STAT 406 – 18 / 19 – Methods for Statistical Learning

Tentative weekly outline:

			Out	Due
Sep	~~04~~, 06	Intro, review of linear models	Q0	
	11, 13	GoF vs Prediction error, Cross Validation	Q1	Q0
	18, 20	Correlated predictors, Feature selection, stepwise	Q2	Q1
	25, 27	AIC, BIC, Ridge regression, LASSO, EN	Midterm 1	
Oct	02, 04	Smoothers (Local regression, Splines), curse of dimensionality		Q2
	09, 11	Trees, Bagging	Q3	
	16, 18	Classification as prediction, Logistic regression, LDA, LQA	Q4 Midterm 2	Q3
	23, 25	Nearest Neighbours, Trees	Q5	Q4
Nov	30, 01	Ensembles, Random Forests	Q6	Q5
	06, 08	Boosting, Neural Networks?	Q7 Midterm 3	Q6
	13, 15	Unsupervised learning, K-means, model-based clustering	Q8	Q7
	20, 22	EM algorithm - Hierarchical clustering	Q9	Q8
	27, 29	PCA, Multidimensional Scaling	Midterm 4	Q9

Tentative list of Quiz topics:

- Q0: Review
- Q1: MSPE with training / test, analytical expansions of MSPE
- Q2: Stepwise + cross validation
- Q3: Regression Trees
- Q4: Regression Trees, LASSO & Bagging
- Q5: Classification trees + Non-parametric regression
- Q6: Out of bag error rates for Random Forests
- Q7: K-NN, LDA, Logistic regression
- Q8: K-means & clustering
- Q9: Prediction competition