CS 311—Theory and Implementation of Programming Languages
Spring 2015

Catalog Data: Prerequisite: CS220 with a grade of C or better. Introduction to the theory of programming languages and their implementation. Topics include basics of finite automata, regular grammars, lexical analysis, parsing, syntax-directed translation, and semantic analysis. Specification of binding variables, data types, static and dynamic scope, subprograms, abstraction, and concurrency. Study of object-oriented, functional, and logic programming languages. Lab work is an essential component of this course.


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Office Hours: MWF 10:00 am – 12:00 noon

Main topics:
• CH1: Preliminaries
• CH3: Describing Syntax and Semantics
• CH4: Lexical and Syntax Analysis
• CH5: Names, Binding, Type Checking, and Scopes
• CH7: Expressions and Assignment Statements
• CH9: Subprograms and their Implementation
• CH11: Abstract Data Types and Encapsulation
• CH15: Introduction to Functional Programming
• CH16: Logic Programming Languages

Supplemental reading: Chapter 2: Evolution of Major Programming Languages.

Grading:
Test1: 20%, Test2: 20%, Test3: 25%  
Homework and Quizzes: 15%  
Presentation 10%  
Attendance and Participation: 10%

NOTE1: These percentages are tentative; there may be significant changes.

Grading Scale: A = 90-100, B = 80-89, C = 70-79, D = 60-69, F < 60.