Statistical Methods II for Social Scientists
Statistical Methods II
STAT40x3: Spring 2011

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Class
MSCS 108
TR 9:00 – 10:15

Office
MSCS 309
WF 9:30 – 10:30; R 12:00 – 1:00

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http://courses.kvasaheim.com/stat40x3/

Purpose and content of the course

This course covers more basic concepts of experimental design. Statistical topics include comparing means, analysis of variance and of covariance, simple regression, multiple regression. Design aspects include split-plot design, factorial arrangements of treatments, multiple and curvilinear regression, and enumeration data. Finally, an introduction to the statistical environment `R` is included. We will cover Chapters 8 – 19 in the textbook.

Required textbook and materials

Textbook: Ott and Longnecker (2010). *An Introduction to Statistical Methods and Data Analysis*, 6th edition. Brooks/Cole; Belmont, CA.

Software: The R statistical environment,

A spreadsheet program,

A word processor or typesetting program.

Additional: A calculator, a USB Drive dedicated to this course. The drive should hold at least 1GB.

Initial thoughts

I do not check attendance; you are responsible for all material covered during the class period. Feel free to ask questions during the class regarding the textbook material; the material covered during the classes may or may not cover what is in the text. You are responsible for the material in the text.

Quizzes and examinations

I will frequently give quizzes (10 points each). These questions are to be answered without a calculator and without notes. The best and the worst quiz scores will be dropped to calculate the final grade.

There are three midterm examinations scheduled along with a final examination. No make ups are given. If you miss a midterm for a fully documented reason (planes and weather do not count), your score on the final examination will count in its place. All examinations are worth 100 points each.

The first midterm will follow Chapter 10; the second, Chapter 13; the third, Chapter 19. The provisional dates for the examinations are February 24, March 31, April 21, and May 5 (at 8:00 am). The dates for the last two are set in stone. The dates for the first two may be changed slightly. If you have conflicts around the times of the first two examinations, let me know by January 15, 2011.

Homework

Each weekly homework assignment will have approximately three (3) problems. The assignment will be posted by Thursday on the website and be due before the beginning of class the following Tuesday.

Each homework assignment is worth 10 points. Please follow the directions on the homework carefully. If you completely type out your homework, I will give you 10% extra credit.

Semester project

There is a project for this course that has you collect data, analyze it in light of an interesting research question and hypothesis, and (quickly) present the results. You will receive more information at a later date. However, start to think of what data you would like to collect (or have already collected). The project is worth 50 points.

Overall Course Grade

I will calculate your percent in the course by adding all of the points you earned during the semester and dividing by the total number of points possible. This percentage is then used to determine your final letter grade for the course: 90% and above = A; 80 – 90% = B; 70 – 80% = C; 60 – 70% = D; below 60% = F.

Course Schedule

Of course, this schedule is subject to change as necessary. The current (updated) schedule is always posted to the website. The readings listed are the readings to be discussed that class period.

Ethics

Feel free to discuss the assignments, research, and other aspects of the course with your peers. However, when you actually do the work, you need to do it on your own. This includes the time you spend working through the problems as well as the time you spend writing up your homework assignment.

Final Thoughts

The purpose of statistics is to gain information about the underlying real-world process you are studying. As we explore the topics in this course, you will begin to ask which technique is the best technique. The short answer is that (in general) there is no "best" technique, only a series of techniques with different assumptions that get a person closer to understanding the real-world process.

The key to succeeding in statistics is to know the answers to three questions:

1. What is the real-world process I am interested in?
2. How are the data collected?
3. What do I want to know about the real-world process?

Once you have answered these three questions, and only then, you can select several statistical techniques (based on your answers to Questions 2 and 3) to connect Question 3 with Question 1. Remember, statistics concerns itself with helping one learn about the real-world; it means nothing without reality.