

STA 6207
Regression Analysis
Section 8907 (3 credit hours)
Fall 2008
Course Information and Policies

Description: STA 6207 is a required core course for graduate students of Statistics. It emphasizes technical aspects of linear regression, oriented toward students knowledgeable in basic statistical theory. Major topics include the general matrix formulation of linear models, regression ANOVA, variable selection, polynomial regression, regression diagnostics, transformations, and (possibly) aspects of nonlinear and logistic regression models.

Prerequisite: STA 4322 or 5328 or 6327 (or an equivalent course in mathematical statistics). A well-prepared student will have some prior exposure to simple linear regression and to matrix algebra. Course sequences like STA 6126/7 or STA 6166/7 do *not* qualify as prerequisites — they do not provide the necessary background in *mathematical* statistics.

Course Web Site: <http://www.stat.ufl.edu/~tpark/STA6207>

Please check this site regularly! Most course documents and important information, including homework assignments, course schedule, and special announcements, will be posted there.

Instructor: Trevor Park, Griffin-Floyd 116C, tpark@stat.ufl.edu, 273–2973, Fax: 392–5175

Lecture: Monday, Wednesday, & Friday, Period 3 (9:35–10:25), Griffin-Floyd Hall, Room 100

Office Hours: Listed on course web site, and *subject to change*, particularly in the first few weeks of class. Special appointments with the instructor may be arranged by mutual agreement.

Textbook: John O. Rawlings, Sastry G. Pantula, & David A. Dickey, *Applied Regression Analysis: A Research Tool*, Second Edition, Springer (available at bookstore). UF students can view an earlier printing of this edition online as an e-book from NetLibrary (accessed through the UF Libraries web site), but you are still expected to own your own copy.

Course Notes: Access to some supplementary notes will be provided. Details will be announced during lecture or on the course web site.

Homework: Homework will be assigned almost every week. There will be approximately 10 assignments, not necessarily equally weighted. *Late assignments are generally not accepted*, unless prior permission has been granted.

Software: You will perform data analysis using either the SAS® System or the R statistical environment. You are responsible for obtaining access to one of these software packages. For your convenience, details concerning access to SAS® and R software are provided on the course web site.

Preliminary Exams: Two evening midterm exams are tentatively scheduled:

October 15 — Midterm 1

November 12 — Midterm 2

Policies and coverage details will be announced prior to the date of each exam. If you expect a conflict with an exam date or time or any other circumstance that will prevent you from taking the exam, *you must notify the instructor as early as possible*. If an emergency situation

precludes an advance arrangement, you must provide, upon request, official documentation of the reason for your absence (e.g. an official note from the Student Health Care Center) to be eligible for an alternative arrangement.

Final Exam: **Thursday, December 18, 10:00 AM – 12:00 Noon** (exam group 18B) Details will be announced near the end of the semester. *You must take the exam at the official date and time — no exceptions for personal travel will be granted!*

Course Grade: Grading will be based on a composite score: 20% homework assignments, 25% each midterm exam, 30% final exam.

You may be assigned a grade of Incomplete (I) only when your failure to complete required course work involves extenuating circumstances and no make-up can be completed in time to determine your final course grade before final course grades are officially submitted. You are eligible for a grade of Incomplete only if you have completed enough work to determine *at least half* of your final composite score, *and* you are currently passing the course based on that work, as determined by the instructor. If you find that you cannot continue the semester before this point is reached, you should instead seek an administrative withdrawal. As part of receiving a grade of Incomplete, University of Florida policy requires you to sign a contract with the instructor that specifies a plan and deadline for completing the course.

Lecture Attendance: Unless otherwise announced, your attendance of ordinary lectures is not monitored, nor is it directly used in determining your grade. However, almost all topics covered in lecture are potentially examinable, and will likely be more representative than material in the textbook of the topics covered on exams.

Tentative Course Outline:

TOPIC	TEXT SECTIONS
Simple Linear Regression	Chapter 1
Brief Introduction to Matrix Algebra	Sec. 2.1–2.6
Matrix Formulation for Linear Regression	Chapter 3
Analysis of Variance and Quadratic Forms	Sec. 4.1–4.6
A Case Study	Chapter 5
Linear Model Variable Selection	Chapter 7
Models with Class Variables	Sec. 9.1–9.6
Lack of Fit	Sec. 4.7
Polynomial Regression	Chapter 8
Difficulties with Ordinary Least Squares Estimation	Chapter 10
Regression Diagnostics	Chapter 11
Transformations	Chapter 12
Nonlinear Regression Models (time permitting)	Chapter 15
Logistic Regression	Sec. 15.5

Reasonable Accommodations: To request classroom accommodation, please be certain that you have made all necessary arrangements with the Dean of Students Office, and obtain from them documentation to submit to the instructor at the time of your request. A request must be made to the instructor *at least one week in advance* of the date for which the accommodation is requested.

This course information and policies sheet can be made available in alternative formats to accommodate print-related disabilities. Contact the instructor for information.