2	Sep 1	Sequence Data Types: Strings, Lists & List Comprehensions, Tuples		
3	Sep 6	Sets and Set Comprehensions	Q2	HW3 Sep 13
3	Sep 8	Dictionaries and their many uses		
4	Sep 13	Dictionary Comprehensions, Generator Expressions, Packing	Q3	HW4 Sep 20
4	Sep 15	Variadic Functions, Lambda, Closures, Decorators, Generators		
5	Sep 20	Python Classes	Q4	HW5 Sep 27
5	Sep 22	Magic Methods, Attribute Access, Properties		
6	Sep 27	Files, Exceptions, Context Managers	Q5	
6	Sep 29	Modules and Namespaces, Packages		
7	Oct 4	Review	Q6	
7	Oct 6	Midterm		
8	Oct 11	Assertions and Unit testing		HW6 Oct 18
8	Oct 13	The Standard Library: sys, argparse, os		
9	Oct 18	GUI programming with tkinter	Q7	HW7 Oct 25
9	Oct 20	GUI programming with tkinter		
10	Oct 25	The Standard Library: regular expressions	Q8	
10	Oct 27	Scraping the web: urllib and BeautifulSoup		
11	Nov 1	Scraping the web: urllib and BeautifulSoup	Q9	HW8 Nov 8
11	Nov 3	The GIL and performance issues, NumPy		
12	Nov 8	Data Analysis with Pandas	Q10	
12	Nov 10	Data Analysis with Pandas		HW9 Nov 22
13	Nov 15	Data Analysis with Pandas	Q11	
13	Nov 17	Visualization with matplotlib		
14	Nov 22	Web Development with Flask	Q12	HW10 Dec 1
14	Nov 24	Thanksgiving – no class		
15	Nov 29	Web Development with Flask	Q13	
15	Dec 1	Presentations		
16	Dec 6	Review		
Final	Dec 13	9:45 AM-12:00 PM		