CMPT 383 - D200 Comparative Programming Languages

Instructor(s): Gregory Baker
SFU Surrey

Calendar Objective/Description:
Various concepts and principles underlying the design and use of modern programming languages are considered in the context of procedural, object-oriented, functional and logic programming languages. Topics include data and control structuring constructs, facilities for modularity and data abstraction, polymorphism, syntax, and formal semantics.

Instructor’s Objectives:
The objective of this course is to give the student a better understanding of non-imperative programming, and other important distinctions between languages. Various concepts and principles underlying the design and use of modern programming languages are considered. We will take a detailed look at a pure functional programming language, and a language that promotes concurrency.

Note: lectures in this section will be delivered remotely by videoconference.

Prerequisites:
CMPT 225, and (MACM 101 or (ENSC 251 and ENSC 252)).

Topics:
- Expressing algorithms functionally
- Functional programming in Haskell
- Type systems in programming languages
- Compilers, interpreters, and runtime environments
- Challenges and techniques in concurrent programming
- Concurrent programming in Go

Grading:
Weekly exercises 15%; assignments 35%; midterm exam 10%; final exam 40%.
Students must attain an overall passing grade on the weighted average of exams in the course in order to obtain a clear pass (C- or better).

Recommended Books:
Programming in Haskell, Graham Hutton, Cambridge University Press, 9781316626221

Academic Honesty Statement:
Academic honesty plays a key role in our efforts to maintain a high standard of academic excellence and integrity. Students are advised that ALL acts of intellectual dishonesty will be handled in accordance with the SFU Academic Honesty and Student Conduct Policies (http://www.sfu.ca/policies/gazette/student.html).