HES 2213: DESIGN AND ANALYSIS OF EXPERIMENTS II

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Department of Pure and Applied Sciences

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General Information

Instructor: Dr. Mutua Kilai	Time: 10am-1Pm
Day: Monday	Place: JSM 304

- **Pre-requisites**: HES 2207: Design and Analysis of Experiments
- **Class Policy**: Regular attendance is essential and expected.
- **Academic Honesty**: Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation.
- **Software**: R Software will be used all through.
- **Assignment Template**: To be provided as per the assignment schedule.

Course Purpose

To equip learners with knowledge and skills in simple and standard designs, their analysis and interpretation.

Course Outcomes

At the end of this course learners should be able to:

1. Explain the principles of Experimentation
2. Describe the use Analysis of variance (ANOVA) to solve problems
3. Describe the analyse standard experimental design
4. Discus construction of a sample orthogonal latin square and factorial designs.

COURSE DESCRIPTION

i. Review of experimental and statistical objectives.

ii. General 2 n design, confounding of one or more effects, partial confounding: fractional replication; block compositions.

iii. Factors at 3 levels; 3 2 and 3 3 experiments with and without confounding, estimation of effects.

iv. Split plot designs.

COURSE DESCRIPTION CONT'D

v. Incomplete block designs: nature and need for incomplete blocks; types of designs, balanced designs, balanced incomplete block design, Intra and Inter block analysis; partially balanced incomplete blocks - two associate classes only.

vi. Youden squares; lattice designs; relative merits of designs.

vii. Planning of experiments; choice of design, economic considerations, treatment design; experimental design.

viii. Determination of optimum plot/block size and shape.

COURSE ASSESSMENT

- Written CATS 20%
- Assignment 10%
- Final Examination 70%

Course Textbooks

- Montgomery, D. 2007. Design of Experiments; John Wiley and Son- New York
- George C. Canavos, Ioannis A. Koutrouvelis. 2008. An Introduction To The Design & amp; Analysis Of Experiments; Pearson Prentice Hall
- Anderson V.L and Maclean R. G. 2009. Design of Experiments A Realistic Approach; Marcel Dekker- New York
- . Kempthrone O. 2008. Design and Analysis of Experiments; Rober E Kriger, London.
- Journal of Applied Statistical Science (J. Appl. Stat. Sci.) ISSN: 1067-5817.
- Journal of Applied Statistics (J. Appl. Stat.) ISSN: 0266-4763; 1360-0532

Thank You!