Computing Science Course Outlines 2019 Fall

CMPT 705 - G100 Design and Analysis of Algorithms

Instructor(s): Qianping Gu

SFU Burnaby

Calendar Objective/Description:
The objective of this course is to expose students to basic techniques in algorithm design and analysis. Topics will include greedy algorithms, dynamic programming, advanced data structures, network flows, randomized algorithms. Students with credit for CMPT 706 may not take this course for further credit.

Instructor's Objectives:
This is an introductory graduate course on algorithms. We will review basic paradigms of algorithm design (greedy, divide-and-conquer, dynamic programming, linear programming, etc.), as well as explore some of the more advanced topics (e.g., randomized algorithms, approximation algorithms, streaming algorithms, etc.)

Prerequisites:
None

Topics:
- Greedy Algorithms
- Divide and Conquer
- Dynamic Programming
- Network Flow
- NP and Computational Intractability
- Approximation Algorithms
- Local Search
- Randomized Algorithms
- Linear Programming

Grading:
To be announced 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:
Algorithm Design, J. Kleinberg, E. Tardos, Addison-Wesley, 2006, 9780321295354

Reference 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).