Computing Science Course Outlines 2022 Summer

CMPT 225 - D100 Data Structures/Programming

Instructor(s): Bradley Bart

SFU Burnaby

Calendar Objective/Description:
Data Structures/Programming

Instructor's Objectives:
This course will explore ideas of data and program organization that can help in developing elegant and efficient solutions to complex tasks. The primary topics are abstract data types (ADTs) to help manage the complexity of programs, and data structures to support efficient algorithms. We will study the specification, analysis, implementation (in C++), experimental evaluation, and application of fundamental ADTs and data structures. We will also study fundamental searching and sorting algorithms.

Prerequisites:
see go.sfu.ca

Topics:
- Abstract data types (abstraction, encapsulation, information hiding).
- Data structures: arrays, lists, stacks, queues, trees, heaps, sets, hash tables, graphs.
- Algorithms: searching and sorting; correctness and efficiency.
- Programming: object-oriented programming for ADT re-use; efficient implementation.

Grading:
To be discussed during the first week of classes.

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).

Required Books:

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).