

**PSYC 5407 OO1
GRADUATE STATISTICS II
SPRING 2009**

I BASIC INFORMATION

Instructor: Dr. Lauri Jensen-Campbell
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Office hours: Tuesdays 10-10:50A; Thursday 2-3P or by appointment
Meeting time: Tuesdays and Thursdays 11:00A – 12:20P

GTA: Jason Popan
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GTA Office Hours: Tuesdays from 1-3 or by appointment
Lab Meeting Time: Mondays 5:30PM - 7:20PM

II PURPOSE

Course Description: This course is an intermediate course in graduate statistics that intended to provide a graduate level overview of advanced analysis of variance procedures and multiple regression procedures. Students should already be familiar with the computation of elementary statistics and such concepts as sampling distributions and statistical hypothesis testing. The course will emphasize the conceptual underpinnings of the techniques rather than mathematical computations.

Course Learning Goals and Objectives: This course is designed to provide hands-on experience in conducting analyses with SPSS-X. Computer applications of the statistical techniques that are covered will be emphasized. Homework exercises will be included to illustrate designs, analyze data, and provide experience in writing in APA style. Of course, it is impossible to touch upon all of statistical issues related to these topics. However, in combination with the readings, we will obtain a overview of the basic statistical techniques used in more advanced analysis of variance models and regression analyses.

III COURSE REQUIREMENTS

REQUIRED TEXTS

Cohen, J., Cohen, P., West, S., & Aiken, L. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers. (ISBN: 0-8058-2223-2).

Tabachnick, B.G., & Fidell, L.S. (2007). *Using multivariate statistics*. Boston, MA: Pearson, Allyn, & Bacon. (ISBN: 0-205-45938-2).

REQUIRED LAB MATERIALS

USB storage device to save homework and class exercises.

A calculator to be brought to all classes.

Student version of HLM 6, which can be obtained for free from <http://www.ssicentral.com/hlm/student.html>.

ADDITIONAL REQUIRED READINGS

There will be additional required readings assigned throughout the semester that are not part of your required textbooks.

RECOMMENDED READINGS OR WEBSITES

Primer and Refresher: <http://faculty.chass.ncsu.edu/garson/PA765/statnote.htm>

G*Power: <http://www.psych.uni-duesseldorf.de/aap/projects/gpower/>

David Kenny's Website: <http://davidakenny.net/kenny.htm>

Preachers Papers and Programs: <http://www.people.ku.edu/~preacher/>

MacKinnon's Website for Mediation: <http://www.public.asu.edu/~davidpm/ripl/mediate.htm>

EXAMS

There will be two take-home examinations. You will be given data sets and required to analyze and interpret the data. In addition, you will be required to write up your answers in APA style.

HOMEWORK

It is critical that you learn how to conduct and interpret analyses using computer software. As such, you will have weekly homework assignments. Each homework assignment will be completed by the following week in which it assigned. No late assignments will be accepted.

PROJECT

You will be required to find a data set related to your field of study that can be analyzed using the procedures discussed in class. You CANNOT use the same data set as you did in PSYC 5405 unless your hypotheses are substantially different. Turning in the same paper will be viewed as academic dishonesty. The purpose of the paper is to provide hands-on experience in conducting analyses covered in class and interpretation within your research area. The data set must be approved by the date noted on the syllabus. A 10-15 page, ***stapled*** write-up ***in APA style*** is due on the day listed on your syllabus. The paper will include all sections required in an APA paper (i.e., title page, abstract, introduction, method, results, discussion, references, tables, and figures). SPSS printouts should be included in an appendix (which is in addition to the 10-15 pages). *Projects not written in*

APA style will be penalized a LETTER GRADE. All papers will also be turned in electronically to screen for plagiarism. It is advisable that you also screen your documents prior to submission. Plagiarism will not be tolerated and will result in a 0 on the project.

PARTICIPATION/QUIZZES

All students are responsible for reading the assigned materials prior to class and coming to class prepared to discuss the materials. If I do not feel that students are reading, I will also give unannounced quizzes over the readings and/or class lectures. You will also be required to participate in class. As such, quizzes/participation will be part of your grade.

