Midterm Review

In Text: Chapters 1, 2, 3, 11, 14, 15

Chapters Covered

- Ch. 1
- Ch. 2
- Ch. 3
- Ch. 11
- Ch. 14
- Ch. 15

Ch. 1: Introduction

- Why study PLs?
- Language evaluation criteria
- Two main influences on PL design
- 5 paradigms
- Implementation strategies

Ch. 2: History and Evolution

- What are the major contribution(s) of each language?
- Examples:
  - Support for recursion
  - Introduction of block structure
  - First in a paradigm
  - First formally described syntax
  - Etc.
- Most important to review: FORTRAN, LISP, ALGOL

Ch. 3: Syntax and Semantics

- BNF & EBNF
- What makes a grammar ambiguous?
- How do you disambiguate a grammar?
- What does it mean for two grammars to "generate the same language"?
- Operational semantics
- Axiomatic semantics
- Applying axiomatic semantics to code segments
- Loop invariants, 5 criteria
- Denotational semantics

Ch. 11: Object-Oriented PLs

- What are the three defining characteristics of OOP languages?
- What are the other hallmarks of OOP?
- Definition of OOP terms
- Familiarity with Smalltalk
- Design issues for OOPLs

Ch. 14: Functional Programming

- What are the hallmarks of FP?
- Definition of FP terms
- Scheme syntax
- You’ll have to write a Scheme function

Ch. 15: Logic Programming

- What are the hallmarks of LP?
- Definition of LP terms
- Prolog syntax
- You should be able to read Prolog code