

C.1

CSE341: PROGRAMMING Languages

Winter Quarter 1998

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**Purpose:** to learn fundamental concepts of programming languages and to study three distinctly different languages in depth.

- **Java**
- **Lisp**
- **Prolog**

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**Text: Programming Language Concepts  
by Ghezzi and Jazayeri**

**Language References:**

- Java in 21 Days
- Java in a Nutshell
- Any Java book is OK.
  
- Lisp (Winston and Horn)
  
- Programming in Prolog  
(Clocksin and Mellish)

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Extremely Tentative Schedule

| Topic                                     | Chapters | Weeks |
|---|----------|-------|
| Introduction                              | 1        | 1     |
| Programming Language Concepts             | 2-5      | all   |
| Object-Oriented Languages and Java        | 6        | 2-4   |
| Functional Programming Languages and Lisp | 7        | 4-6   |
| Logic Languages and Prolog                | 8        | 7-8   |
| Concepts, Comparisons and Other Languages | 2-8      | 9-10  |

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Evaluation

|                                  |       |
|----------------------------------|-------|
| Java Assignments                 | 15.0% |
| Java Quiz                        | 12.5% |
| Lisp Assignments                 | 15.0% |
| Lisp Quiz                        | 12.5% |
| Prolog Assignments               | 15.0% |
| FINAL EXAM<br>(including Prolog) | 30.0% |

Late programs will be accepted, but will lose points, 10% per week late.

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## INTRODUCTION \*

What kinds of applications are programming languages used for?

- System Software
- Business Applications
- Scientific Applications
- WWW Information Applications
- What else?

\* Reading Assignment: Chapter 1 (text)

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## Language Paradigms

- Procedural (C)
- Functional (Lisp)
- Declarative (Prolog)
- Visual (Khoros)
  
- Abstraction-based
  - abstract data types
  - generic modules
- Module-based
- Object-Oriented

## HISTORY \*

|            |         |                  |
|------------|---------|------------------|
| •FORTRAN   | 1954-57 | Numeric          |
| •ALGOL 60  | 1958-60 | Numeric          |
| •COBOL     | 1959-60 | Business         |
| •APL       | 1956-60 | Vectors          |
| •LISP      | 1956-62 | Symbolic         |
| •SNOBOL4   | 1962-66 | Strings          |
| •PL/1      | 1963-64 | General          |
| •BASIC     | 1964    | Educational      |
| •Pascal    | 1971    | Educational      |
| •PROLOG    | 1972    | AI (rules)       |
| •C         | 1972    | Systems/General  |
| •Scheme    | 1975    | Educational      |
| •Ada       | 1979    | General          |
| •Smalltalk | 1971-80 | Objects          |
| •C++       | 1984    | Objects          |
| •CLOS      | 1988    | Objects/Lisp     |
| •Perl      | 1990    | Scripting        |
| •Java      | 1995    | Objects/Networks |

\* Mine is just a subset of the book's.