

Course No.	Course Title	Theory	Practice	Credit	Prerequisite(s)
Stat 312	Theory of Probability II	3	-	3	Stat211, Math203

Objectives

Studying probability distributions of more than one random variable and finding the probability distributions of functions and sums of random variables.

Course Description:

- Bivariate probability distribution: Discrete and continuous, joint, marginal, and conditional distributions, Calculation of moments, independency, Covariance, and Coefficient of correlation.
- Probability generating function and moment generating function. Trinomial and bivariate normal distributions.
- Generalization of the above concepts to multivariate random variables.
- Probability distributions of functions of random variables using distribution function, moment generating function and transformation methods.
- Derivation of Chi-square, t and F distributions.
- Probability distributions of sum of independent random variables and their properties: the expected value, variance and covariance.

Main text books :

G.M. El-Sayyad: Theory of probability, 1990, Dar-Hafez

Subsidiary books :

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