Syllabus – Math671 – Fall 2017
Statistical Methods, Part I

Instructor: Dr. Hailin Sang
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Office hours: M W F 10:00-11:00 or by appoint.
Phone: 662-915-7398

Class time: TTh 1:00-2:15 pm
Place: Hume Hall 331


Goal:
Linear statistical models for regression, analysis of variance, and experimental design are widely used today in business administration, economics, engineering and the social, health and biological sciences. Successful applications of these models require a sound understanding of both the underlying theory and the practical problems that are encountered in using the models in real-life situations. This course and the following Math672 course seek to blend theory and applications effectively, avoiding the extremes of presenting theory in isolation and of giving elements of applications without the needed understanding of the theoretical foundations. Through out the semesters, student will practice data analysis and implementation of the introduced methods using R, Statistical Analysis Software (SAS) or Matlab and will gain experience of solving practical statistical problems involving real data sets.

Course outline:
1. Basic statistical methods most often used in the analysis of data: estimation, confidence intervals, hypothesis testing, understanding and use of P-values.
2. Linear regression and regression diagnostics, analysis of variance, goodness of fit, analysis of residuals.

Grading:
Quizzes 20%, Projects 25%, Midterm exam 25%, Final exam 30%
>90%=A, 87%-90%=A-, 83%-87%=B+, 80%-83%=B, 75%-80%=B-, 70%-75%=C+, 65%-70%=C, 60%-65%=C-, <60%=D

Important:
1. Quizzes are based on homework. Homework will be assigned but not collected and graded. A steady effort to work out all the assigned problems is essential for learning statistical methods and successful performance in this course. Brief or full homework solutions will usually be given.
2. Exams and Quizzes are open book, notes.
3. Projects are assigned every 4-5 weeks. Recently acquired statistical methods will be used to analyze various data sets. Projects should be done in R, SAS or Matlab. A report containing the code, only essential parts of the output, your comments, results and answers should be submitted for grading.
About SAS

You may use SAS® OnDemand for Academics Enterprise Guide (free) in Math 671_Fall17, Math 672: Statistical Methods. Enterprise Guide is a point-click interface software integrated with SAS. You need to register for SAS® OnDemand for Academics and then access Enterprise Guide. Here's how to get started:

1. Access the following Web site:
   [http://support.sas.com/ondemand/index.html#account](http://support.sas.com/ondemand/index.html#account)

2. Review the information and follow the steps at this site.
   Registration instruction is available at

3. After registration, you will receive an email from SAS with individual license number and installation key. Following the instruction, install the software.

4. If you have additional questions about using SAS® OnDemand for Academics, see [http://support.sas.com/ondemand](http://support.sas.com/ondemand).