

CSc 335 Programming Language Paradigms
Spring Semester 2020
Professor Troeger

Catalog Description Aspects of the design and implementation of functional, imperative and object-oriented programming languages, presented via a sequence of interpreters. Topics may include abstraction, parameter passing, type checking, inheritance, and continuations. Substantial programming assignments.

Course Goals (i) introduce Scheme - a wide-spectrum language supporting functional programming; (ii) introduce basic ideas for proving correctness of functional programs; (iii) impart a working knowledge of some of the essential concepts of (mostly functional) programming languages, forming a basis for understanding future developments.

Required Texts; Abelson and Sussman: [The Structure and Interpretation of Computer Programs](#); Friedman and Felleisen: [The Little Schemer](#); Friedman and Felleisen: [The Seasoned Schemer](#). Note that [The Structure and Interpretation of Computer Programs](#) is available for free, on line, from the MIT Press.

Required Software Please download and install Scheme, as per instructions on the handout [Getting Started in CSc 335](#).

Prerequisites (i) discrete mathematics and data structures; (ii) algorithms; (iii) experience constructing programs of some size. That is, CSc 104, 212, 220 and 221.

Major Topics Covered in the Course (i) introduction to Scheme, functional programming and program proving; (ii) interpreters as mechanisms for explaining the run-time behavior of languages. Roughly speaking, we will focus initially on programming in Scheme, and later in the course on interpreters.

Homework Programming problems and reading will be assigned regularly. The homework problems will be discussed in class and in office hours. As it is by design essentially impossible to pass the exams without having solved the homework problems on your own, you are strongly encouraged to take the homework assignments seriously. This means: solve the problems yourself, without Google, without Chegg or Course Hero or other such 'learning aids', and without so much help from others that you do not master the concepts yourself. Put in the time!

Grading There will be three hour exams (20% each), and a final exam (35%). The remaining 5% will be based on attendance in lecture (taken from time to time) and in office hours. All exams are given in the department's labs; exams will be based primarily on the class notes and homework, but it will be very helpful to have done the assigned reading and participated in class discussions as well. Exam problems build on understanding gained in lecture and in doing the homework, and typically are NOT problems you will have seen previously. Exam dates are (tentatively) February 18, March 12, and April 23. The final exam will be scheduled by the College.

Office Hours My hours this term will be most Wednesdays and Thursdays **12:45 – 1:45**. My office is NAC 7/116. Cancellations and/or shifts may occur – I will post these in advance.

Course Website Announcements and materials will be disseminated via Piazza – please sign up at piazza.com/ccny.cuny/spring2020/csc33500. Should you need to contact me otherwise, I can be reached at dtroeger@cs.ccny.cuny.edu