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THE UNIVERSITY OF BRITISH COLUMBIA

STAT 406 - Methods for Statistical Learning, 2019/2020, Term 1
Instructor: Matías Salibián-Barrera

Time and Place: T/TR 8:30-10:00 AM, ESB 1012

Course description: Flexible, data-adaptive methods for regression and classification models; regression smoothers; penalty methods; assessing accuracy of prediction; model selection; robustness; classification and regression trees; nearest-neighbour methods; neural networks; model averaging and ensembles; computational time and visualization for large data sets.

Prerequisites: One of STAT 306, CPSC 340.

Textbook/course materials: Although the course does not have a formal textbook, the following books will be useful references. They are available on-line from the university library.

An Introduction to Statistical Learning, James, G., Witten, D., Hastie, T., and Tibshirani, R., 2013, Springer, New York.

The Elements of Statistical Learning, Hastie, T., Tibshirani, R. and Friedman, J., 2009, 2nd edition, Springer, New York.

Modern Applied Statistics with S, Venables, W.N. and Ripley, B.D., 2002, 4th edition, Springer, New York.

Topics: Supervised and unsupervised learning. Prediction models: parametric (linear, non-linear) and non-parametric models. Variable selection: step-wise methods, sequencing, shrinkage methods. Regression and classification trees. Boosting. Random Forests. Neural Networks. Support Vector Machines for regression and classification. Robust estimators.

Assessment:

Policy on missed final exams: Students who miss the final exam must report to their Faculty advising office within 72 hours of the missed exam, and must supply supporting documentation. Only your Faculty Advising office can grant deferred standing in a course. You must also notify your instructor prior to (if possible) or immediately after the exam. Your instructor will let you know when you are expected to write your deferred exam. Deferred exams will ONLY be provided to students who have applied for and received deferred standing from their Faculty.