SPRING 2019
Computer Science
Special Topics

Extended Campus/Distance Education

CS 434-950 / 591-951

Online

Instructor – Norman Carver

Learning From Data

(Graduate Category 1)

This course will focus on Machine Learning theory and techniques that involve learning from data. Topics to be covered include: Computational Learning Theory, learning linear models (perceptrons, gradient descent, linear regression, logistic regression), practical issues in learning (bias, overfitting, regularization, validation), learning non-linear models (support vector machines, kernel trick, radial basis functions), decision tree learning, Bayesian learning (naive Bayes, ML/MAP estimation, optimal Bayes classifiers, Bayesian Networks), and reinforcement learning (Markov decision processes, Q learning, temporal difference learning, Monte Carlo methods). The material in this course is complementary to that in CS 437 (ML and Soft Computing) and CS 533 (Data Mining).

Instruction will include online videos by the instructor and others. Programming assignments will use GNU Octave (free "MATLAB") and Google's TensorFlow. Students registered for CS 591 will be expected to carry out a project.

Prerequisites: Undergraduates must have completed CS 330 with a C or better.