

Math 588: Data Analysis

Fall 2009

Instructor: Dr. Oleg Makhnin

Office: Weir 223

Office Hours:

M, W, F 9-9:50 am M W 1-1:50 pm Thur 11-12 am or by appt

E-mail: olegm@nmt.edu

Web site: www.nmt.edu/~olegm/588/

Phone: 835-5110

Catalog description:

"Topics include linear regression, inferential tools for regression, model checking and refinement, experimental design, repeated measures and other multivariate responses, comparisons of proportions or odds, logistic regressions and power analysis. Principal components and factor analysis are also introduced."

The main goal is to familiarize you with modern statistical practice. We will pay close attention to data examples and case studies. For computing needs, each student may use a computer package of his/her choice, preferably R, Matlab or SAS. Each student will complete the semester course project, covering an advanced topic of his/her interest.

Prerequisite: MATH 483 or consent of the instructor

Textbook: *Statistical Sleuth*, 2nd edition, by Ramsey and Schafer, Duxbury, 2002

COURSE POLICY

You are encouraged to seek help from the instructor. Your course grade will be determined on the basis of combined scores from Homework, Midterm Exams and Project. In order to make up any assignment, a valid excuse should be documented. The instructor decides if an excuse is a valid one.

Homework: All homework is due at the beginning of the lecture (the day it's assigned). One lowest score will be dropped.

Grading is based on the percentage of total points earned (the individual tests, homework etc. are not assigned a letter grade).

Distribution of points:

Homework 150 Exams 150 Final project 75

Grading Scale (tentative): A: 90-100%; B: 80-89; C: 70-79; D: 60-69; F: 0-59

Course outline:

- Introduction: the nature of statistical inference (Ch. 1)
- Some elementary inferences (Ch. 2-3)
- Nonparametrics (Ch. 4)
- 1-way ANOVA, multiple comparisons (Ch. 5-6)
- Linear regression (Ch. 7-12)
- Several factor ANOVA (Ch. 13-14)
- Serial correlation, repeated measures (Ch. 15-16)
- Multivariate response. PCA (Ch. 17)
- Chi-square (2-way tables) (Ch. 19)
- Logistic regression (Ch. 20)

The instructor reserves the right to change any part of this syllabus as he sees fit.