CMPT 225 - D200 Data Structures and Programming

**Instructor(s):** John Edgar

**SFU Surrey**

**Calendar Objective/Description:**
Introduction to a variety of practical and important data structures and methods for implementation and for experimental and analytical evaluation. Topics include: stacks, queues and lists; search trees; hash tables and algorithms; efficient sorting; object-oriented programming; time and space efficiency analysis; and experimental evaluation.

**Instructor’s Objectives:**
This course explores fundamental algorithms and data structures that can help in developing elegant and efficient solutions to complex problems. We will study their specification, analysis, implementation (in C++), experimental evaluation, and applications.

**Prerequisites:**
(MACM 101 and ((CMPT 125 and 127), CMPT 129 or CMPT 135)) or (ENSC 251 and ENSC 252). Quantitative

**Grading:**
Course work will consist of programming projects, a midterm exam, and a final exam. Exact marking scheme will be given in the first week of class.

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:**
Data Structures and Algorithms in C++ (2nd edition), Michael Goodrich, Roberto Tamassia, David Mount, John Wiley and Sons, 2011, 9780470383278

**Reference Books:**
Programming: Principles and Practice using C++ (Second Edition), Bjarne Stroustrup, Addison-Wesley, 2014, 9780321992789

**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).