

## PSY-6110: Quantitative Methods in Psychology - II

University of Toledo, Department of Psychology

Spring 2014; TR 11:00-12:15, UH 5150F

January 9, 2014

Instructor/TA:	Greg Meyer	Lindsay Roberts
Office:	UH 1065	UH 6511
Phone:	419-530-4312 (office) 419-531-4987 (home)	260-358-6324
Email:	<a href="mailto:gmeyer@utnet.utoledo.edu">gmeyer@utnet.utoledo.edu</a>	<a href="mailto:lindsay.roberts3@rockets.utoledo.edu">lindsay.roberts3@rockets.utoledo.edu</a>
Office Hours:	TR 1:00-2:00; or by appt.	M 12-2, R 12:30-1:30; or by appt.

**Course Goals:** This course builds on PSY 6100, Quantitative Methods in Psychology-I, and is designed to solidify knowledge of exploratory data analysis, *t*-tests, effect sizes, power, and ANOVA as well as provide an understanding of correlation, regression, and multiple regression. 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](mailto:officeofaccessibility@utoledo.edu)) please contact the office as soon as possible for more information and/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* (4<sup>th</sup> Ed.). Thousand Oaks, CA: Sage. (ISBN-10:

1412977525); <http://www.statisticshell.com/> <http://www.sagepub.com/field4e/main.htm>

Howell, D. C. (2010, 2013). *Statistical Methods for Psychology* (8<sup>th</sup> 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. (2014). *Using SPSS for Windows and Macintosh: Analyzing and understanding data* (7<sup>th</sup> Ed.). Upper Saddle River, NJ: Pearson. (ISBN-10: 0205958605)

**Other Helpful Supplies:** Calculator, SPSS Graduate Pack (12 month renewable license; \$90.25 for standard [Base, Advanced, Regression], \$101.00 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 ready to turn in at 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 every week. The schedule for the exams will be fixed.

Wk	Date	Topic	Reading	HW Due
1	1/07 - 1/09	Introduction, Orientation, and Review History and systems in data analysis	Howell: Ch 1 Field: Ch 1 & 2	
2	1/14 1/16	Data Transformations (Compute and recode), Data Functions (Split files, select and weight cases), Data Management (File import and export), Data Restructure (Add cases, add variables, or update, aggregate, cases to variables, variables to cases)	Howell: Ch 2 & 3 Field: Ch 3 & 4 Behrens (1997) <i>EDA</i>	
3	1/21 1/23	Output Management System (OMS; capturing and reprocessing output) Review - Sampling Error and Confidence Intervals	Howell: Ch 4 & 7 Field: Ch 2 & 9	#1 Data Management, Transformations, and Functions
4	1/28 1/30	Review – Effect Sizes & Power Review – Oneway ANOVA	H: Ch 8 & 11; F: Ch 11 Cohen (1992) McGrath & Meyer (2006)	#2 Sampling Distribution and the CLT
5	2/04 2/06	ANOVA Omnibus Statistics vs. Focused Contrasts (linear vs. nonlinear, weights)	Howell: Ch 11 Field: Ch 11	#3 Power, Effect Size, & ANOVA
6	2/11 2/13	ANOVA - Multiple Comparisons and Type I Error Control via Bonferroni with Multistage Adjustment (Holm/Larzelere & Mulaik) Multifactor ANOVA [Lindsay gone 2/12-15]	Howell: Ch 12	#4 Focused Contrasts
7	2/18 2/20	Multifactor ANOVA Repeated Measures ANOVA	Howell: Ch 13 & 14 Field: Ch 13 & 14	#5 Multiple Mean Comparisons
8	2/25 2/27	Review/Finish Exam 1		#6 Multifactor ANOVA
9	3/04 3/06	<b>No Class - Spring Break</b>		
10	3/11 3/13	Revisiting Interactions: Cell Means vs. Cell Residuals Simple Effects Analysis Correlation	Howell: Ch 14, 9, & 10 Field: Ch 13 & 7	
11	3/18 3/20	Influences on Effect Sizes: Range Restriction and Enhancement Differences between dependent and independent correlations [Meyer gone]	Howell: Ch 9 & 10 Field: Ch 7	#7 Correlation
12	3/25 3/27	Regression Multiple Regression	Howell: Ch 9 & 15 Field: Ch 8	#8 Correlation 2
13	4/01 4/03	Multiple Regression	Howell: Ch 9 & 15 Field: Ch 8	#9 Bivariate and Multiple Reg.
14	4/08 4/10	Multiple Regression: Understanding Interactions (Moderation) Multiple Regression: Moderation; Centered vs. Uncentered Results	Field: Ch 10	#10 Multiple Regression
15	4/15 4/17	Multiple Regression: Understanding Statistical Mediation Factor Analysis	Preacher & Hayes (2008) Field: Ch 17	#11 Moderator Analyses
16	4/22 4/24	Factor Analysis / Review Exam 2	Field: Ch 17	#12 Mediation