Computing Science Course Outlines 2019 Spring

CMPT 705 - G100 Design and Analysis of Algorithms

Instructor(s): Valentine Kabanets

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, dynamic programming, backtracking, 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
- Dynamic Programming
- Network Flow
- Linear Programming
- Approximation Algorithms
- Local Search
- Randomized Algorithms
- NP-Completeness

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

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).