

Regression AnalysisCourse Information

- Instructor: Wenxin Jiang, Ph.D.
Department of Statistics
2006 Sheridan Road
Room: 21
Phone: 491-5081
- Office Hours: Friday 9 a.m. to 10 a.m. (tentatively)
Department Office
- Class Info: M, W 9:30 a.m. to 10:50 a.m.
STT (Stat Dept basement classroom)
- Text: Applied Linear Regression Models
by Neter, J., Kutner, M.H., Nachtsheim, C.J. and Wasserman, W.,
3rd edition, 1996, Irwin Inc.
- Datasets: There is an online source of datasets, I hope it can help:
<http://www.stat.colostate.edu/~jah/teach/st540/NKNW/README.TXT>
and
<http://www.stat.colostate.edu/~jah/teach/st540/NKNW/>
- Objective: This is a regression course for undergraduate students with a background of matrix algebra. We will discuss statistical estimation and inferential techniques such as least-squares, confidence intervals and hypothesis tests, regarding both the regression parameters and the error variance. We will study the regression models by specifying what the underlying assumptions are, how to check them through diagnostics, and how to build models based on data.
- Prerequisites: Basic probability and statistics courses (e.g., Stat 320-1,2).
Familiarity with matrix algebra. Some calculus.
Statistical software (e.g., SPSS, or SAS).
General computing (e.g., MATLAB).
- Computing: Check the Computer Labs at <http://www.it.northwestern.edu/>
- Evaluation: Homeworks and Take-home Final (TBA)

Course Topics and Tentative Schedule

- I. Simple Linear Regression (One Predictor) (Week 1)
References: NKNW Chapter 1.
- II. Inferences in Simple Linear Regression (SLR) (Week 2)
References: NKNW Chapter 2.
- III. Diagnostics in Simple Linear Regression (Week 3)
References: NKNW Chapter 3.
- IV. Matrix Approach (Week 4)
References: NKNW Chapter 5.
- V. Multiple Linear Regression (MLR) (Weeks 5, 6)
References: NKNW Chapters 6, 7.
- VI. Variable Selection (MLR) (Week 7)
References: NKNW Chapter 8.
- VII. Diagnostics (MLR) (Weeks 8)
References: NKNW Chapter 9.
- VIII. Selected Topics (Week 9)
References: NKNW Chapter TBA.
(Remedial Measures Ch 10? or Simultaneous Inference Ch 4?)