Course No.	Course Title	Theory	Practice	Credit	Prerequisite(s)
Stat 211	Probability Theory I	3	2	4	Stat110, Math202

Objectives

Studying probability and probability distributions with its characteristics in case of one variable.

Course Description:

- Random experiment, Sample space, Events, Axioms of probability.
- Conditional probability and independence, Bayes theorem.
- Discrete and continuous Random variables, probability function and probability density function, distribution function and its characteristics.
- Mathematical expectation, central and non-central moments of order r, measures of skew ness and kurtosis.
- Moment generating function and probability generating function.
- One variable discrete probability distributions (Uniform, Bernoulli, Binomial, Poisson, Geometric, Hypergeometric and Negative Binomial).
- Gamma function, Beta function.
- One variable continuous probability distributions (Uniform, Normal, Gamma, Exponential, Chi-Square and Beta).
- Derivation of moments, moment generating function, probability generating function (whenever relevant) for the above distributions.

Main text books :

G.M. El-Sayyad: Theory of probability, 1990, دار الآفاق – جده

Bain & Engelhardt, Introduction to Probability and Mathematical Statistics, Duxbury Press

Subsidiary books :

- Blake, I.F. : An Introduction to Applied Probability, John Wiely, 1989.