
CS 350 Programming Language Design Spring 2021

Final Exam Guide

Date and time

Mon. May. 3rd , 1:00 – 3:00 P.M. (LA 16)

Major topics:

Chapter 3: Describing Syntax & Semantics

- 3.1 Introduction
- 3.2 The General Problem of Describing Syntax
- 3.3 Formal Methods of Describing Syntax
- 3.4 Attribute Grammars
- 3.5 Dynamic Semantics (operational)

Chapter 4: Syntax Analysis

- 4.1 Introduction
- 4.2 Lexical Analysis
- 4.3 The Parsing Problem
 - Top-down Parsing
 - Bottom-Up Parsing

Chapter 9&10: Subprograms

- 9.1 Introduction
- 9.2 Fundamentals of Subprograms
- 9.3 Design Issues for Subprograms
- 9.4 Local Referencing Environments
- 9.5 Parameter-Passing Methods
- 9.6 Parameters That Are Subprograms
- 9.7 Calling Subprograms Indirectly
- 9.8 Design Issues for Functions
- 9.9 Overloaded Subprograms
- 9.10 Generic Subprograms
- 10.1 The General Semantics of Calls and Returns

10.3 Implementing Subprograms with Stack-Dynamic Local Variables

- Activation records
- Local variables
- Examples:
 - Without recursion
 - With recursion

Chapter 14: Event Handling

14.5 Introduction

14.6 Event handling in Java

Java Swing

Components vs. containers

The Java event model

Chapter 15: Functional Programming

15.1 Introduction

15.2 Mathematical Functions

- Simple functions
- Lambda expressions
- Functional forms

15.3 Fundamentals of Functional Programming Languages

15.4 The First Functional Programming Language: Lisp

15.5 Introduction to Scheme

- Atoms vs. Lists
- Defining functions
- functions for lists
- Example functions

15.11 Comparison of Functional and Imperative Languages

Chapter 16: Logic Programming

16.1 Introduction

16.2 Predicate Calculus

16.4 An Overview of Logic Programming

16.5 The Origins of Prolog

16.6 The Basic Elements of Prolog

- Proposition
- Facts
- Rules
- Goal statements
- Inferencing process

16.7 Deficiencies of Prolog

16.8 Applications of Logic Programming