Semester course: STAT 6950 – 4 CREDIT HOURS

Term: Spring, 2015
Instructor: Matthew T. Pratola
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Office Hours: Thursdays 11:10-12:10 CH204D
Text: Sanford Weisberg (2014) *Applied Linear Regression, 4th Edition*, John Wiley & Sons, Inc.,
Course Website: Carmen
Transcript Abbreviation: Appl Statist 2
Long course title: Applied Statistics II

Course description:
Simple and multiple linear regression, diagnostics, model selection, the mixed model, and generalized linear models. Intended primarily for students in the PhD program in Statistics or Biostatistics.

Prerequisites / Co-requisites:
Stat 620 (Stat 6801 under semesters) and Stat 641 (Stat 6910 under semesters), or written permission of the instructor.

Exclusions:
Not open to students with credit for Stat 645 (Stat 6450 under semesters)

Topics:

- Simple linear regression
- Fitting the simple linear regression model
- Statistical inference for regression
- Diagnostics
- Multiple linear regression
- Model building and model selection
- Iteratively reweighted least squares
- Robust regression
- Mixed effects regression
- The generalized linear model

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 learned in class to real-world datasets. However, there will be a strong theoretical flavor to the ideas presented 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. I will primarily use R to demonstrate ideas and examples, however much of the responsibility to program solutions will be left to you.

Homework and Assignments:
You are encouraged to discuss problems with each other in general terms, but you must write your own homework solutions and project reports. Homework and project reports must be submitted in hardcopy. Late submissions will NOT be accepted. Academic misconduct of any sort will not be tolerated. Please review OSU's policies at http://studentaffairs.osu.edu/csc/.

Dates:
HW1 01/27; HW2 02/03; HW3 02/10
HW4 02/17; HW5 02/24; HW6 03/03
Midterm 03/12
HW7 03/31; HW8 04/07; HW9 04/14; HW10 04/21
Homeworks are due Tuesdays at the start of class.