San José State University
Department of Computer Science
CS 122, Advanced Programming with Python, Section 2, Spring 2019

Course and Contact Information

Instructor:	Rula Khayrallah
Office Location:	MacQuarrie Hall 218
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Office Hours:	Drop-In: Tuesday 12-1 PM, Thursday 3-4 PM By appointment only (15-minute slots): Friday 9:30-12:30 PM To schedule an appointment, please visit https://goo.gl/CXkgsE
Class Days/Time:	TuTh: 10:30-11:45 AM
Classroom:	MH 233
Prerequisites:	CS 146 with a grade of C- or better

Course Format

Class time will be spent in interactive lecture. You are required to bring your wireless laptop to class. Your laptop must remain closed except for designated activities. 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. We'll also have some in-class programming exercises and code reviews.

Canvas Course Site

Course materials such as syllabus, textbook, assignments, questions of the week 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 Description

Advanced features of the Python programming language with emphasis on programming practice. Programming projects include a graphical user interface, data analysis and visualization, web data extraction and web applications.

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 Python programs that include a graphical user interface, data analysis and visualization, web data extraction and web applications.

Recommended Reference Textbook – Available online through Canvas

The Quick Python Book, Third Edition. Naomi Ceder
ISBN: 9781617294037

Software

Python 3.7 available at https://www.python.org/downloads/release/python-371/
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. 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. Other homework 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 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 0 if that happens regardless of who copied or shared the work.

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.

Midterm Exam:

The midterm exam will take place in the classroom during class time on Thursday March 14.

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.

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.

Final Examination

The final exam will take place in the classroom on Thursday, May 16 from 9:45 AM-12:00 PM.

Grading Information

Determination of Grades

The final grade in the course will be calculated based on the following percentages:
Homework Assignments: 40%
Questions of the Week: 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 score will get 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 worth 5 points, due on Tuesday by 11:59 PM will incur a penalty of 1 point if submitted at 8:00 AM on Wednesday. Everyone gets two free 'late days' for the semester. No submissions will be accepted after we go over the assignment in class.

Grade Scale

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

A+ = 98% - 100%	A = 93% - 97%	A- = 90% - 92%
B+ = 87% - 89%	B = 83% - 86%	B- = 80% - 82%
C+ = 77% - 79%	C = 73% - 76%	C- = 70% - 72%
D = 60% - 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.

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, Spring 2019, 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	Readings TQPB	QoW	HW Due
1	Jan 24	Course Logistics – Why Python?	Chapter 1		HW1 Jan 28
2	Jan 29	Python Basics	Chapter 4		
2	Jan 31	Control Flow, Functions and Modules			HW2 Feb 5
3	Feb 5	Sequence Data Types: Lists, Tuples, Strings	Sec 5.1-5.7, 6.1-6.4	Q1	
3	Feb 7	Sets and Dictionaries	Sec 5.8, Chap. 7		HW3 Feb 12
4	Feb 12	More on Functions: variable arguments, lambda, generator functions, decorators	Chapter 9	Q2	
4	Feb 14	Python Classes	Chapter 15		HW4 Feb 19
5	Feb 19	Magic Methods, Attribute Access, Properties		Q3	
5	Feb 21	Files	Chapter 13		HW5 Feb 26
6	Feb 26	Exceptions, Context managers	Chapter 14	Q4	
6	Feb 28	Assertions and Unit testing			HW6 Mar 5
7	Mar 5	Comprehensions and Generator Expressions	Section 8.4	Q5	
7	Mar 7	Modules and Scoping, Packages	Chapter 10		HW7 Mar 11
8	Mar 12	Review		Q6	
8	Mar 14	Midterm			
9	Mar 19	The Standard Library: sys, argparse, os	Sec 11.1, Chap. 12		
9	Mar 21	GUI programming with tkinter		Q7	HW8 Mar 29
10	Mar 26	GUI programming with tkinter		Q8	
10	Mar 28	The Standard Library: regular expressions	Chapter 16		
11	Apr 2	Spring Recess			
11	Apr 4	Spring Recess			
12	Apr 9	Scraping the web: urllib and BeautifulSoup	Sec 22.4	Q9	HW9 Apr 15
12	Apr 11	Scraping the web: urllib and BeautifulSoup			
13	Apr 16	The GIL and performance issues, numpy		Q10	
13	Apr 18	Data Analysis with Pandas	Chapter 24		HW10 Apr 29
14	Apr 23	Data Analysis with Pandas		Q11	
14	Apr 25	Visualization with matplotlib			
15	Apr 30	Database Access	Chapter 23	Q12	HW11 May 6
15	May 2	Web Development with Flask			
16	May 7	Presentations		Q13	
16	May 9	Review			
Final	May 16	MH 233: 9:45 AM-12:00 PM			