Marks : 100
Course Outline
1. **Basic Probability:** Axiomatic definition of probability, random variable, distribution function, probability density function, mathematical expectation; conditional probability, jointly distributed random variables, marginal and conditional distributions, conditional expectation, stochastic independence.
2. **Some Special Distributions:** Binomial, poison. Negative binomial, hypergeometric, normal distributions with their derivation of their mean and variance; Definition and Application of chi-square, "T" and 'F' distributions.
3. **Statistical Inference:** Maximum likelihood estimation of the mean and the variance of a normal population; confidence interval for mean, difference of means and for variance: testing hypothesis for the equality of two means (paired and unpaired observations); testing of equality of sever al means (ANOVA) and testing of variance and equality of two variance.
4. **Correlation and regression:** Simple linear regression model point and interval estimation of parameters, Simple Partial, Multiple Correlation and testing of these correlations.
5. Sampling, Simple random, stratified, systematic and cluster sampling, estimates of mean and total and their precision.
6. Applications of Statistics in social, economic and political problems public health, crimes, Law, social innovations economic development, socio-political inequality.

Suggested Readings

	Title	Author
1	Introduction to the Theory of Statistics	Mood, Graybill and Boes
2	Mathematical Statistics	Freund
3	Mathematical Statistics	Hood and Craig
4	Sampling Techniques (3e)	Cochran and Cox
5	Statistics: An Introductory Analysis	Yamane
6	Statistics: A Guide to the Unknown	Tanur; Hudith (ed)