CSC2515 Fall 2003 – Info Sheet

September 10, 2003
www.cs.toronto.edu/~roweis/csc2515/

• Instructor: Prof. Sam Roweis
  Lectures: Tuesdays 2-4pm
  First lecture Sept. 10, last lecture December 4.
  Location: SS1078
  Tutor: Kannan Achan
  Tutorials: some Tuesdays 4-5pm
  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 Achan 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
  regression, generalized additive models, K-means, mixtures of Gaussians, hidden Markov 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.

• Course text (highly recommended):
  Elements of Statistical Learning, Hastie, Tibshirani, Friedman

• Other recommended (but not required) books:
  – Neural Networks for Pattern Recognition, Bishop
  – Pattern Recognition and Neural Networks, Ripley
  – Introduction to Graphical Models, Jordan et. al (unpublished)
  – Machine Learning, Mitchell