

Advanced Programming Language Principles Section 01

CS 252

Spring 2024 3 Unit(s) 01/24/2024 to 05/13/2024 Modified 01/21/2024

Contact Information

Prof. Thomas H. Austin

Email: thomas.austin@sjsu.edu

Office: MacQuarrie Hall 216

Office Hours

Mondays, 10-11am (via [Zoom \(https://sjsu.zoom.us/j/3796767168?pwd=SzNV0E4zSTNyNHNgR1RhNIJ6cDAwUT09\)](https://sjsu.zoom.us/j/3796767168?pwd=SzNV0E4zSTNyNHNgR1RhNIJ6cDAwUT09)).

Thursdays, noon-1pm (in-person, MacQuarrie Hall 216).

If there are any cancellations or rescheduling of office hours, they will be announced in class and on Canvas. They will also be posted to <http://www.cs.sjsu.edu/~austin/office-hours-updates.txt>.

Course Description and Requisites

Language design and paradigms, including concepts underlying functional, logic, object-oriented and parallel paradigms. Theoretical foundations, including lambda calculus, denotational and axiomatic semantics. Proofs of program correctness. Programming projects emphasizing different aspects of language design.

Prerequisite(s): CS 152 and Graduate standing. Allowed Declared Major: Computer Science, Bioinformatics, Data Science. Or instructor consent.

Letter Graded

Classroom Protocols

Course materials such as handouts, notes, assignment instructions, etc. can be found on my faculty web page at <http://www.cs.sjsu.edu/~austin/cs252-spring24/> and on Canvas Learning Management System course login website at <http://sjsu.instructure.com>. You are responsible for regularly checking with the messaging system through Canvas to learn of any updates.

Please show up to class on time. If students arriving late becomes a problem, I will start classes with pop quizzes.

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 Learning Outcomes (CLOs)

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

- Read and write operational semantics
- Read and write formal type systems
- Write moderately sized Haskell applications
- Read and review research papers in the field of programming languages

Course Materials

a

Learn You a Haskell for Great Good

Author: Miran Lipovača

Availability: <https://learnyouahaskell.com/>

This book is free online, though you can buy a paper version if you wish.

Eloquent JavaScript

Author: Marijn Haverbeke

Optional

Availability: <https://eloquentjavascript.net/>

This book is free online.

More references TBD, assigned in Cavas

Course Requirements and Assignments

This class will involve 5 significant programming assignments, a midterm & a final (no notes), and a final project & presentation. Lastly, there will be labs for most days of class.

Exams and homework must be done individually. If two students turn in overly similar code, **both get a zero, and both may be reported for plagiarism.**

For the class project, you may work alone or with a partner at your discretion. Note that more will be expected of your project if you have a partner.

Labs are graded complete/incomplete. As long as you attempt and submit the lab, you will get full credit. For labs, you may work with others if you wish. Be forewarned, exam questions are often similar to lab questions. If you do not understand your lab solution, you are not likely to succeed on the exams.

✓ Grading Information

- 30% -- Homework assignments
- 20% -- Midterm
- 20% -- Final
- 20% -- Project
- 10% -- Participation (labs and pop-quizzes)

Assignments are due by 11:59 PM Pacific Time on the specified day. Late homework assignments will not be accepted.

Breakdown

- 92% and above A
- 90% - 91% A-
- 88% - 89% B+
- 82% - 87% B
- 80% - 81% B-
- 78% - 79% C+
- 72% - 77% C
- 70% - 71% C-
- 68% - 69% D+
- 62% - 67% D
- 60% - 61% D-
- 59% and below F

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.