BIOSTAT/STAT 533
Theory of Linear Models
Spring 2007

Instructor: Kathleen F. Kerr, Ph.D.
Office: F652 Health Sciences Building
Office Hours: MW 2:20-3:00 and by appointment
E-mail: katiek@u.washington.edu

Course Meeting Times: MW 1:00-2:20
Location: Health Sciences Building K-069
Web-site: **http://courses.washington.edu/b533**

TAs: Takumi Saegusa

TA Office Hours: Tuesdays and Thursdays 1pm-2:30
Biostatistics H-wing conference room (Health Sciences H-657)

Course Description

This course covers the classical theory of linear statistical models.

Prerequisites:

Introduction to linear statistical models (e.g. BIOST 515 or 518), intermediate statistical inference (e.g. STAT 512-513), linear algebra and matrix algebra.

Learning Objectives:

Upon completion of this course, a student should be able to:

- Recognize a linear statistical model
- Identify the components of a linear statistical model
- Give a geometric interpretation for linear models
- Represent a linear model in matrix notation and be proficient with matrix manipulations as related to linear models
- Relay the distributional results for linear models and their implications for statistical inference
- Identify the necessary and sufficient assumptions for distributional results for linear models
- State and prove the Gauss-Markov Theorem
- Apply linear models of less than full rank and identify estimable parameters

Grading Policy

Course grades will be determined as follows:
30% Homework assignments
30% Midterm
40% Final Exam

Possible exceptions to the standard grading scheme may be made to give more weight to the final for students who perform much better on the final than on the midterm.

There will be 9 homework assignments; they will not necessarily have equal value. You can work together on the homework but cannot copy solutions from other students or any other sources. You know the difference.

Late homework will generally NOT be accepted. The TA cannot accept late homework under any circumstances.

Text

Linear Regression Analysis, 2nd edition. George A.F. Seber and Alan J. Lee. Wiley 2003. A handful of texts on linear model theory are on reserve in the health sciences library.

Communication

The class web page (http://courses.washington.edu/b533/) will serve as an archive of homework, handouts, lecture notes, and datasets. I will make an effort to post the completed version of each set of lecture notes a week or so after the lecture. (If you find typos or errors in the copy you receive in class, please let me know so I can correct them before posting.) The class web page will also be a place to find announcements concerning course logistics. Students should check the web page regularly for information.

The webpage contains a link to an electronic bulletin board where students can ask questions to the instructor and TA or to others in the class.

Occasionally, time-sensitive announcements will be e-mailed to the class through the class list-serve provided by the registrar's office. This means that students need to regularly check their UW email accounts.

Acknowledgment

Lecture notes are based on material provided by Dr. David Yanez.

Academic Accommodations

If you would like to request academic accommodations due to a disability, please contact Disabled Student Services, 448 Schmitz, (206)-543-8924 (V/TTY). If you have a letter from Disabled Student Services indicating you have a disability that requires academic accommodations, please present the letter to the instructor so we can discuss the accommodations you might need for the class.

533 Class Schedule subject to change			
Week 1	March 31		
	April 2		
Week 2	April 7	HW1 due	
	April 9		
Week 3	April 14	HW2 due	
	April 16		
Week 4	April 21	HW3 due	
	April 23		
Week 5	April 28	HW4 due	
	April 30		
Week 6	May 5	HW5 due; Midterm	
	May 7		
Week 7	May 12	HW6 due	
	May 14		
Week 8	May 19	HW7 due	
	May 21		
Week 9	May26	No class - Memorial Day	
	May 28	HW8 due	
Week 10	June 2		
	June 4	HW9 due	
Final	TBA		