

# CS 343 – Structure of Programming Languages

## Winter 2011

### Term Paper – Programming Language Survey

**Due Date: Friday, April 22, 2011**

Choose a programming language and write a survey paper that summarizes the data and control constructs provided in that language. The paper must consist of a minimum of 6-8 double-spaced pages, not including the title, table of contents, references/bibliography, and appendix pages.

You may not choose a language from this list: Java, C, BASIC, and markup languages (such as HTML, XHTML, XML, SGML, etc.).

Your paper should, at minimum, address the following aspects of the language:

- Introduction
  - Origin and History
  - Computational paradigm(s) supported
    - Procedural, Object-Oriented, Functional, Logical, Scripting
  - Application domains where language is widely used
- Data Abstractions
  - Data Types
  - Type checking (static or dynamic)
- Control Abstractions
  - Expressions
  - Operators and their precedence
  - Selection constructs
  - Iterative constructs
  - Functions
    - Definition and use
    - Parameter passing techniques supported
  - Scoping (static or dynamic) used to resolve non-local references
  - Support for modules/packages to handle name collisions
  - Support for exception handling
- Support for inheritance, concurrency, and runtime type discovery (reflection/introspection).
- Sample code fragments to demonstrate features of the language, as needed.
- Comments on efficiency, readability, writability, and other design principles (see chapter 3)
- Implement one of the programming projects (1 – 4) in the language surveyed.
- Attach the source code of the program implemented in the Appendix section of your paper.