UNIVERSITY OF KERALA

Complementary Course in STATISTICS for the students of BSc Degree Programme in Mathematics under CBCSS

SYLLABUS

Semester: 4	Type of course: Complementary
Course Code: ST1431.1	Course Name: STATISTICAL INFERENCE
Instruction Hours/Week: 5	Number of credits: 3

- Module ITheory of estimation-concept of point estimation, desirable properties of
estimates-unbiasedness, sufficiency, efficiency, consistency, completeness.
Factorization theorem-Fisher-Neyman factorization theorem (statement
only). Methods of estimation-methods of moments, MLE, method of
minimum variance, MVUE, Simple problems.
- Module II Interval estimation-definition, interval estimates of mean, difference of means, variance and proportions based on large samples
- Module III Testing of hypothesis: C oncept of statistical hypothesis simple and composite, null and alternative hypothesis, type I and type II errors, critical region, level of significance, p value, power of the test. Neyman-Person theorem (statement only) Tests b ased on normal distribution (both large and small)- test concerning value of mean, equality of means, equality of proportions.
- **Module IV** Tests based on t, F and x^2 statistics-testing the mean of normal population, equality of means, paired t test, x^2 test for variance, g oodness of fit, independence of attributes (2x2 as special case) and homogeneity. Testing equality of variances based on F distribution.
- Module VDesign of experiments: Principles of design of experiments-randomization,
replication and local control. Model and analysis of variance-
one way
analysis and two way analysis (derivation for one- way analysis only)

References

- 1. J. Medhi: Statistical Methods-an introductory text ,New Age International.
- Paul. G. Hoel; Siney C. Port, Charles J. Stone: Introduction to statistical theory, Universal Book stall New Delhi.
- 3. John. E. Freund: *Mathematical Statistics*, Prentice Hall of India
- 4. M. N. Das, N. C. Giri. *Design and analysis of experiments*, New Age International (P) Ltd.

PS: This is only a copy of the syllabus of the course, published by the University and is primarily intended to provide an easy reference to the students of the course. As the University is the final authority, as far as the syllabus of a course is concerned, the students are advised to verify that the University has not made subsequent changes in the syllabus of the course.