Statistics 6410
Design and Analysis of Experiments
4 semester hour course

Prerequisite: (Stat 521 or Stat 6201 or Stat 623 or Stat 6302 or Stat 622 or Stat 6802) and (Stat 645 or Stat 6450 or Stat 6950), or permission of instructor.

Exclusions: Stat 641 or Stat 6910.

Location: - - -

Text: “Design and Analysis of experiments" by Dean and Voss

Conversion note: Expands the coverage of fractional factorial experiments and adds important topics that have not been able to be covered in the quarter version Stat 641 due to lack of time. (Latin squares, Nested designs, Split-plot designs, Response surface designs.)

COURSE DESCRIPTION
Students learn principles of designing experiments and analysis of the linear model. Analysis of variance techniques are used for hypothesis testing, and simultaneous confidence interval methods are covered. Block designs, factorial experiments, and random effects models are explored.

TOPIC LIST
1. General principles of designing experiments
2. One-Way Analysis of Variance
3. Multiple comparisons
4. Sample size calculation
5. Two- and higher-way analysis of variance
6. Block designs
7. Latin squares
8. Confounding in single replicate designs
9. Fractional factorial experiments
10. Taguchi methods
11. Supersaturated designs
12. Random effects and mixed models
13. Nested designs,
14. Split-plot designs,
15. Response surface designs