

**PSYC 6132**  
**Univariate Analysis II: Regression**

**Day/Time:** Thursdays, 8:30 am - 11:30 am  
**Class/Lab Location:** 159 Behavioural Science Building  
**Instructor:** Rob Cribbie  
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**Course Goals:**

This course is designed to provide the student with foundational skills in designing and analyzing data involved with a single outcome variable. This course will cover basic concepts in exploratory data analysis in addition to focusing on inferential statistics and effect sizes for the general linear model. The course will also highlight the assumptions associated with these tests as well as robust alternatives for situations in which the assumptions are not met.

**Textbook:**

Cohen, J., Cohen, P., West, S. G. & Aiken, L. S. (2003). Applied multiple regression/correlation analysis for the behavioral sciences. Mahwah, NJ: Lawrence Erlbaum.

The third edition of the book is available in the library as an electronic version [here](#).

**Software:**

The open source statistical software program R will be used in this course. Although R is syntax based and thus has a steep learning curve, its capabilities for graphics and modern statistical methods make it an ideal choice for a graduate course (and a software package of choice for graduate students).

## Lab Exercises:

There will be weekly lab exercises in the course. These exercises are not marked, but will provide an opportunity for you to hone your skills in R and prepare yourself for the class assignments.

## Method of Evaluation:

Assignments: 2 X 15% = 30%

Test: 1 X 35% = 35%

Paper: 1 X 25% = 25%

Presentation: 1 X 10%

The Senate Policy on Academic Honesty will be in effect for all components of course grades. Numeric grades will be translated to letter grades following with scale below:

A+: 90-100%; A: 85-90%; A-: 80-84%; B+: 75-79%; B: 70-74%; C: 60—69%

## Summary of Required Course Components

### 1) Lab Assignments

The laboratory assignments will require students to conduct hand calculations and statistical analyses using *R*, and summarize the results and conclusions of the analyses.

#### *Due Dates:*

Assignment #1: February 4, 2016

Assignment #2: March 10, 2016

Late lab assignments are subject to a 1% of the 15% allotted for the assignment penalty [i.e., 7% of your assignment mark] per day, not including weekends.

### 2) Classroom Exam:

The test will be a mix of multiple choice, short answer, computation, and software output interpretation questions and will cover all material up to the last class before the test.

Date: March 17, 2016

### 3) Written Paper

Although this course will briefly touch on many issues in the application of univariate regression, it is also valuable for students to take an in depth look at other specific statistical

issues. Each student will be required to write a double spaced 10 page (excluding references) paper investigating an important statistical issue *related to regression but not covered within the course*. Instructor approval of the written paper topic is required. If possible, it is encouraged that students research issues that may be directly relevant to the analysis of their own current or future data (e.g., MA thesis data), and it may be useful to discuss the topic with your academic advisor.

Due Date: March 3, 2016

Note: 1% out of the 25% allotted for the paper [i.e., 4% of your paper mark] will be deducted from the paper mark for each day the paper is late, not including weekends.

#### 4) Oral Presentation

Each student will be required to give a short (~10 minute) presentation which summarizes the issues that they investigated in their written paper. The presentations will be done during the last two classes of the term.

#### **Rough Schedule of Topics**

Day	Topic	Readings	Notes
Jan. 7	Review of Preliminary Topics/Introduction to R	CCAW, Ch. 1	Welcome!
Jan. 14	Bivariate Correlation/Regression	CCAW, Ch. 2	
Jan. 21	Multiple Regression	CCAW, Ch. 3	
Jan. 28	Visualization/Assumptions	CCAW, Ch. 4	
Feb. 4	Data Analytic Strategies	CCAW, Ch. 5	Assignment 1 Due
Feb. 11	Nonlinear Relationships/Transformations	CCAW, Ch. 6	
Feb. 18	Reading Week!!		
Feb. 25	Interactions Among Continuous Variables	CCAW, Ch. 7	
Mar. 3	Categorical Predictors	CCAW, Ch. 8/9	Paper Due
Mar. 10	Outliers/Multicollinearity	CCAW, Ch. 10	Assignment 2 Due
Mar. 17	Test		
Mar. 24	Presentations		
Mar. 31	Presentations		