

Syllabus for Stat 553, Spring 2007

(This is a tentative syllabus, it could be modified from time to time).

The course will use the text book by George A. F. Seber and Alan J. Lee: *linear regression analysis*, second edition, which we refer as **Seber**.

The main topics we are going cover are:

1. Distribution of linear and quadratic forms.
2. Least squares analysis of linear models. Gauss-Markov theorem. Estimability and testability of parameters. Canonical reduction of linear hypothesis. Confidence regions and prediction regions.
3. Introduction to designs of experiments. Analysis of variance. Factorial and block designs. Analysis of random, fixed and mixed models. Component of variance.

We will cover at least Chapter 2-8 of LRA, we may pick some other material from Chapter 9-12, as well as the Appendix. Although we will use LRA as the main text, we would introduce material from other place from time to time.

We may also cover the following topics, which is not decided yet:

1. Hierarchical Bayes analysis of linear models.
2. Generalized linear models.