STAT 4220
Applied Experimental Designs

Spring 2013

Instructor: Mr. Andrew Brown
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Lecture Hours: 12:20 - 1:10 pm, MWF, Statistics Building, Room 306
Lab Hours: Fridays, Statistics Building, Room 307 Computer Lab

Prerequisites: STAT 4210 (Statistical Methods) or STAT 4110H (Honors Applied Statistics) or equivalent

Required Text: *Introduction to Design and Analysis of Experiments*, by George W. Cobb. This text is *required*. I will draw heavily from material in the book and occasionally assign homework problems from it. You are responsible for the material that I ask you to read in the book. I doubt I will have time to cover all of it in class.

Additional Course Resources: Please check the course webpage on eLC often for supplementary course material.

Topics to be Covered: The (tentative) outline for the course includes the following topics: Basics of experimental design, steps in setting up an experiment, randomization, blocking, replication, one- and two-way factorial treatment structures, block designs, Latin Squares, nested designs and repeated measures, crossover designs, analysis for experimental designs, contrasts and multiple comparisons, checking assumptions, fixed vs. random effect models, and supplementary material as time permits (e.g. incomplete block designs, unbalanced experiments, power analysis, etc.)

Homework: Homework will be assigned periodically to be graded and returned to you in a timely manner. All assignments are to be handed in at 1:10 pm on the due dates. **NO LATE HOMEWORK WILL BE ACCEPTED UNDER ANY CIRCUMSTANCES**.

Labs: Occasionally we will meet in the lab for computer instruction. The primary purpose of the labs will be to provide you with guided practice in statistical computing as it relates to the analysis of experiments. We will be using SAS in a Windows environment. All computing assignments are expected to be completed in SAS and must be handed in with (1) the relevant output from the program, with your name and date included in the heading of it, and (2) the code you used in your program to get the results you handed in. Both the code and output are to be printed and handed in as you would any other homework assignment. *Please don't email .sas files!* Each student is responsible for typing and turning in *their own code*. **You can work together, but you must turn in your own code and your own output, with your name included on both.** I would suggest saving all of the code you write to a permanent location (e.g. the N: drive on the department server). In certain situations, you may be asked to provide your actual code (not the printed version) so we can run it for verification.

Exams: There will be three (3) in-class exams, tentatively scheduled for **Monday, February 11**, **Wednesday, April 3**, and **Friday, April 26**. Any student must notify me *prior to the exam* if they cannot be present, in which case other arrangements will be made. **If I am notified after the exam has been given, no consideration will be made for making up the grade.** If an exam is missed for medical reasons, proper documentation is required.

Final Project: Rather than a final exam, you will be asked to complete a project and turn it in as your final exam grade. This project will be due at **3:00 pm on Wednesday, May 1** (the end of the scheduled final exam time for this class). More detail will be given later in the semester.

Grade Evaluation: Your course grade will be evaluated according to the following weights: Homework/Lab average, 15%; Average of three exams, 55%; Final project, 30%. *If* I feel a curve is necessary, it will be determined *after* all the assignments have been completed and graded.

Attendance Policy: I have no strict attendance policy. I expect you to be mature enough to attend class without me forcing you to. If you must miss a day, you need not inform me ahead of time. You are, however, responsible for any material that is covered in your absence.

Important Dates:

- Thursday, January 10: End of drop period

- Friday, January 11: End of add period

- Monday, January 21: Martin Luther King, Jr. holiday, no class

- Monday, March 11 - Friday, March 15: Spring Break, no class

- Thursday, March 21: Withdrawal deadline

- Wednesday, May 1: Final project due

Academic Honesty Policy: All academic work must meet the standards contained in "A Culture of Honesty". Students are responsible for informing themselves about those standards before performing any academic work. I take academic honesty very seriously and will pursue appropriate measures in instances of supsected cheating. "Cheating" includes, but is not limited to, (i) turning in work that someone else did for credit, e.g. turning in code that someone else wrote, output someone else generated, etc., (ii) plagiarism, and (iii) inappropriate contact or conduct during an exam, e.g. talking to other students or having extra resources with you that are explicitly not allowed.

The course syllabus is a general plan for the course. Deviations that may be necessary will be announced to the class.