# Final Review

**In Text: Chapters 1–9, 11, 14, 15**

# Chapters Covered

**Before Midterm:**

- Ch. 1—Introduction
- Ch. 2—History
- Ch. 3–Syntax/Semantics
- Ch. 11—OOPLs
- Ch. 14—Functional PLs
- Ch. 15—Logic PLs

**Since Midterm:**

- Ch. 4—Names & Binding
- Ch. 5—Data Types
- Ch. 6—Expressions
- Ch. 7—Control Structures
- Ch. 8—Subprograms
- Ch. 9—Activation Recs

# Chapters 1–3, 11, 14, 15

- See Midterm Review
- Exam is comprehensive, but most material will be from chapters covered since the midterm

# Ch. 4: Names and Binding

- What are the six attributes? What do they mean?
- Binding and possible binding times
- Type checking
- Two type compatibility methods
- Scope vs. lifetime

# Ch. 5: Data Types

- Primitive types
- Type constructors:
  - Arrays
  - Records
  - Unions
  - Sets
  - Pointers
- Design issues
- Type checking issues

# Ch. 6: Expressions

- Precedence rules
- Associativity rules
- Order of operand evaluation
- Type conversions: widening and narrowing
- Type coercions vs. explicit conversions
- Mixed-mode expressions
- Relational and boolean expressions
- Short-circuit evaluation

# Ch. 7: Control Structures

- Design issues
- Selection
  - One-way
  - Two-way
  - Multi-way
- Iteration
  - Counter-controlled
  - Logically-controlled
- Gotos
- Guarded statements

# Ch. 8: Subprograms

- Definitions
- Referencing environment
- What are the common parameter passing modes and mechanisms?
- Independent vs. separate compilation
- Advanced subprogram issues

# Ch. 9: Implementing Subprograms

- Activation records
- Accessing locals
- Accessing nonlocals (static scoping)
  - Static chains
  - Displays
- Implementing blocks
- Accessing nonlocals with dynamic scoping