Computing Science Course Outlines

CMPT 353 - D100 Computational Data Science

Instructor(s): Gregory Baker

Calendar Objective/Description:
Computational Data Science

Instructor's Objectives:
This course will be an introduction to the tools and techniques in data science. We will explore common challenges and solutions used in analysis of data.

Online offering notes: you will need a computer with a webcam and reliable Internet access. The computer should be powerful enough to run a virtual machine: at least 8 GB memory, 20 GB disk, and a reasonably decent processor. There will be 3-4 quizzes during the semester which must be completed during the lecture time. Otherwise, lectures will be posted as a "watch party" where we can watch together (and ask questions in a forum), but they can also be viewed later.

Prerequisites:
see go.sfu.ca

Topics:
- Basics of data science: concepts, goals, motivation, expectations.
- Introduction to selected data processing tools: Python with numpy and pandas.
- Working with data. Cleaning data; extract, transform, load tasks; applying concepts from statistics.
- Machine learning basics with existing implementations (such as scikit-learn).
- Data analysis strategies: selecting techniques from statistics and machine learning.
- Big data tools.
- Data visualization and summarizing results.

Grading:
Will include weekly exercises, quizzes (in lecture time), and a project. Details will be discussed 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).

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 ).