Syllabus
Biostatistics 577 / Statistics 577
Design and Analysis of Experiments
Summer 2007

This information is subject to change. All changes will be announced in class. Students are responsible for all changes as announced in class.

Instructor Kathleen Kerr, Ph.D.
Associate Professor of Biostatistics
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Office hours: By appointment

Time and Place Tuesday and Thursday, HSB/UW Hospital RR-134, 9:00-10:20.

Textbook *Experiments: Planning, Analysis, and Parameter Design Optimization*, Wu and Hamada (Wiley).
http://www.isye.gatech.edu/~jeffwu/book/

Course Objectives By the end of this course, a student should be able to

- identify the design structure in a planned experiment
- identify appropriate randomization for an experimental design
- identify and differentiate different kinds of replication in experimentation
- identify experiments where blocking is and is not appropriate
- characterize the consequences of error in design
- interpret analyses of variance and make appropriate inferences from them
- understand the assumptions of analyses of variance, diagnostics for evaluating these assumptions, and the consequences of erroneous assumption
- construct appropriate designs for planned experiments

Grading

Homework	35%
Class participation	05%
Exam	35%
Final project	25%
	100%

Homework

Homework will be assigned and due approximately weekly. Homework should be neat and well-organized. Use staples, not paperclips. In general, raw computer output is not acceptable. Homework submissions that do not meet minimum standards may be returned to the student without grades and with no credit given.

You can work together on homework but not copy another student's paper. You know the difference.

Because this is a small class, it is fine to submit homework as an email attachment, as long as your paper does not rely on color graphics. Use your name in the title of the file (e.g. JohnSmith577hw2.pdf).

Data Sets

Datasets from the book can be downloaded from
http://www.isye.gatech.edu/%7Ejeffwu/book/Data.html.
Other datasets will have links from the course home page.

Software

There is no "official" software package for the class, and you may use whatever software package you like to complete homework assignments.

Note

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 me so we can discuss the accommodations you might need for the class.

SCHEDULE		
Week 1	June 19	Approximate Order of Topics Course introduction Introduction to optimal design Introduction to block design – microarray experiments
	June 21	
Week 2	June 26	
	June 28	Review of linear models One-way layout Orthogonal polynomials Multiple Comparisons
Week 3	July 3	
	July 5	
Week 4	July 10	
	July 12	Randomized block design Two-way layout Latin square designs Balanced incomplete block designs Random block effects
Week 5	July 17	
	July 19	
Week 6	July 24	
	July 26	Full factorial designs at 2 levels Blocking full factorials Fractional factorial designs
Week 7	July 31	
	August 2	Response Surface Methodology
Week 8	August 7	EXAM
	August 9	Meet in T-663
Week 9	August 14	Final Presentations
	August 16	