

MATH 5312: Mathematical Statistics I

Description:

This course studies basic probability theory and various distributions. Properties of distributions are derived.

Topics:

- Sample space
- Conditional probability
- Independence
- Random variables
- Expected values
- Mean, variance, covariance and correlation
- Discrete distributions including binomial, negative binomial, hypergeometric, Poisson, etc
- Continuous distributions including uniform, normal, gamma, exponential, t, χ^2 , F, etc
- Moment generating functions
- Distributions of functions of random variables
- Central limit theorem
- Limiting distributions

References:

Bain, Lee J. and Engelhardt, Max (1992) Introduction to Probability and Mathematical Statistics, 2nd edition. Duxbury

Casella, George and Berger, Roger, L. (1990) Statistical Inference. Wadsworth