Instructor: J. Jin  
Class: 1:30 - 2:50, TR HBH 1511  
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Office Hours: by appointment  
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Prerequisites: The students are expected to be comfortable with matrix algebra and statistical inference at the level of 36-705. Also, 36-707 is strongly recommended.

The main topics we are going cover are:

1. Distribution of linear and quadratic forms.
3. Introduction to designs of experiments. Analysis of variance. Factorial and block designs. Analysis of random, fixed and mixed models. Component of variance. We may pick some other material from Chapter 9-12, as well as the Appendix.
4. While we will use LRA as the main text, we would introduce material from other place from time to time. For example, we may cover Hierarchical Bayes analysis of linear models, and Generalized linear models.

Exams: two in class midterms. Tentatively, the first midterm will be mid or late February, and the second midterm in late March. The form of final to be determined.

Homeworks: homework will usually be assigned each Thursday, collected the Thursday a week after. Homeworks will be graded by a TA. In total we expect to have 8-12 homeworks.

Weights: Midterm I, Midterm II, HW, and Final weight equally for 25% each.

Final grade: your final letter grade will based on curves.

References. Below is a long list of textbooks that would be helpful.

   This book has a lot of material not found elsewhere, it has a good section on generalized 
   inverses and contains a lot of material on unbalanced ANOVA models.

   Has similar material to Seber’s book, but goes much more into detail. Very useful to read 
   if you want to find how to set up a particular linear model.


   An excellent book for practitioners. Seber’s book is designed to be a compromise between 
   this book and more theoretical books like Scheffé’s and Searle’s.

   The basic source on multiple comparisons procedures.

   Wiley.  
   More advanced than Seber and covers a wider class of models. Interested in optimal 
   invariant procedures. Like Rao’s book, this is a good book to read after you’ve had some 
   introduction to linear models.

    Less detailed than Seber, but very good on orthogonal projections in least squares theory. 
    Worth reading.


12. Oscar Kempthorne, and Klaus Hinkelmann (1994) *Design and Analysis of Experiments* 
    Wiley

    Linear Models*. Springer.
