San José State University
Department of Computer Science
CS 152, Programming Paradigms, Section 2, Fall 2017

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: 1:30-2:45 PM
Classroom:	MacQuarrie Hall 422
Prerequisites:	CS 151 or CMPE 135 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.

Canvas Course Site

Course materials such as syllabus, lecture notes, assignments, quizzes 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

Programming language syntax and semantics. Data types and type checking. Scope, bindings, and environments. Functional and logic programming paradigms, and comparison to other paradigms. Extensive coverage of a functional language.

Course Goals

- To ensure that students gain an understanding of programming language design and language translation.
- To ensure that students achieve competence in a functional programming language.

Course Learning Outcomes (CLO)

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

1. Have a basic knowledge of the history of programming languages
2. Have a basic knowledge of the procedural, object-oriented, functional, and logic programming paradigms
3. Understand the roles of interpreters, compilers, and virtual machines
4. Critique the design of a programming language
5. Read and produce context-free grammars
6. Write recursive-descent parsers for simple languages, by hand or with a parser generator
7. Understand variable scoping and lifetimes
8. Write interpreters for simple languages that involve arithmetic expressions, bindings of values to names, and function calls
9. Understand type systems
10. Understand the implementation of procedure calls and stack frames
11. Produce programs in a functional programming language in excess of 200 LOC

Recommended Textbook

Programming Languages: Principles and Practice, Louden & Lambert, Cengage Learning, 2012, ISBN-10: 1111529418, ISBN-13: 9781111529413

Additional References

Teach Yourself Scheme in Fixnum Days, Dorai Sitaram: http://ds26gte.github.io/tyscheme/index.html
Learn Prolog Now, by Patrick Blackburn, Johan Bos, and Kristina Striegnitz: http://lpn.swi-prolog.org/lpnpage.php?pageid=online
The Python Tutorial: https://docs.python.org/3.6/tutorial/

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.

Weekly Quizzes:

We will have a weekly quiz on Tuesday. Each quiz will consist of one question to check your understanding of the previous week's material. I will count the 10 best scores out of the 13 total quizzes in the semester. You must be in the classroom and must use the LockDown browser to take the quiz. Missed quizzes cannot be made up.

Midterm Exam:

The midterm exam will take place in the classroom during class time on Thursday October 12.

Final Exam:

The final exam will take place in the classroom on Tuesday December 19 from 12:15-2:30 PM.

Grading Information

The final grade in the course will be calculated based on the following percentages:
Homework Assignments: 40%
Weekly Quizzes: 10%
Midterm: 20%
Final Exam: 30%

No extra credit options will be given.

Late Work:

Late assignments will be accepted with a 20% penalty for each day or partial day late. Late days include weekend days. For example, an assignment worth 100 points, due on Wednesday by 11:59 PM will incur a penalty of 80 points if submitted at 8:00 AM on Sunday. Everyone gets two free 'late days' for the semester.

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.

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/"

CS152 Programming Paradigms, Spring 2017, 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	HW Due
1	Aug 24	Course Logistics – Origins of Programming Languages	Syllabus, Sec 1.1	
2	Aug 29	Paradigms, Language Definition, Language Translation	Sec 1.3-1.5	
2	Aug 31	Language Design Criteria	Chapter 2	
3	Sep 5	Python Language Design		
3	Sep 7	Python		HW1 Sep 14
4	Sep 12	Lexical Analysis	Chapter 6	
4	Sep 14	Context-free Grammars and BNFs		
5	Sep 19	Operator precedence and associativity, ambiguity		
5	Sep 21	Recursive-descent parsing		HW2 Oct 2
6	Sep 26	Parsing Techniques and Tools		
6	Sep 28	Attributes, bindings, scope	Chapter 7	
7	Oct 3	Symbol tables and environments, name resolution		
7	Oct 5	Procedures and procedure semantics		HW3 Oct 16
8	Oct 10	Review		
8	Oct 12	Midterm		
9	Oct 17	Functional Programming	Chapter 3	
9	Oct 19	Scheme	TYSiFD	
10	Oct 24	Scheme		HW4 Nov 1
10	Oct 26	Scheme		
11	Oct 31	Scheme		
11	Nov 2	Scheme		HW5 Nov 15
12	Nov 7	Data types	Chapter 8	
12	Nov 9	Type conversion, types of polymorphism		
13	Nov 14	The Logic Paradigm	Chapter 4	
13	Nov 16	Prolog	LPN	
14	Nov 21	Prolog		
14	Nov 23	Thanksgiving		
15	Nov 28	Prolog		HW6 Dec 6
15	Nov 30	Expressions, conditionals, loops, GOTO, exceptions	Sec 9.1-9.5	
16	Dec 5	Object Oriented Paradigm	Chapter 5	
16	Dec 7	Review		
Final	Dec 19	MH 422: 12:15-2:30PM.		