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HOME PAGE

MTH 513 : Analysis of Variance

Course Contents: Analysis of completely randomized design, randomized block design, Latin squares design; Split plot, 2^n and 3^n factorials with total and partial confounding, two-way non-orthogonal experiment, BIBD, PBIBD; Analysis of covariance, missing plot techniques; First and second order response surface designs.

Expected topics to be covered: Likelihood ratio test for general linear hypothesis; Test of hypothesis for one and more than one linear parametric functions; Likelihood ratio test in in one way model; analysis of variance in one way model; multiple comparison tests; Analysis of completely randomized, randomized block and Latin squares designs; missing plot techniques; General intrablock and interblock analysis of variance in Incomplete block designs; Balanced incomplete block design (BIBD); Intrablock analysis of variance in BIBD; Interblock analysis of variance in BIBD; Recovery of information in BIBD; Intrablock analysis of variance in partial balanced incomplete block design (PBIBD); 2^n factorial experiments with total confounding, partial confounding and fractional replications; Analysis of covariance; Introduction to 3^n factorials.

Books:

H. Scheffe: The Analysis of Variance, Wiley, 1961.

H. Toutenburg & Shalabh: Statistical Analysis of Designed Experiments, Springer 2009.

D. C. Montagomery: Design & Analysis of Experiments, 5th Edition, Wiley 2001(Low price edition is available).

Reference Books:

D. D. Joshi: Linear Estimation and Design of Experiments, Wiley Eastern, 1987.

George Casella: Statistical Design, Springer, 2008.

Max D. Morris: Design of Experiments- An Introduction Based on Linear Models, CRC Press, 2011.

N. Giri: Analysis of Variance, South Asian Publishers, New Delhi 1986.

H. Sahai and M.I. Ageel: The Analysis of Variance-Fixed, Random and Mixed Models, Springer, 2001.

Aloke Dey: Incomplete Block Design, Hindustan Book Agency 2010.

Grading scheme

Quiz: 20% , Mid semester examination: 40% , End semester examination: 40% ,

Assignments

Assignment 1

Assignment 2

Assignment 3

Assignment 4

Assignment 5

Assignment 6

Lecture notes for your help (If you find any typo, please let me know)

Lecture Notes 1 : Results on Linear Algebra, Matrix Theory and Distributions

Lecture Notes 2 : General Linear Hypothesis and Analysis of Variance

Lecture Notes 3 : Experimental Design Models

Lecture Notes 4 : Experimental Designs and Their Analysis

Lecture Notes 5 : Incomplete Block Designs

Lecture Notes 6 : Balanced Incomplete Block Design (BIBD)

Lecture Notes 7 : Partially Balanced Incomplete Block Design (PBIBD)

Lecture Notes 8 : Factorial Experiment

Lecture Notes 9 : Confounding

Lecture Notes 10 : Partial confounding

Lecture Notes 11 : Fractional Replications

Lecture Notes 12 : Analysis of Covariance