IV TENTATIVE POINT DISTRIBUTION AND GRADING POLICY

Homework (10 points apiece - 10 Assignments)	100
Midterm	100
Final	100
Paper	100
Participation/Quizzes	50

Total	450

GRADING

90% - up	A
80%-89%	B
70% -79%	C
65-69%	D
Below 65%	F

ACKNOWLEDGEMENTS

I wish to acknowledge the help of Leona Aiken during the preparation of the course. Portions of Leona Aiken's notes may be used in the PowerPoint presentations. This material is copyrighted and will be acknowledged as (Aiken, 2000) when used in the PowerPoint presentations. All notes, handouts, and data sets are the property of the instructor, are being copyrighted, and are for student use only.

V COURSE OUTLINE

I reserve the right to modify the schedule and assignments based on how the course is proceeding. If I feel that you are not reading, I may also introduce weekly quizzes as well.

Wk	Date	Lecture Topic	Reading Assignments (Additional Readings will be added throughout the semester)	Date:	Lab Exercises/Assignments	Assignment Due
ANOVA DESIGNS						
1	T 1/20	Review of Basic ANOVA Designs	T&F – Chapters 1-3	M 1/19	MLK Day. No Lab.	
	R 1/22					
2	T 1/27	Analysis of Covariance (ANCOVA)	T & F Chapter 6	M 1/26	SPSS – Review of ANOVA Designs	
	R 1/29					

3	T 2/3	Power and Effect Size	Cohen Power Primer Cohen (1988) – Chapter 1	M 2/2	SPSS: ANCOVA	HW1: REVIEW ANOVA HW DUE
	R 2/5	NO CLASS – THURSDAY 2/5 (SPSP Conference)				
4	T 2/10	Multivariate Analysis of Variance (MANOVA)	T & F Chapter 7 Huberty & Morris (1989)	M 2/9	Power and Effect Size	HW2: ANCOVA HW DUE
	R 2/12					
5	T 2/17	Cluster Analysis	Norušis, 2009	M 2/16	SPSS – MANOVA	HW3: Power and Effect Size HW DUE
	R 2/19					
REGRESSION AND MULTI-LEVEL MODELING						
6	T 2/24	Two Predictor Multiple Regression/Partial Relationships	CCWA – Chapters 1-3 T&F – Chapter 5	M 2/23	SPSS – Cluster Analysis	HW4: MANOVA HW DUE
	R 2/26					

7	T 3/3	Assumptions in Regression	TAKE-HOME MIDTERM HANDOUT	M 3/2	SPSS – Multiple Regression	HW5: CLUSTER ANALYSIS HW DUE
	R 3/5					
8	T 3/10	Regression Diagnostics & Missing Data	CCWA – Chapters 4, 10, 11 T&F – Chapter 4	M 3/9	Assumptions in Regression/Regression Diagnostics	No HOMEWORK DUE
	R 3/12					
	T 3/17	SPRING BREAK – NO LECTURE		M 3/16	Spring Break – NO LAB	
	R 3/19					
9	T 3/24	Regression Diagnostics & Missing Data	CCWA – Chapters 4, 10, 11 T&F – Chapter 4 3/24 – Take-Home MIDTERM DUE	M 3/23	Assumptions in Regression/Regression Diagnostics	No HOMEWORK DUE
	R 3/26					
10	T 3/31	Categorical/Independent Variables 4/2 – NO CLASS SRCD	CCWA – Chapter 8	M 3/30	Consultations for Proposals	HW6: Assumptions in Regression Homework Due
	R 4/2					

11	T 4/7	Data-Analytic Approaches/Hierarchical Analysis	CCWA – Chapter 5	M 4/6	Regression Diagnostics	PAPER PROPOSALS DUE
	R 4/9					
12	T 4/14	Logistic Regression	CCWA – Chapter 13 T&F – Chapter 10	M 4/13	Data Analytic Approach/Hierarchical Analysis	HW7: Regression Diagnostics Due
	R 4/16					
13	T 4/21	Mediation and Moderation	MacKinnon, Fairchild, & Fritz (2007)	M 4/20	Logistic Regression	HW8: Data Analytic Approaches Due
	R 4/23					
14	T 4/28	Multi-Level Modeling	CCWA – Chapter 14 T&F – Chapter 15 4/30 - FINAL EXAM HANDOUT	M 4/27	Mediation and Moderation	HW9: Logistics Regression Due
	R 4/30					
15	T 5/5	Wrap-up	5/5 – FINAL PROJECTS DUE	M 5/4	FINAL CONSULTS FOR PAPERS/REVIEW	HW10: Mediation and Moderation Due
	R 5/7					
16	5/11		FINAL EXAM DUE at NOON			