Course: Design and Analysis of Experiments
Class Time: TTR 12:00pm -1:40pm in Science 4655
Instructor: Jong-Min Kim, Statistics
Office: 2380 Science (Tel:589-6341)
Office Hours: 9:00-9:50 Tu, Th, and 10:30-11:20 W. or by appointment.
email: jongmink@morris.umn.edu
Webpage: http://cda.mrs.umn.edu/∼jongmink/stat4631/

Required Course Materials:

- R. L. Ott and M. Longnecker (2001). *An Introduction to Statistical Methods and Data Analysis*,5th ed. Duxbury

Course Desription:

STAT 4631 is an applied course that introduces statistical methods associated with linear models used in designed experiments. In particular, we will discuss Design and analysis of experimental designs; blocking, randomization, replication, and interaction; complete and incomplete block designs; factorial experiments; crossed and nested effects; repeated measures; confounding effects, or other topics.

Homework:

There will be homework problems given in most class periods. No late homework will be accepted without a valid excuse.

Examinations:

One midterm examination and a final exam will be given. No make-up exams will be given. You may also use a calculator.The tentative time table for the examinations is given below:

Midterm Science 4631 12:00 pm - 1:40 pm Thu, October 16
Final Exam Science 4631, to be announced.

Grading

Grades for the course will be determined using the following weights for each component of the course:

Midterm	200 pts.
Final Exam	300 pts.
Homework	300 pts.
TOTAL	800 pts.

Trends on the scores, attendance to the lectures, class participation etc. will be considered on the determination of the final grades.

Rules for dropping and adding classes are the same as those for the university. Students are expected to attend all classes. University rules associated with academic dishonesty will be followed.

Disabilities:

Reasonable accomodations will be provided for students with documented physical, sensory, learning, and psychiatric disabilities. Contact Disability Services to work out the details of accomodations. Please feel free to discuss other special needs with me.

Course Topics The class covers chapters 5, 6, 8, 9, 10, 14, 15, 17, 18, and 19. The topics include

- Inferences about means (5.1-5.7)
- Inferences about difference of two means (6.1, 6.2, 6.4, 6.6)
- Inferences about more than two means (8.1-8.5)
- Multiple comparisons (9.1-9.8)
- Categorical Data (10.1-10.8)
- Randomization and design (14.1-14.6)
- Analysis for some standard designs(15.1-15.7)
- Random effects and mixed effects models (17.1-17.6)
- Repeated measures (18.1-18.3)
- Unbalanced designs (19.1-19.2)

Course organisation:

- Weekly lectures are not intended to be a mere recitation of the text (although we will follow the text rather closely). Instead, they will involve material that augments and supplements the text. To illustrate the important points, we will work through sample problems and discuss, sometimes at great length, practical issues associated with design and data analysis.
- Feel free to ask questions during class; your questions are an important part of this course. Few students are able to master the material without keeping up on a regular basis.