CPSC 320 Programming Languages *UNBC*

Winter 2001

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Rooms Lectures are in 5–136

Hours 15:30–16:20 M W F

Text *Programming Languages* Principles and Practices. by Kenneth C. Louden.

Prerequisites C$^-$ or better in CPSC 281, CPSC 340, (and by transitivity CPSC 100, CPSC 101, CPSC 141, CPSC 200 and CPSC 241).

Grading				
	Assignments	:	20%	
	Quizzes	:	up to 5%	
	Exam 1	:	20%	Wed, 7 Feb
	Exam 2	:	20%	Wed, 14 Mar
	(Final) Exam 3	:	35%	April 10–20

Topics Covered (not necessarily in the order listed)

- Programming Language Description. Syntax & Semantics. Concrete syntax: BNF grammars, derivation trees, ambiguity, lexical conventions. Static semantics: context constraints, scope, typing. Operational Semantics. Denotational Semantics. Axiomatic Semantics.
- Programming Language Evaluation. Simplicity, abstraction, orthogonality, reliability, manipulability, support for programming-in-the-large; existing code bases, portability, language processing environments.
- Data Structuring. Mathematical data structure models and corresponding language constructs. Heterogenous data aggregates: Records. Homogeneous data aggregates: arrays, finite lists, infinite sequences. Sets & multisets. Functions & relations. Objects. Implementation concerns.
- Control Structures. Decision structures. Iteration: high-level vs. low-level. Recursion. Parameter passing mechanisms. Exception handling.
- Program Structures. Static & Dynamic Scope. Imports & exports. Modules & interfaces. Information hiding, data abstraction. Generics & parametric polymorphism. Objects & inheritance polymorphism.
- Programming Language Paradigms: different approaches to computational problems. Object-Oriented, Functional and Logic Programming.

Notes I don't yet know what exactly what the format will be for the assignments for this course, so the weighting of the assignments might change after class discussion.