Data Analysis II

Psy 612
CRN 25649
Winter 2013
1000-1120 TR
Straub 146

Instructor:

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Laboratory

180 Straub   CRN: 25650, 25651   F 10-1120; 1130-1250

Course Information

This is the second course in a three-course graduate level data analysis sequence. This course is devoted to topics in multiple regression with special emphasis on complex analysis of variance and experimental design. We assume that all students have successfully completed Psy 611 (Data Analysis I) or equivalent. In general, the text chapters listed in the syllabus cover the material planned for class on the day that they are assigned. This material provides more depth and often alternate explanations of some of the issues.

Inclement Weather Policy

If Eugene School District 4J cancels (not delays) school, we will cancel class. Nothing we do in this class can't wait until it is safe to travel.

Texts:

Cohen, J. & Cohen, P., West, S., & Aiken, L. (2003). <u>Applied Multiple Regression /Correlation Analysis for the Behavioral Sciences</u>, 3rd Ed. Taylor & Francis, NY.

Keppel, G. & Wickens, T. (2004). <u>Design and Analysis: A Researcher's Handbook</u>, 4th Ed. Prentice Hall: Upper Saddle River, NJ.

Class notes available on Blackboard

Other Useful Books:

Analysis of Variance & Experimental Design

Hays, W. L. (1994). <u>Statistics</u> (5th ed). Harcourt Brace College Publishers: Fort Worth.

Tamhane, A., & Dunlop, D. (2000). <u>Statistics and Data Analysis</u>. Prentice Hall: Upper Saddle River, NJ.

Winer, B. J. (1971). <u>Statistical principles in experimental design</u> (2d ed). McGraw-Hill: New York.

Multiple Regression & Related Issues

Pedhazur, E. J. (1997). <u>Multiple Regression in Behavioral Research</u> (3rd Ed.). Harcourt Brace: San Diego, CA.

Wonnacott, R. & Wonnacott, T. (1970). <u>Econometrics</u>. J. Wiley: New York.

Conducting Empirical Research

Abelson, R. (1995). <u>Statistics as Principled Argument</u>. Lawrence Erlbuam: Hillsdale, N.J.

Class Requirements:

Complete take-home midterm examination (35% of grade), final examination (50% of grade), and weekly homework assignments (15%) of grade. Responses to all homework and examination problems should follow standard reporting formats; see the Guidelines handout for examples. Homework will be assigned and due each Thursday. Homework should be uploaded to BlackBoard by 1000 on the Thursday that it is due. The laboratory section may have additional assignments.

Syllabus

Introduction to the General Linear Model

1/8	Linear Regression	CCWA 1, 2
1/10	Regression Diagnostics	CCWA 4
1/15	Basic Multiple Regression	CCWA 3
1/17	Partitioning variance	CCWA 5
1/22	Regression with categorical variables	CCWA 8
1/24	Nonlinear relations	CCWA 6
1/29	Analysis of interactions	CCWA 7, 9
1/31	Analysis of covariance	

Complex Analysis of Variance

2/5	Representation of Experimental Designs		
2/7	Factorial Analysis of Variance	K&W Section III	Midterm Out
2/12	Random Factor Models & Quasi-F's	K&W 24	
2/14	Nested Designs	K&W 25	
	MIDTERM DUE 10:00 AM uploaded to BlackBoard		
2/19	Repeated Measures and Randomized Blocks	K&W Section V	
2/21			

Advanced Topics

2/26	Multicollinearity	CCWA 10	
2/28	Missing Data and Nonorthogonal Designs	CCWA 11	
3/5	Heteroscedasticity		
3/7	Autocorrelation	CCWA 15	
3/12	Categorical Dependent variables	CCWA 13	Final Out
3/14	Repeated Measures ANCOVA		
3/22	FINAL DUE 8:00 AM uploaded to BlackBoard		

CCWA: Cohen, Cohen, West, & Aiken (2003).
K&W: Keppel & Wickens (2004).