CSC2515 Fall 2005 – Info Sheet

September 13, 2005
www.cs.toronto.edu/~roweis/csc2515/

• Instructor: Prof. Sam Roweis
  Lectures: Tuesdays 2-4pm, SS2110
  First lecture Sept. 13, last lecture December 2 (instead of Dec.6).
  Tutors: Ben Marlin & Roland Memisevic
  Tutorials: some Tuesdays 4-5pm, SS1088
  Office hours: Tuesdays with no tutorials, 4-5pm
  website: www.cs.toronto.edu/~roweis/csc2515/
  email: csc2515@cs.toronto.edu
  (please do not send Roweis or tutors email about the class directly to their personal accounts)

• Marking Scheme:
  – weekly readings worth 13% (honour system)
  – 3 assignments worth 18% each
  – one project worth 33

Prerequisite: instructor permission except for DCS/ECE/STATS grads; Load: 26L
Auditing policy: instructor permission, space permitting, no resources.

• Course Description:
  Basic methods for classification, regression, clustering, time series modeling, and novelty detection. These
  algorithms will include K-nearest neighbours, naive Bayes, decision trees, support vector machines, logistic
  models, principal components analysis, factor analysis and independent components analysis. Methods of
  fitting models including stochastic gradient and conjugate gradient methods, the Expectation Maximization
  algorithm and Markov Chain Monte Carlo. The fundamental problem of overfitting and techniques for dealing
  with it such as capacity control and model averaging.

• Computing:
  CDF accounts will be created for all students. Please do course computing on CDF and not on research systems
  such as CSLAB. All the basic algorithms will be implemented in Matlab, but prior knowledge of Matlab is not
  required.

• Recommended (but not required) books:
  – *Elements of Statistical Learning*, Hastie, Tibshirani, Friedman
  – *Information Theory, Inference, and Learning Algorithms*, MacKay
  – *Neural Networks for Pattern Recognition*, Bishop
  – *Pattern Recognition and Neural Networks*, Ripley
  – *Introduction to Graphical Models*, Jordan et. al (unpublished)