Statistics 6450: Applied Regression Analysis

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Office: 329 Cockins Hall.
Office Hours: 1:30-2:30 pm Tuesday and Wednesday.
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Prerequisites: Statistics 521, 6201 or equivalent

Course format: Four 55-minute lectures— T W Th F from 4:10- 5:05 pm.

Topics covered: Simple Linear Regression model (SLR), Methodology for fitting SLR, Inference for SLR, Diagnostics for verification of SLR assumptions and their remedies, SLR using Matrix algebra, Multiple Linear Regression model (MLR), statistical methodology for MLR, Inference for MLR, Indicator and Qualitative predictors, Diagnostic measures for MLR, Variables selection and model building in MLR, Generalized Linear Models (GLM), Logistic regression, regression with ordinal and nominal polytomous response.

Course Requirements: You are responsible for all material covered in class; this includes derivation, proofs, computational techniques etc. This is an applied course and the emphasis will be on applying concepts learnt in class to real-world datasets. However, there will be a strong theoretical flavor to the ideas presented in class which will help you understand better the methodologies which you will employ on datasets. You are expected to be comfortable with multivariable calculus and basic matrix operations from linear algebra.

This is not a purely computational course although you will learn how to use software to analyze data and apply concepts learnt during the lectures. I will primarily use Minitab and R in class to demonstrate ideas and examples; you are free to use any software/language/package of your preference in doing the homeworks. You will however be responsible for submitting all the required plots, figures, tables etc. as required.

Grading scheme and policy:

Homework - 30%
Midterm - 20 % (in class on Friday, Oct 18)
Project - 25 %
Final - 20 %
Class participation - 5%

I intend to assign approximately 6 or 7 homeworks over the course of the semester and they will be due in class. **Late homeworks will not be accepted.** You will be required to do a project for the course which will encompass several of the concepts learnt during the semester. Details of the project will be discussed in class.

Academic Misconduct: You are expected to produce independent work for homeworks and exams. Academic misconduct of any sort will not be tolerated. Please review OSU’s policies at http://studentaffairs.osu.edu/csc/.

Remarks: Please come to class on time. This is mandatory and I will not entertain late arrivals. Please refrain from using laptops and cell phones in class.