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)		Q2
	09, 11	Curse of dimensionality, Trees	Q3	
	16, 18	Bagging	Q4 Midterm 2	Q3
	23, 25	Classification as prediction, Logistic regression, LDA, LQA	Q5	Q4
Nov	30, 01	Nearest Neighbours, Trees, Ensembles	Q6	Q5
	06, 08	Ensembles, Random Forests	Q7 Midterm 3	Q6
	13, 15	Boosting, Neural Networks?	Q8	Q7
	20, 22	Unsupervised learning, K-means, model-based clustering	Q9	
	27, 29	Hierarchical clustering, PCA, Multidimensional Scaling	~~Midterm 4~~	Q8, 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: LDA + Non-parametric regression
- Q6: Classification trees, ensembles
- Q7: Out of bag error rates for Random Forests
- Q8: Prediction competition
- Q9: K-means & model-based clustering