

Department of Educational and Psychological Studies  
EPS351 F: INTRODUCTION TO STATISTICS and RESEARCH DESIGN  
Mon/Wed/Fri 1:25-2:15 pm  
Merrick Building 217  
Spring Semester, 2013

**INSTRUCTOR:** Tyler Lefevor

**OFFICE HOURS:** Mondays 2:30-4:30  
Office: Merrick 219 (mini computer lab)  
Additional times available by appointment

**REQUIRED TEXT:** Gravetter, F. J., & Wallnau, L. B. (2010). *Essentials of Statistics for the Behavioral Sciences* (8<sup>th</sup> ed.). Wadsworth.

**FINAL EXAM:** April 30<sup>th</sup>, 2:00-4:30 p.m.

**COURSE DESCRIPTION:** The course will cover basic statistics relevant to the social sciences (e.g., central tendency, variation, t-tests, correlations), with emphasis on real world applications employing commonly used research designs. Students will acquire the tools necessary to interpret elementary statistical analyses and a foundation in the basic analytic methods used in conducting quantitative research in the behavioral sciences. Prerequisite: MTH 101 or above; EPS 201 (prerequisite or corequisite)

**COURSE OBJECTIVES:** The objective of the course is to provide a foundation in the basic concepts in statistics and research design used in the social sciences. Completion of the course will enable students to better understand and interpret the methods and results of social scientific studies. Specific topics covered include research designs (e.g., correlational vs. group-comparative, experimental vs. quasi-experimental), central tendency, variance/standard deviation, distributions, z-score transformations, distributions of statistics (most notably, the sample mean), standard error of the sample mean, inference for a population mean, z-tests, t-tests, analysis of variance (ANOVA), correlation, and regression. The emphasis of this course is on developing a solid understanding of the core concepts common to the majority of the commonly used statistical techniques, and how these statistical techniques are used to answer research questions in commonly encountered research designs.

**COURSE REQUIREMENTS AND EVALUATION**

Exam 1	15%	Friday, February 7 <sup>th</sup>
Exam 2	15%	Wednesday, March 21 <sup>st</sup>
Exam 3	15%	Wednesday April 30 <sup>th</sup> (2:00-4:30 p.m.)
Quizzes	15%	
Homework (3 at 5% each)	15%	
Final Project	20%	
Final Presentation	5%	

## 1. EXAMS

Three exams are scheduled approximately at approximately equal intervals throughout the semester. Exams will consist entirely of open-ended problems focusing on the material covered in that unit though they may build on material covered in earlier units. Exams must be taken at the scheduled time unless prior arrangements have been made. Make-up exams will be given only for exceptional circumstances.

## 2. DESCRIPTION OF ASSIGNMENTS AND GRADING

**Homework assignments** are used to assess student learning of class lectures and learning objectives. You may work in small groups, but each student must turn in his or her own assignment (no photocopies of group members' work). Homework assignments will consist of examples from the text, word problems, and calculations. Each homework assignment will be due the two class periods before the exam. Homework assignments are designed to mirror the type and content of questions that will appear on exams. Assignments are due at the beginning of class on the due date. Late work will only be accepted in extreme conditions and will be deducted 20% per day late.

**Chapter quizzes** will be used to encourage reading of the text and retention of the material from class. Quiz questions will emphasize the material from the chapter covered but may incorporate material from previous chapters. Quizzes will be given in the first 10 minutes of class. Students arriving more than 10 minutes late or not present will take a zero for the quiz. The lowest three quiz scores will be dropped.

The **final project** is designed to give students the opportunity to apply the concepts discussed in class. Students will come up with research questions and collect survey data to answer them. Students will then conduct the appropriate statistical analyses and draw appropriate conclusions.

The **final presentation** allows students to share the findings from their final project with the entire class. Students will prepare a 4-6 minute presentation based on their final project.

## 3. TEACHING METHODS

Each class will be composed of three activities:

1. Quizzes/practice problems from previous material (approximately 20% of class time).
2. Lecture/discussion of the new material associated with that class (approximately 60% of class time). Material will be presented assuming that each student has completed the reading.
3. Research problems and exercises (approximately 20% of class time). These will focus on applying new concepts and techniques presented.

**Blackboard:** The syllabus, lecture notes, and other materials will be posted on Blackboard. Blackboard website is located at: <https://www.courses.miami.edu/webapps/portal/frameset.jsp>

## Tentative Course Schedule

Reading is to be completed for the day on which it appears. This schedule may be altered upon instructor and student mutual agreement.

Date	Topic	Assignment
Monday	1/13	Syllabus, Introductions, Gathering Data
Wednesday	1/15	Introduction to Statistics Chapter 1
Friday	1/17	Frequency Distributions Chapter 2
Monday	1/20	Dr. Martin Luther King Jr. Day— <b>NO CLASS</b>
Wednesday	1/22	Frequency Distributions/ Central Tendency Chapter 3
Friday	1/24	Central Tendency
Monday	1/27	Variability Chapter 4
Wednesday	1/29	Variability
Friday	1/31	z-scores Chapter 5
Monday	2/3	z-scores
Wednesday	2/5	Probability Chapter 6
Friday	2/7	Probability Homework #1 Due
Monday	2/10	Review for test
Wednesday	2/12	<b>EXAM #1</b> (Chapters 1-6)
Friday	2/14	Distribution of Sample Means Chapter 7
Monday	2/17	Distribution of Sample Means
Wednesday	2/19	Hypothesis Testing Chapter 8
Friday	2/21	Hypothesis Testing
Monday	2/24	The <i>t</i> -statistic Chapter 9
Wednesday	2/26	The <i>t</i> -statistic
Friday	2/28	Independent Samples <i>t</i> -tests Chapter 10
Monday	3/3	Independent Samples <i>t</i> -tests
Wednesday	3/5	Independent Samples <i>t</i> -tests
Friday	3/7	Repeated Measures <i>t</i> -tests Chapter 11
Monday	3/10	Spring Break— <b>NO CLASS</b>
Wednesday	3/12	Spring Break— <b>NO CLASS</b>
Friday	3/14	Spring Break— <b>NO CLASS</b>
Monday	3/17	Repeated Measures <i>t</i> -tests Homework #2 Due

Wednesday	3/19	Review for test	
Friday	3/21	<b>Exam #2</b> (chapters 7-11)	
Monday	3/24	Introduction to Final Project	
Wednesday	3/26	Correlation and Regression	Chapter 14
Friday	3/28	Correlation and Regression	
Monday	3/31	Chi squared and Goodness of Fit	Chapter 15
Wednesday	4/2	Chi squared and Goodness of Fit	
Friday	4/4	Test Administration	
Monday	4/7	Introduction to ANOVA	Chapter 12
Wednesday	4/9	Introduction to ANOVA	Survey Questions Due
Friday	4/11	Introduction to ANOVA	
Monday	4/14	Repeated Measures ANOVA	Chapter 13
Wednesday	4/16	Repeated Measures ANOVA	
Friday	4/18	Two-factor ANOVA	
Monday	4/21	Two-factor ANOVA	Final Project Due
Wednesday	4/23	Presentations	Homework #3 Due
Friday	4/25	Review for test	
Wednesday	4/30	<b>EXAM #3</b> (chapters 12-15)	