

STAT 4214
Methods of Regression Analysis
Fall 2009

Instructor:	Geoff Vining	Textbook:	Montgomery, Peck, and Vining
Office:	415D Hutcheson		<i>Introduction to Linear</i>
Email:	vining@vt.edu		<i>Regression Analysis</i> , 4 th ed.
Web Page:	www.stat.vt.edu/~vining		John Wiley and Sons
Office Hours:	Mondays (when in town), Tuesdays, Wednesdays, and Thursdays 11:00 – 12:00		

Purpose

Physical scientists, engineers, social scientists, and business analysts commonly use linear regression to develop appropriate models to explain behavior of processes of interest. This semester we take a project based approach to learning this material.

Topics

Overview to Modeling	Influence Diagnostics
Simple Linear Regression	Variable Selection
Multiple Linear Regression	Multicollinearity
Residual Analysis	Nonlinear Regression
Transformations	Generalized Linear Models

Grades

The final grade in this course is based upon the following:

Project I	40%
Project II	50%
Class Participation	10%

The projects all involve the analysis of a data set or sets chosen by the student. It is possible, but not likely, that students can use the same data set throughout the semester. Such a data set would need to be sufficiently interesting and complex. It would need to involve six or more regressors and display interesting features such as collinearity and potential outliers. The results of a well planned experiment will not be sufficiently complex for this course.

The project reports should consist of the following:

- Executive Summary (no more than one page)
- Problem Context (Source of data, research questions, etc.)
- Data Analysis (not just computer output, which goes into the Appendix)
- Conclusions
- Appendices (supporting materials)

Project II is due on Friday, December 11 at noon.

The Virginia Tech Honor Code is in force for all project reports. Violators will be taken to the Virginia Tech Honor System.

Grading Scale

A	930 – 1000 points
A-	900 – 929 points
B+	870 – 899 points
B	830 – 869 points
A-	800 – 829 points
C+	770 – 799 points
C	730 – 769 points
B-	700 – 729 points
D+	670 – 699 points
D	630 – 669 points
C-	600 – 629 points
F	< 600 points

Course Topics

See the course webpage.

Software

Students will need to “rent” MINITAB for the semester. The cost is \$ 25.99, which is a real bargain. Go to www.minitab.com for details.