

STA 6207 – Regression Analysis

Instructor: Dr. Larry Winner

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Office Hours: TBA (Will be posted on webpage)

Text: *Applied Regression Analysis, 2nd. Ed.* by Rawlings, Pantula, Dickey

Course Description:

This course provides a survey of theory and applications in linear regression analysis. A full treatment of the linear regression model is covered, focusing on results from mathematical statistics making use of matrix algebra.

Computational methods will be used to analyze datasets based on "canned routines" as well as a matrix language.

Tentative Topics:

- Simple Linear Regression (Chapter 1)
- Brief Introduction to Matrix Algebra (Chapter 2.1-2.8)
- Multiple Regression in Matrix Terms (Chapter 3)
- Analysis of Variance and Quadratic Forms (Chapter 4)
- Case Study (Chapter 5)
- Model Building: Selection of Independent Variables (Chapter 7)
- Polynomial Models (Chapter 8)
- Models with Class Variables (Chapter 9.6-9.7)
- Problem Areas and Diagnostics (Chapters 10,11)
- Transformations (Chapter 12)
- Intro to Nonlinear Models (Chapter 15.1-15.3)
- Logistic Regression (15.5)
- Random Coefficient Regression Models (Chapter 18.3)

Tests and Grading (Dates will be coordinated with STA 2023 & 6326):

- Exam 1- TBD – 25%
- Exam 2- TBD – 25%
- Exam 3- TBD – 30%
- Homework - 20%

Notes:

- Exams will be closed note. I will provide any formulas if necessary
- No make-up exams will be given. Do not plan on leaving town before Final Exam.
- Homework will be assigned on approximately a weekly basis and you will typically have 2-3 class periods to complete them. No late assignments will be accepted, and you must submit paper copies, not e-mail.
- Use e-mail sparingly. It is virtually impossible to answer technical questions via e-mail. E-mail is not a substitute for office hours/lecture.
- SAS and R code for examples in the text are available on class website.