San José State University
Computer Science Department
CS152, Programming Paradigms, 03, Fall 2022

Course and Contact Information

Instructor(s): Yulia Newton, Ph.D.
Office Location: DH282
Telephone:

and how different programming languages can be used to follow those paradigms. Students will gain working hands-on knowledge of the following programming languages: Python, Prolog, JavaScript, and Scheme.

Course Learning Outcomes (CLO)

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

- Have a basic knowledge of the history of programming languages.
- Have a good understanding of computer architecture, data types, scope, typing.
- Have a good understanding of programming language purpose, design, different types of programming languages, and language constructs.
- Have a good understanding of how programming languages are parsed and processed by computers.
- Understanding of differences between compiled and interpreted languages. Basic understanding of compiler design.
- Have a good understanding of imperative programming paradigms: procedural, object oriented, and parallel.
- Have a good understanding of declarative programming paradigms: logic, functional, dataflow, database.
- Have a working hands-on knowledge of Python programming language.
- Have a working hands-on knowledge of Prolog programming language.
- Have a working hands-on knowledge of JavaScript programming language.
- Have a working hands-on knowledge of Scheme programming language.
- Understanding of lambda calculus.
- Understanding of recursion.

Optional Texts/Readings (no required text)

This class does not require a mandatory textbook. Google is your friend! Always refer to the programming language documentation.

Optional textbook (I will not be teaching by it)

Programming Languages: Principles and Practice, 3rd edition 2012
Authors: Kenneth Louden and Kenneth Lambert
Publisher: Cengage Learning
ISBN-13: 978-1-111-52941-3

Other technology requirements / equipment / material

We will be using Python, Prolog, and JavaScript in this class. Appropriate environments will need to be installed. I will outline a few options in my slides for how to run code in those languages. However, if a student already has a favorite way to do that they don't need to follow my suggestions.

Course Requirements and Assignments

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in University Policy S12-3 at http://www.sjsu.edu/senate/docs/S12-3.pdf.

- Each student is expected to be present, punctual, and prepared at every scheduled class and lab session.

It is assumed that the students already have basic knowledge of digital Boolean logic and fundamentals of programming.

Note that “All students have the right, within a reasonable time, to know their academic scores, to review their grade-dependent work, and to be provided with explanations for the determination of their course grades.” See University Policy F13-1 at http://www.sjsu.edu/senate/docs/F13-1.pdf for more details.

Classroom Protocol (aka how to succeed in this class)

1. Attend all sessions. From past semesters, data shows that there is a positive correlation between attendance and your overall grade.
2. Come to class on time. Students entering the classroom late disrupt the lecture and / or the students already in class who may be engaged in lab or discussion.
3. A laptop/tablet is required in this class. Bring your device to lectures in order to be able to participate in in-class quizzes and activities.
4. If you miss a lecture you are still responsible for any material discussed or assignments given. A large portion of each class will be used for hands-on lab / discussion. All students are expected to participate in class activities. Students who are often absent will find themselves at a disadvantage during the tests.
5. No audio / video recording or photography in the classroom without prior permission of instructor. Instructor may provide review videos and/or flipped classroom.
6. No personal discussion or cell phone activity during class time. Please set the cell phone on silent/ vibrate mode.
7. Email to be sent to the instructor's SJSU email ID (yulia.newton@gmail.edu or yulia.newton@sjsu.edu) only. I check email periodically during the day but much less during weekends. Please do not expect quick turnaround time during weekends.

Important dates

- August 19 – first day of instructions
- August31 – last day to drop a class without W grade
- September 8 – last day to add courses via MySJSU; last day to submit audit/CR-NC option request
- September 27 – midterm exam #1 online (Canvas, no class meeting)
- November 1 – midterm exam #2 online (Canvas, no class meeting)
- November 23 - November 25 – Thanksgiving (no class meetings)
- December 6 – last day of instructions
- December 8 – Final exam online (Canvas)
- December 12 – all late work is due

8	10/13/2022	Introduction to Python	
9	10/18/2022	Declarative programming paradigm, logic programming	
9	10/20/2022	Introduction to Prolog	Homework #2 assigned
10	10/25/2022	Introduction to Prolog	Homework #1 due
10	10/27/2022	Catch up, review for midterm, or head start on the next lecture module	
11	11/1/2022	Midterm #2 online (Canvas, no class meeting)	
11	11/3/2022	Declarative programming paradigm, functional programming	
12	11/8/2022	Declarative programming paradigm, functional programming	
12	11/10/2022	Lambda calculus	Homework #2 due
13	11/15/2022		

Final