

ECEN 649 - Pattern Recognition

ECEN 649 - Pattern Recognition (3 credit hours) Prerequisites: ECEN 601 (Linear System Theory) and knowledge of probability theory Course Description: Statistical and structural approaches to pattern recognition. Topics include Bayesian decision theory, parametric and non-parametric classification methods, feature selection and extraction, clustering algorithms, and neural networks. Learning Objectives: - Understand statistical pattern recognition theory - Implement classification and clustering algorithms - Apply pattern recognition to real-world problems - Evaluate classifier performance Laboratory Component: Hands-on implementation of pattern recognition algorithms using MATLAB and Python Grading: - Homework: 25% - Lab Reports: 25% - Midterm: 25% - Final Project: 25%