

Programming Paradigms

CS 152

Fall 2026 Section 04 In Person 3 Unit(s) 08/19/2026 to 12/07/2026 Modified 08/11/2026



Contact Information

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Office Hours

Wednesday, 12:15 PM to 1:15 PM

in-person only (MH 218)

Thursday, 4:00 PM to 5:00 PM

online via Zoom



Course Information

Class Meetings (in-person)

Monday, Wednesday, 10:30 AM to 11:45 AM, Interdisciplinary Science Building 870



Course Description and Requisites

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.

Prerequisite: CS 151 or CMPE 135 (with a grade of "C-" or better); Allowed Majors: Computer Science or Software Engineering; or instructor consent.

Letter Graded

* Classroom Protocols

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.

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.

Program Information

Diversity Statement - At SJSU, it is important to create a safe learning environment where we can explore, learn, and grow together. We strive to build a diverse, equitable, inclusive culture that values, encourages, and supports students from all backgrounds and experiences.

Course Goals

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

1. Understand programming language design.
2. Achieve competence in a functional programming language.

Course Learning Outcomes (CLOs)

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

1. Recognize the history of programming languages.
2. Discuss and distinguish the procedural, object-oriented, functional, and logic programming paradigms.
3. Explain 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.
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.

Course Requirements and Assignments

Homework

Homework assignments are designed primarily for practice and preparation. They are graded for completion rather than correctness and account for only a small portion of the final course grade.

Although homework has a limited direct impact on the final grade, completing it is essential for success in the course. Exam questions will closely reflect the concepts and skills practiced in the homework assignments. Students who regularly complete the homework will be better prepared for quizzes and exams, while students who skip assignments are likely to experience a significant decline in exam performance.

Students are encouraged to attempt every assignment, review their mistakes, and seek help when needed. The value of the homework lies not in the points earned, but in the practice and feedback it provides.

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.

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.

Exams

We'll have 3 exams in the semester, the last being the final exam.

The first two exams are scheduled during our regular class time as follows:

- Exam 1: Wednesday, September 23
- Exam 2: Wednesday, October 28

The final exam is scheduled according to the SJSU Final Exam Schedule and will take place on Friday, December 11, 10:45 AM-12:45PM.

Grading Information

The final grade in the course will be calculated based on the questions of the week, the three exams and on the submission of the homework assignments.

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.

Academic Dishonesty

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

Criteria

Type	Weight	Topic	Notes
Completion of Homework Assignments	5%		
Questions of the Week	20%		
Exam 1	25%		
Exam 2	25%		
Final Exam	25%		

Breakdown

Grade	Range	Notes
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%	

Grade	Range	Notes
D	60 to 69%	
F	below 60%	

University Policies

Per [University Policy S16-9 \(PDF\)](http://www.sjsu.edu/senate/docs/S16-9.pdf) (<http://www.sjsu.edu/senate/docs/S16-9.pdf>), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on the [Syllabus Information](https://www.sjsu.edu/curriculum/courses/syllabus-info.php) (<https://www.sjsu.edu/curriculum/courses/syllabus-info.php>) web page. Make sure to visit this page to review and be aware of these university policies and resources.

Course Schedule

When	Topic	Notes
Week 1: Aug 19	Course Logistics	
Week 2: Aug 24, 26	Historical Overview, Computational Paradigms, Language Definition, Language Design Criteria	
Week 3: Aug 31, Sep 2	Functional Programming, Scheme Basics	Q1 on Aug 31 Homework 1 due Sep 18
Week 4: Sep 9	Higher Order Functions	Q2 on Sep 9 (Sep 7 holiday)
Week 5: Sep 14, 16	Recursion and Efficiency, Macros	Q3 on Sep 14
Week 6: Sep 21, 23	Programming Practice, Exam 1	Q4 on Sep 21 Exam 1 on Sep 23
Week 7: Sep 28, 30	Haskell	Homework 2 due on Oct 9
Week 8: Oct 5, 7	Haskell	Q5 on Oct 5

When	Topic	Notes
Week 9: Oct 12, 14	Language Translation, Lexical Analysis, Context-free Grammars, Ambiguity, Associativity and Precedence	Q6 on Oct 12 Homework 3 due Oct 23
Week 10: Oct 19, 21	Parsing Techniques & Tools	Q7 on Oct 19
Week 11: Oct 26, 28	Review, Exam 2	Q8 on Oct 26 Exam 2 on Oct 28
Week 12: Nov 2, 4	Basic Semantics	Homework 4 due Nov 13
Week 13: Nov 9	Procedure Semantics, Closures and Dynamic Environments	Q9 on Nov 9 Nov 11 holiday
Week 14: Nov 16, 18	Type Systems, The Logic Paradigm	Q10 on Nov 16
Week 15: Nov 23	Prolog	Q11 on Nov 23 Homework 5 due Dec 4
Week 16: Nov 30, Dec 2	Inference in Prolog, Control Structures	Q12 on Nov 30
Week 17: Dec 7	Final Review	Q13 on Dec 7
Final Exam	Friday, December 11	10:45 AM-12:45PM