

**Department of Electrical and Computer Engineering**  
University of Massachusetts Lowell

EECE CDM Problem Set #4

1. Consider the problem of multiclass classification for identification using the given 3 class data sets x1.dat,x2.dat,and x3.dat. Each data set is comprised of 50 realizations of measurement of 4 features.

- a. Assign x1,x2,x3 to enumerated classes (0,1,2) respectively. Assign features for each enumerated class labeled (0,1,2,3) respectively.
- b. Using half of the data construct and train the model using 1-K encoding solving the resulting equations using the least-square approach. Compute the fitting error and confusion matrix. Test accuracy using the remaining data.
- c. Consider the LDA approach using the same data. Due to strong correlation between features 2 and 0 in class 0 and class 1 plot the scatter of all classes in 0-2 feature plane.
- d. Plot the foe-guassian distribution and the projection using the weight vector yielding the largest eigenvalue.