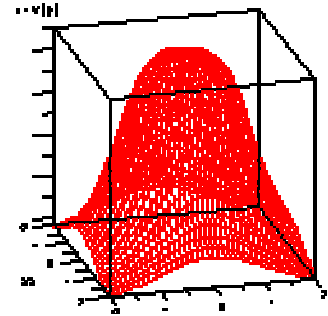


# Regression Theory and Methods

Math 261A, Fall 2010

**Instructor:** Prof. Steve Crunk  
**Course Info:** MW, 7:00 – 8:15 P.M., MH 320  
**e-mail:** crunk@math.sjsu.edu

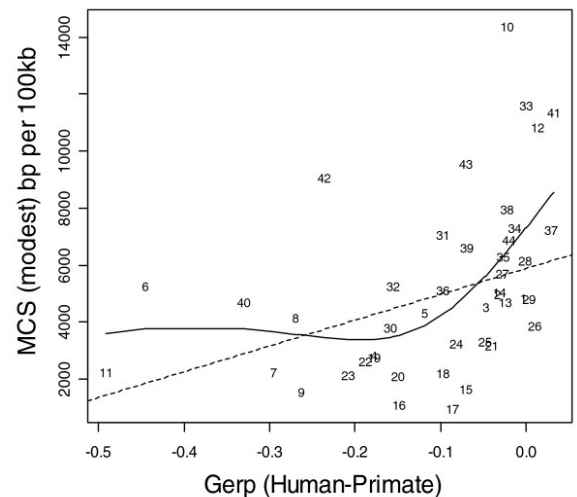


**Why take this class:** Regression, perhaps *the most widely used statistical technique*, estimates relationships between independent (explanatory) variables and a dependent (outcome) variable. Regression models can be used to help understand and explain relationships among variables; they can also be used to predict actual outcomes. In this course you will learn how regression models are derived, use software to implement them, learn what assumptions underlie the regression model, learn how to test whether your data meet those standard assumptions, and learn what can be done when those assumptions are not met.

**Who should take this course:** Mathematicians, scientists, business analysts, engineers and researchers who need to model relationships in data. If you were introduced to regression in an introductory statistics course and now find you need a more solid grounding in the subject, or if you have never studied regression before, this course is for you. If you are planning to learn additional topics in statistics, a good knowledge of regression is often essential.

**Prerequisite:** **Math 161A** (or some other calculus based stats course, e.g., math 164, ISE 130, ISE 162, etc.) and **Math 129A** (or some other introduction to linear algebra). Although this is a graduate level course, undergraduates with the appropriate background and a willingness to do graduate level work are welcome.

**Text:** Montgomery, Peck, & Vining, *Introduction to Linear Regression Analysis*, 4<sup>th</sup> edition, Wiley-Interscience. ISBN: 0471754951.



**Software:** We will use the statistical software package “R” extensively, both in class and for homework problems. No previous knowledge of this program is assumed. This is professional level software used by many major Silicon Valley tech firms. The software will be available on the computers in the department computer lab, and is also available free of charge for home use.