Linear Models: STAT 312a / STAT 612a

Fall 2015   Monday, Wednesdays 11:35 - 12:50   60 Sachem Street (Watson Center), Rm A60

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Course Description:

The geometry of least squares; distribution theory for normal errors; regression, analysis of variance, and designed experiments; numerical algorithms, with particular reference to the R statistical language.

Grading:

- 70% Problem Sets
- 15% Mid-Term I (2015-10-12)
- 15% Mid-Term II (2015-11-18)

Suggested Prerequisites:

- Linear Algebra at the level of MATH 222
- Statistical theory at the level of STAT 242
- Some familiarity with a statistical software or programming language, preferably R

Suggested References:

- Rao, Calyampudi R., et al. *Linear Models and Generalizations.* Springer New York, 2008.
- Hayashi, Fumio. *Econometrics.* Princeton University Press, 2000.
- Golub, Gene H., and Charles F. Van Loan. *Matrix computations.* Vol. 3. JHU Press, 2012.
- Bühlmann, Peter, and Sara Van De Geer. *Statistics for high-dimensional data: methods, theory and applications.* Springer Science & Business Media, 2011.

Problem Sets:

Problem sets are assigned roughly once every two weeks; this yields a total of 7 sets. You may discuss problem sets with other students, but must write up your own solutions. This means that you should have no need to look at other student's final written solutions.

Tentative due dates for problem sets: 09-14, 09-28, 10-05, 10-19, 11-02, 11-09 and 12-16.