MID-II (All topics mentioned below and detailed content covered in classes)

Bayes theorem.

Exercise questions: 2.95, 2.96, 2.97, 2.98, 2.99, 2.101

Bayesian Spam filter for one word and two words problems (equally & unequally likely events),Practice Questions related to Bayesian spam filter for one word and two words

Exercise questions: Handouts

Concept of random variable, Discrete probability distribution, Probability mass function plot, probability histogram, Cumulative Distribution Function, CDF plot, Mathematical expectation and Variance of discrete random variable.

Exercise questions:3.11, 3.12, 3.13, 3.22, 3.24, 4.1, 4.4,

Expectation and variance of function of discrete random variable, Properties of expectation and variance,

missing value cases

Exercise questions:4.17, 4.55, 4.57,

Joint Probability distribution for discrete random variable, marginal distributions, conditional distribution for Y given X and X given Y, Expectation, variance, covariance, correlation and statistical independence.

Exercise questions:3.39, 3.48, 3.49, 3.50, 3.51, 4.10, 4.51, 4.60, 4.97

Continuous random variable, PDF, CDF, Finding PDF and Probability by using CDF, Expectation and Variance of continuous random variable, Expectation and variance of function of continuous random variable, Finding probabilities from dual function, missing value cases

Exercise questions:3.6, 3.7, 3.9, 3.14, 3.21, 3.29, 3.36, 4.12, 4.20, 4.29, 4.50, 4.101

Discrete Probability Distributions, Introduction to binomial distribution, Binomial probability function, Properties of binomial distribution, parameters, mean and variance.

Exercise questions: 5.4,5.6, 5.9, 5.10, 5.15, 5.20

Hyper-geometric probability distribution, Characteristics, parameters, application, mean and variance

Exercise questions:5.29, 5.30, 5.31, 5.32, 5.33, 5.40, 5.41

Poisson distribution, Probability Function, Characteristics, parameters, application, mean and variance, Poisson approximation to binomial distribution.

Exercise questions:5.56, 5.57, 5.58, 5.71, 5.87