



# Midterm Review



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



# Chapters Covered

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



# Ch. 1: Introduction

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



## Ch. 2: History and Evolution

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- 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

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- 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

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- 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 OOPs



# Ch. 14: Functional Programming

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



# Ch. 15: Logic Programming

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