Lesson Plan

Assistant professor:

Subject- B.sc/BA - 4th sem (Statistics)

| Week | Topics |
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| 1 | Chi-square distribution: Definition, derivation of y2 distribution, moment generating function, Cumulant generating function, mean mode, skweness, additive property, conditions for the validity of chi-square,  |
| 2 | Pearson’s chi-square test for goodness of fit. Contingency table, coefficient of contingency, test of independence of attributes in a contingency table.  |
| 3 | t and F statistics: Definition of Student’s ‘t’ and Fisher’s ‘t’, derivation of Student’s ‘t’ distribution, distribution of Fisher’s ‘t’ , constant of t-distribution, limiting form & graph of t-distribution. Definition & derivation of Snedcor’s F-distribution, constants of Fdistribution, mode of F-distribution. Testing for the mean and variance of univariate normal distributions |
| 4 | testing of equality of two means and testing of equality of two variances of two univariate normal distributions. Related confidence intervals. Testing for the significance of sample correlation coefficient in sampling from bivariate normal distribution.  |
| 5 | Nonparametric Tests: Definition of order statistics and their distributions |
| 6 | , Non-parametric test: Sign test for univariate & bevariate distribution, run test and median test.  |
| 7 | Analysis of variance (ANOVA), definition, assumptions of ANOVA test, one-way and two-way classifications for fixed effect model with one observation per cell. Introduction to design of experiments, terminology. experiment, treatment |
| 8 | , experimental unit, blocks, experimental error, replication, precision, efficiency of a design, need for design of experiments, size and shape of plots and blocks.   |
| 9 | Fundamental principles of design, randomization, replication and local control, Completely Randomized Design (CRD), Randomized Block Design (RBD), |
| 10 | their layout, statistical analysis, applications, advantages and dis-advantages and efficiency of RBD relative to CRD.   |
| 11 | Latin Square Design (LSD), standard latin square design, layout of LSD, its statistical analysis, applications, merits and de-merits. Factorial designs;- 22 and 23 designs, |
| 12 | illustrations, main effects and interaction effects, Yate’s method for computing main and interaction effects.  |