

Cluster	Subject Title	Instructor	Credit	Semester
S-P	Multiple Regression	Prof. Chen Chen	2	Winter 2020
<b>Subject Description</b>				
<p>Multiple Regression are a set of statistical techniques that allow one to assess the relationship between DV(s) and a single IV or multiple IVs. The goal of this course is to give students a conceptual and practical understanding of the use of regression analysis in the psychological sciences and educational settings.</p>				
<b>Objective</b>				
<p>By the end of the course students should be able to:</p> <ol style="list-style-type: none"> <li>1. understand the purpose of multiple regression regarding correlation and variance</li> <li>2. know the situations in which various types of multiple regression are best applied</li> <li>3. conduct effective statistical analyses predicting outcome variables from multiple predictors by using SPSS</li> <li>4. write clear and concise reports of the results of regression analyses for use in presentations, dissertations and peer-reviewed publications.</li> </ol>				
<b>Learning Method</b>				
<p>Lectures: to teach students basic concepts of multiple regression  Labs: to teach students the practical aspects of running regression analyses in SPSS and interpreting the results.</p>				
<b>Content</b>				
<p>Session 1: Simple (bivariate) regression and review of correlation  Session 2: Multiple regression: Introduction and building models with regression  Session 3: Three types of multiple regressions  Lab 1: Which MR strategy is selected?  Session 4: Categorical independent variables  Session 5: Mediation: Single mediator  Session 6: Mediation: Two or more mediators  Lab 2: Dummy variables and mediating effects  Session 7: Moderation with continuous and categorical independent variables  Session 8: Moderation with continuous independent variables  Session 9: Logistic regression with dichotomous categorical DV  Lab 3: Moderating effects and logistic regression  Session 10: Deal with missing data (Optional)</p>				
<b>Requirement</b>				

Students have to attend both the lectures and labs and submit lab assignments.

#### Evaluation

Evaluation is composed of three parts: 30% attendance; 20% lab1; 20% lab2; and 30% lab3. Grades are assigned as follows:

90%-100% = A  
85%-89.99% = A-  
80%-84.99% = B+  
75%-79.99% = B  
70%-74.99% = B-  
65%-69.99% = C+  
60%-64.99% = C  
55%-59.99% = C-  
50%-54.99% = D+  
45%-49.99% = D  
40%-44.99% = D-  
<40% = F

In general, grades would be in between B and A.

#### Textbook and reference

(please indicate which are to be provided by instructor and which are to be obtained by students)

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences (3rd ed.)*. Mahwah, NJ: Lawrence Erlbaum Associates.  
(Some chapters may be provided by instructor)

MacKinnon, D. P., & Fairchild, A. J. (2009). Current directions in mediation analysis. *Current Directions in Psychological Science*, 18, 16-20. (Obtained by students)

Melissa A. Hardy. (1993). *Regression with Dummy Variables*. (Ed). SAGE Publications.

John Fox. (1991). *Regression Diagnostics: An Introduction*. (Ed). Ontario: SAGE Publications.

Ann Aileen O'Connell. (2006). *Logistic Regression Models for Ordinal Response Variables*. (Ed). SAGE Publications.

(Note. Other references may be recommended later)

#### Pre-course reading and preparation (if any)

It would be better if students have certain basic knowledge on statistics for psychology and/or education.