PSYC09

Applied Multiple Regression

Instructor: Dr. Douglas Bors

Overview: This course is designed to integrate the theoretical and practical skills that will allow the student to conduct a multiple regression analysis on a large, realistic data sets. The course material is an extension of the regression and correlation material covered in PSYB07. The students will be involved in coding data, graphically presenting descriptive statistics, assessing the data for possible violations of assumptions, correcting the data for any violations, testing for possible interactions, building final models, and discussing the limitations. The course is a hands-on course in a classroom where students explore the Statistical Package for the Social Sciences (SPSS) during the lecture.

There is an old saying that should be heeded when conducting a multiple regression analysis: There are four important dimensions to any investigation: (1) What questions are asked? (2) What answers are received? (3) What questions were NOT asked? (4) What answers were NOT received?

Textbook: *Multiple Regression: A Primer* by Paul D. Allison (1999)

Grading: Your final grade will be based on assignments (30%), a mid-term examination (30%), and a final examination (40%). Your best three performances on four assignments will be used to calculate the assignment portion of you final grade. The date for the mid-term exam will be posted on the course black board page early in the semester. The date for the final examination will be published by the registrar's office sometime during the term.

Make-Ups: Make-ups for missed quizzes and the mid-term are not given. Should you be ill or have some other legitimate excuse for missing the mid-term, the 30% of your final grade allocated to the mid-term will be redistributed to the assignments and to the final exam: the assignments and final exam will then be worth 40% and 60%, respectively. Deferred final exams are entirely at the discretion of the registrar's office.

Tentative Course Outlines:

Week	Topic	Chapters
1	Review of Simple regression and correlation And intro to SPSS: How is a t-test a correlation?	1
2	Intro to Multiple Regress: Experimental versus statistical control	1

3	First pass at multiple regression and Interpretation: the centrality of the correlation matrix	2 & 4
4	Irrelevant variables and missing important variables	3
5	Examining Assumptions: outliers, normality, linearity	5
6	Assumptions continued: multivariate outliers and equal reliabilities (stability of the correlation matrix)	5
7	The problem of multicollineariy: diagnoses and consequences	7
8	Addressing multicollinearity	7
9	An introduction to Factor Analysis	9
10	Interactions: continuous and dummy variables	8
11	Final model, interpretation, and limitations	all
12	Summary and working an example	