

PSY-6110: Quantitative Methods in Psychology - II

University of Toledo, Department of Psychology

Spring 2018; TR 11:10-12:30, UH 5150F

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Course Goals: This course builds on PSY 6100, Quantitative Methods in Psychology I, and aims to solidify knowledge of exploratory data analysis, *t*-tests, effect sizes, power, and ANOVA as well as provide an understanding of correlation, regression, multiple regression, and factor analysis. In addition, practical skills in computerized statistical analysis using SPSS will be emphasized, including using syntax for data management, data transformation, data analysis, and data modeling.

The University of Toledo abides by the Americans with Disabilities Act (equal and timely access) and Section 504 of the Rehabilitation Act of 1973 (non-discrimination on the basis of disability). If you have a disability and are in need of academic accommodations but have not yet registered with the Office of Accessibility (OA) (Rocket Hall 1820; 419-530-4981; officeofaccessibility@utoledo.edu) please contact the office as soon as possible for more information or to initiate the process for accessing academic accommodations. I also encourage students with disabilities receiving accommodations through OA to discuss these with me, after class or during my office hours, so that I may be better informed on how to assist you during the semester.

Prerequisites: PSY 6100/7100 or an equivalent course

Texts and Readings:

Primary

Field, A. (2013). *Discovering statistics using SPSS* (4th Ed.). Thousand Oaks, CA: Sage. (ISBN-10: 1412977525); <http://www.statisticshell.com/> <http://www.sagepub.com/field4e/main.htm>

Or: Field, A. (2018). *Discovering statistics using IBM SPSS Statistics* (5th Ed.). Thousand Oaks, CA: Sage. (ISBN: 9781526436566); <https://www.discoveringstatistics.com/> <https://edge.sagepub.com/field5e>

Howell, D. C. (2013). *Statistical Methods for Psychology* (8th Ed.). Belmont, CA: Wadsworth, Cengage Learning (ISBN-10: 1111835489); <http://www.uvm.edu/~dhowell/methods8/index.html>

Secondary

Boslaugh, S. (2005). *An Intermediate Guide to SPSS Programming: Using Syntax for Data Management*. Thousand Oaks, CA: Sage. (ISBN-10: 0761931856)

Green, S. B., & Salkind, N. J. (2016). *Using SPSS for Windows and Macintosh: Analyzing and understanding data* (8th Ed.). Hoboken, NJ: Pearson. (ISBN-10: 0134319885)

Other Helpful Supplies: Calculator, SPSS via UT; SPSS Graduate Pack (12-month renewable license; \$76 for standard [Base, Advanced, Regression], \$89 for Premium [everything but Amos])

Course Requirements:

1. Attend and participate in class.
2. Read the texts and other material when they are assigned.
3. Complete all homework assignments and have them turned in by the start of class.
4. Successfully complete the exams.
5. Use the computers during class just for stats; no email, shopping, Facebook, etc.

Grading: Relatively equal emphasis is placed on conceptual knowledge, as demonstrated on exams, and practical knowledge, as demonstrated on homework assignments. Class attendance is expected though no points are assigned. Lowest values for grades: A = 93% (525), A- = 90% (508), B+ = 87% (491), B = 83% (468), B- = 80% (452), C = 70% (396), D = 60% (339). I will assign grades based on how well you master the material but if the whole class does poorly on an exam or assignment, I will make adjustments. Late assignments lose 10% per day. Exam 1 = 30% Exam 2 = 30% Homework = 40%

Collaboration: It is often very helpful to discuss class or homework topics with classmates. However, you must prepare all the material submitted for a grade on your own. It is not permissible to submit any material prepared by another student. You also may not collaborate during an exam.

Schedule: A tentative schedule is below, though it may be adjusted depending on our pace. I anticipate 12 homework assignments, with one due almost every week. The schedule for the exams will be fixed.

Wk	Date	Topic	Reading	HW Due Tues.
1	1/16 1/18	Introduction, Orientation, and Review History and systems in data analysis; Data Transformations (Compute and recode), Data Functions (Split files, select and weight cases); Data Management (File import and export)	Howell: Ch 1 Field: Ch 1 & 2	
2	1/23 1/25	Data Management (continued), Data Restructure (Add cases, add variables, aggregate, cases to variables, variables to cases); Output Management System (OMS; capturing and reprocessing output)	Howell: Ch 2 & 3 Field: Ch 3 & 4 Behrens (1997) <i>EDA</i>	#1 SPSS Tutorial
3	1/30 2/01	OMS (continued) Review - Sampling Error and Confidence Intervals Review – Effect Sizes	Howell: Ch 4 & 7 Field: Ch 2, 5, & 9	#2 Data Management, Transformations, and Functions
4	2/06 2/08	Review – Power Review – Oneway ANOVA	H: Ch 8 & 11; F: Ch 11 Cohen (1992); McGrath & Meyer (2006)	#3 Sampling Distribution and the CLT
5	2/13 2/15	ANOVA Omnibus Statistics vs. Focused Contrasts (linear vs. nonlinear, weights)	Howell: Ch 11 Field: Ch 11	#4 Power, Effect Size, & ANOVA
6	2/20 2/22	ANOVA - Multiple Comparisons and Type I Error Control via Bonferroni with Multistage Adjustment (Holm/Larzelere & Mulaik) Multifactor ANOVA	Howell: Ch 12	#5 ANOVA Focused Contrasts
7	2/27 3/01	Multifactor ANOVA Exam 1	Howell: Ch 13 & 14 Field: Ch 13 & 14	#6 Multiple Mean Comparisons
8	3/06 3/08	No Class - Spring Break		
9	3/13 3/15	(Meyer out all week) Repeated Measures ANOVA Revisiting Interactions: Cell Means vs. Cell Residuals		
10	3/20 3/22	Simple Effects Analysis; Correlation Influences on Effect Sizes: Range Restriction and Enhancement	Howell: Ch 9, & 10 Field: Ch 13 & 7	#7 RM ANOVA
11	3/27 3/29	Differences between dependent and independent correlations Regression	Howell: Ch 9 & 10 Field: Ch 8	#8 Correlation
12	4/03 4/05	Multiple Regression	Howell: Ch 9 & 15 Field: Ch 8	#9 Regression
13	4/10 4/12	Multiple Regression Multiple Regression: Understanding Interactions (Moderation)	Howell: Ch 9 & 15 Field: Ch 10	#10 Multiple Reg.
14	4/17 4/19	Multiple Regression: Moderation; Centered vs. Uncentered Results Multiple Regression: Statistical Mediation	Field: Ch 10 Preacher & Hayes (2008)	#11 Moderation
15	4/24 4/26	Factor Analysis	Field: Ch 17	#12 Mediation
5/03	Exam 2 10-15-12:15			